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THE

GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

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VOL. IX.—THIRD SERIES.

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OWEN'S CHRYSANTHEMUMS.—The best Collection of proved Novelties and Select Varieties in commerce; awarded 5 Medals and 100 Certificates by National and other Societies. CATALOGUE free.
R. OWEN, Floral Nursery, Maidenhead.

CHOICE GERMAN FLOWER and VEGETABLE SEEDS.
CATALOGUES free on application.
FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

Standard Roses.
CHARLES TURNER can offer the above with tall stems and strong heads.
The Royal Nurseries, Slough.

Gentlemen.
MY DWARF ROSES are the finest Plants I have ever grown. Many kinds are bushes 3 to 6 feet high.
CHARLES NOBLE, Bagshot.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.
J. J. CLARK, Goldstone Farm, Brighton.

ORCHIDS.—Must clear out cheap to make room for importations shortly expected. Please write for LIST.

Specialty.—An Amateur's Collection of twelve distinct plants, 20s., 30s., 40s., and 50s. Specimen, carriage paid, 2s., 3s., 4s., and 5s. Cash with order.
W. L. LEWIS, F.R.H.S., Chaseside, Southgate, London, N.

ASPARAGUS, 5-yrs. old for forcing, grand roots, 7s. 6d. per 100; 3-yrs. old for planting, 25s. per 100. Cash with order. My Asparagus always makes top price at Covent Garden.
J. J. CLARK, Market Gardener, Goldstone, Brighton.

THE CHEAPEST ROYAL FAMILY in the WORLD, consisting of KING OF THE BRUSSELS SPROUTS, the QUEEN OF THE BROCCOLIS, the PRINCE OF THE CABBAGES, accompanied by his Sister the UNIVERSAL PRINCESS SAVOY. One packet of each variety, 4s., free by return.
R. GILBERT, High Park Gardens, Stamford.

STANDARD PLUMS, DAMSONS, and Single ALMONDS, per 100 or 1000. Price on application. Also AUCUBAS, 1 to 3 feet, per 100 or 1000.
FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

TO THE SUBSCRIBERS of the Gardeners' Royal Benevolent Institution.
ALICE GIBBONS, of Stratton, Cirencester, solicits Votes on behalf of her father, ISAAC GIBBONS, who is totally unable to work, and quite dependent on friends; his wife died on December 13, 1890.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next, January 5.
DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 5, at half-past 12 o'clock precisely, 500 lots of HYACINTHS, TULIPS, CROCUS, and other BULBS, just received from Holland.

On view morning of Sale, and Catalogues had.

Wednesday Next.

GREAT SALE of LILIES and BULBS.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 7, at half-past 12 o'clock, 10,000 LILIIUM AURATUM, 5400 L. KRÄTZERI and RUBRUM, 5000 LONGIFLORUM, and 3000 other LILIES, all received from Japan in splendid condition; 600 LILIIUM SZOVITZIANUM, 50,000 KENTIA and other PALM SEEDS, AFRICAN TUBEROSES, an assortment of Hardy English-grown LILIES, a few lots of DUTCH BULBS, NARCISSUS, GREENHOUSE PLANTS, and FERNS, from an English Nursery; PALMS, &c.

On view morning of Sale, and Catalogues had.

600 Liliun Szovitzianum. - Just arrived.

Just arrived from the Caucasian Alps.

MESSRS. PROTHEROE AND MORRIS will include in their SALE of LILIES, on WEDNESDAY NEXT, January 7, at half-past 12 o'clock, an importation of 600 LILIIUM SZOVITZIANUM, just arrived from the Caucasian Alps. This is a most beautiful hardy Lily, producing spikes of 15 to 20 rich golden-yellow flowers, deliciously fragrant.

On view morning of Sale, and Catalogues had.

Wednesday Next.

GREAT SALE of LILIES.

10,000 Liliun auratum. 2,000 Liliun Kramerii.
4,000 " album Krætzleri. 1,000 " Leitchii.
1,400 " rubrum. 1,000 " platyphyllum.
5,000 " longiflorum. 1,000 " Batemanniae.
Just received from Japan. Several of the Cases have been examined, and the Bulbs are in splendid condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of LILIES on WEDNESDAY NEXT, January 7, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

KENTIA and other PALM SEEDS.

15,000 KENTIA FORSTERIANA.
15,000 " BELMOREANA.
10,000 PITCHOSPHERA ALEXANDRE.
4,000 COCOS ROMANOFFIANA.
All in splendid condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on WEDNESDAY NEXT, January 7, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 9, at half-past 12 o'clock, CATTLEYA LABIATA PERCIVALIANA.

A fine importation of this most lovely winter-flowering Cattleya. The plants now offered are in excellent order, with sound dormant eyes. This Cattleya is becoming scarce in its native home, and the difficulties of collecting it have so greatly increased, that it is as well for intending Buyers to seize this opportunity.

Also an importation of a DENDROBIUM from virgin forests and far-outlying districts, never before searched. This lot comprises many remarkably distinct pieces, from which it is more than possible that fine forms of Schrodere, Gulbertii, the white densiflorum, Griffithianum, and quite new kinds will be found. From descriptions given to our Collector by the coolies, we believe that the plants now offered are geographical forms of D. densiflorum, with larger and more brilliantly-coloured inflorescences, white, pink, and yellow; they are from a high elevation, and no plants have been collected before in the mountains where our Collector found these. The plants have dormant eyes, and pseudobulbs well set with bloom-buds.

DENDROBIUM, "large yellow-flowering species," very free blooming.

DENDROBIUM, "large purple and white flowers." This is, no doubt, a form of D. nobile, and grand vars. are amongst the plants offered.

PHAIUS species, very large bronze and white flowers, probably the new Phaius Mannii, the grandest Phaius known, and no collection of Orchids should be without this magnificent exhibition plant.

CYMBIDIUM LONGIFOLIUM, very rare and fine.

" new var. of GRANDIFLORUM, probably the largest flowered Cymbidium known.

CYMBIDIUM.—"Section of eburneum." Flowers large, waxy, white, very sweet-scented. Found growing in ditches in Bhootan.

ONCIDIUM PAPILLO MAJUS. BRASSAVOLA GLAUCA. BARKERIA SPECIES, with red flowers, native name, "Morning Glory;" very handsome and free-flowering.

EPIDENDRUM XANTHIMUM. - Very scarce. Flowers are bright yellow and orange, produced in masses. The crimson-flowered variety will probably be amongst these, as they are mixed, and offered as received.

CYPRIPEDIUM (Sander's varieties of insigne type), "with white and yellow flowers;" probably C. insigne, or a form of that species. These are well worth the attention of purchasers, having been collected in a cold region, near Bhootan; and, from the descriptions and drawings of our Collector, magnificent varieties are amongst the plants offered. See Collector's Drawings.

And many other extremely fine Orchids, for descriptions of which see Catalogue.

Also 100 fine Tubers of the Climbing GLORY LILY, Gloriosa superba.

On view morning of Sale, and Catalogues had.

East Dulwich, S.E.

JANUARY 14, 1891.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Seeger & Tropp to sell by AUCTION, on their Premises, the Orchid Nurseries, East Dulwich, S.E., on WEDNESDAY, January 14, at half-past 12 o'clock, a large and selected COLLECTION of well-established ORCHIDS, including:—

Odontoglossum excellens
Colia bella, in bud or flower.
This plant was awarded a First-class Certificate by the Royal Horticultural Society, December 10, 1889.
Sobralia leucoxantha, true
" xantholeuca
Lælia anceps Schrodere
Maxillaria Sanderiana, in bud or flower
Cyrtopodium, embracing very many rare and choice hybrids
Odontoglossum Alexandrie, in large quantity
Cymbidium elegans, fine specimen
Cælogyne cristata Lemoniana, extra fine specimen
Oncidium Mantini
Lælia elegans Wolstenholmei, 7 bulbs, 6 with leaves
" " Turneri
" " irrorata
Cattleya Hennisiana, a fine lot
" labiata autumnalis, extra fine specimen.
This is the true old species
" guttata munda (Rehb. f.)
Vandas—a choice collection of about 100 plants, to be offered in one lot, among which are large, well-leaved specimens, and special varieties, true to name.

and very many other choice and rare ORCHIDS, the whole of which are well-grown healthy plants. The Sale will also include importations in best condition of the beautiful Lælia crispa, Oncidium tigrinum, Odontoglossum pichellum majus, Lælia majalis, &c.

The plants will be arranged a week prior to the day of Sale, and Messrs. Seeger & Tropp cordially invite a visit of inspection. In the event of frost, purchases can remain on the Premises until the weather is favourable for their safe transit.

The nurseries are within 5 minutes' walk of East Dulwich Railway Station, L.B. & S.C.Ry., and frequent trains arrive from London Bridge and Victoria.

Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

LILIES RECEIVED DIRECT FROM JAPAN.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 7, an immense importation of LILIES, received from Japan, in extra fine condition, comprising 10,000 Liliun auratum, L. longiflorum, L. speciosum, rubrum, and album, &c.; also 5000 TUBEROSES and AMARYLLIS, 10,000 LILY OF THE VALLEY Crowns, &c.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

1000 choice named Standard and Dwarf ROSES, Pyramid and Dwarf-trained APPLES, PEARS, PLUMS, CHERRY, and other FRUIT TREES, Hardy Ornamental LAURELS, PRIVET, CONIFERS, and other SHRUBS, AZALEAS from Ghent, SPIRÆAS, GLADIOLI, LILY OF THE VALLEY Crowns and Clumps, TUBEROSES, LILLIUMS, also HYACINTHS, TULIPS, CROCUSES, NARCISSUS in quantity, &c.

MR. J. C. STEVENS will sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, January 7 and 10, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

WANTED TO RENT, established and sound NURSERY and SEED BUSINESS in good locality, or a PARTNERSHIP in a good going concern treated with. Particulars to FLORIST, box 304, Willing's Advertising Offices, 125, Strand, W.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense Stock of Orchids,

And they are constantly receiving Importations from various parts of the world.

NEW DESCRIPTIVE PRICED CATALOGUE

Post-free on application to

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

A Small Collection of Orchids for Sale.

MESSRS. FRED. HORSMAN AND CO. have to DISPOSE PRIVATELY of a COLLECTION of ORCHIDS, amongst which are many choice kinds. All are in perfect health. They are suitable for cool and intermediate-house culture. As the owner is going away, early application for List should be made; preference will be given to anyone taking the Collection as it stands. To a beginner, this presents an opportunity rarely to be met with. The plants, if sold, can remain until the weather becomes suitable for forwarding.

FRED. HORSMAN AND CO., Colchester.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that the FIFTY-SECOND ANNUAL GENERAL MEETING of the Members of this Institution will be held at "SIMPSON'S," 101, STRAND, W.C., on THURSDAY, the 15th of January next, for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and electing Officers for the ensuing year, and on other affairs; also for the ELECTION of NINE PENSIONERS. The Chair will be taken at 3 o'clock. The Ballot will close at 5 o'clock precisely.

The Voting Papers have all been delivered. Any Subscriber not having received one is requested to make immediate application.—By order,

EDWARD ROGER CUTLER, Secretary.
50, Parliament Street, S.W.—Dec. 18, 1890.

Wakefield Public Park.

To LANDSCAPE GARDENERS and OTHERS.

WANTED, DESIGNS for Laying out of a PUBLIC PARK for the City of Wakefield, area 28½ acres. Persons desirous to compete may obtain, on written application, full particulars from—

W. H. KINGSWELL, Hon. Sec.
4, Northgate, Wakefield.

Landscape Gardening.

B. MAILER AND SONS are prepared to Furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

THE TOWER FURNISHING COMPANY (Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus. Address, SECRETARY, 43, Great Tower Street, E.C.

HENDER'S PETUNIAS.—The Premier

Strain of the day. Great care in hybridising for many years places our strain above all others. Seed all new. Saved from grand flowers. Double Fringed, fine, 3s. 6d. and 2s., per sealed packet; Single Fringed, 2s.; Single, plain-striped, 1s. and 2s. Sealed packets only.

HENDER'S BALSAMS, Double, 8 vars., 2s. 6d.; Mixed, 1s. CARNATIONS, wonderful strain, flowering in four months after sowing. Various colours. Clove-scented. Nearly all double. 1s. and 2s. 6d. Packets.

Illustrated Seed CATALOGUE, post-free.

HENDER AND SONS, Plymouth.

Many Acres of Lilies of the Valley!

T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

To Nurserymen, Builders, Local Boards, Vestries, and others who intend planting Trees and Shrubs this season.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to offer an extensive stock of FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c., which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine SEAKALE and RHUBARB for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

CHINESE FAIRY LILIES, direct from the Chinese Mountains.

JAMES CARTER and CO.'S first importations have now arrived in the finest condition. Magnificent Bulbs, price 1s. each, 10s. 6d. per dozen, carriage free. We were the original introducers of this attractive Lily into England, and have again secured the best Bulbs of the year.

Seedsmen by Royal Warrants to H.M. The Queen, and H.R.H. The Prince of Wales, 237 and 238, High Holborn, London.

WANTED, AN OFFER for 2300 LOCKIE'S PERFECTION CUCUMBER SEED, true. Apply to J. BUSBY, Blendworth Lodge, Horndean, Hants.

Profitable Plums. Fine Standards.

GEORGE BUNYARD AND CO., Maidstone, can offer the Czar, Victoria, Gisborne's, Belgian Purple, Blue Prolific, Engleheart, Cox's Emperor, and the Waterloo or Kent Bush, the only one that produced a crop this past season. For prices, &c., apply below.

N.B.—Some of the above in Half-standard and Feathered Trees, and all other Fruits.

The Old Nurseries, Maidstone.

HARDY AZALEAS.—A selection of the most beautiful, many of which were raised in this Nursery, well furnished plants, covered with buds, from 1½ to 3 feet high.

AZALEA MOLLIS.—Very fine plants up to 2½ feet, well budded.

AZALEA OCCIDENTALIS × MOLLIS.—White, with lemos blotch—very beautiful, offered for the first time.

ANTHONY WATERER, Knapp Hill Nursery, Woking, Surrey.

Prize Cob Filberts.

MR. COOPER, F.R.H.S. (late of Calcut Gardens), is the largest grower in the kingdom of Prize Cob Filbert Trees for Sale. Descriptive and Price LISTS on application to Mr. COOPER, Western Elms, Reading, Berks.

H. LANE AND SON solicit an inspection of their extensive Nursery Stock, covering over 150 acres, consisting of DECIDUOUS and EVERGREEN TREES and SHRUBS in great variety; ROSES, FRUIT TREES, RHODODENDRONS, FOREST TREES, CLEMATIS, IVIES, &c., all in fine healthy condition. Descriptive CATALOGUE free. The Nurseries, Berkhamsted, Herts.

FOR ORCHIDS, and GARDENERS
to Grow Them, apply to SANDER'S, St. Albans. The finest
stock of Orchids in the World. 30 minutes from St. Pancras.

Always Sow the Best.

J. E. DIXON'S President Carnot BRUSSELS
SPROUTS. Hundreds of Testimonials.

Lord Scarborough's Gardener says:—"It is the hardest and
best variety grown."

Price 6d. and 1s. per packet; per oz., 1s. 6d.; per lb., on
application.

J. E. DIXON, Seed Merchant, Gainsborough.

HARTLAND'S YEAR-BOOK of Rare Seeds
for 1891 is now being gratuitously posted to all his
English and Scotch customers. If any reader of the *Gardeners' Chronicle* wishes for a copy, and that he has not
hitherto seen W. B. H.'s "Trade List," that are always
recherché and original, sixpence in stamps will secure the
"Year-Book," and 2s. 6d. the "Floral Album" of Conference
Daffodils. Please write for one, or both, and you shall secure
the thanks, with the best services of WM. BAYLOR HART-
LAND, F.R.H.S., Old-established Seedware House, 24, Patrick
Street, Cork. (Please quote *Gardeners' Chronicle*.)

TO FORESTERS and PLANTERS.
SWEET CHESTNUTS, extra stout, 4 to 7 feet.
ASH, 2 to 4 feet, and 5 to 8 feet.
PINUS AUSTRIACA, handsome, 4 to 6 feet.
All fine stuff. For special terms, apply to
GEORGE BUNYARD AND CO., Old Nurseries, Maidstone.

Seed Potatoes.

H. AND F. SHARPE'S WHOLESALE
LIST OF SEED POTATOES comprises all the best
varieties under cultivation. They have been grown from
selected stocks expressly for seed purposes, and the quality
this season is exceptionally good.

Seed Growing Establishment, Wisbech.

ANTHONY WATERER invites an
inspection from intending Planters to the following
well-grown TREES, having stout, straight stems, fine
heads, and splendid roots, all having been transplanted
within two years:—

ACACIA BESSONIANA, 12 to 14 feet.

ACER DASYCARPUM, 12 to 20 feet.

" WIERII LACINIATA, 10 to 14 feet.

" NEGUNDO VARIEGATA, Standards, 8 to 10 feet.

" REITENBACHII, 12 to 14 feet.

" SCHWEDLERII, 12 to 16 feet.

" WORLEYII, 12 to 14 feet.

ASH, Mountain, 12 to 14 feet.

BEECH, Common, 10 to 12 feet.

" Purple, Pyramids, and Standards, 10 to 20 feet.

BIRCH, Silver, 12 to 14 feet.

CERASUS SEROTINA, 12 to 14 feet.

CHESTNUTS, Horse, 14 to 16 feet.

" Double White, 10 to 16 feet.

" Scarlet, 12 to 18 feet.

" Spanish, 12 feet.

ELMS, English, 10 to 12 feet.

" Guernsey, 10 to 12 feet.

LIMES, 12 to 18, and 20 feet.

" EUCHLORA, 12 to 14 feet.

" Silver-leaved, 10 to 14 feet.

LIQUIDAMBER, 8 to 10 feet.

MAPLE, Norway, 12 to 16 feet.

OAK, English, 10 to 14 feet.

" Scarlet American, 12 to 14 feet.

PLANES, 12 to 16 feet.

POPLAR CANADENSIS NOVA (the true variety), 12 to 16 feet.

SYCAMORE, Common, 14 to 16 feet.

" Purple, 14 to 16 feet.

THORNS, Double Scarlet, 8 to 10 feet.

" White, 8 to 10 feet.

TULIP TREES, 10 feet.

WALNUTS, Common, 10 to 12 feet.

WEeping TREES.

BEECH, Weeping, Pyramids, and Standards, 8 to 12 feet.

" Weeping, Purple, Pyramids, and Standards, 7 to 12 feet.

BIRCH, Young's Weeping, Pyramids, and Standards, 8 to 14 feet.

" Cut-leaved Weeping, 10 to 12 feet.

ELMS, Weeping, Pyramids, and Standards, 7 to 14 feet.

LARCH, Weeping, Pyramids, 6 to 10 feet.

POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet.

Knap Hill Nursery, Woking, Surrey.

BULBS—BULBS—BULBS.

Hyacinths, Tulips, Crocus, Narciss, Spirea, Lily of the
Valley, Liliolum, Gladiolus, American Tuberoses, still in stock.
Customers at liberty to come and select for themselves at the—
NEW HAARLEM BULB WAREHOUSES,

34, Mansell Street, Aldgate, City, London.

Proprietors—MICHAEL RAINS AND CO.

Reg. Tel. Address—"BIOTICUS, London." Established 1856.

CATALOGUE on application.

The Best Present for a Gardener.

VINES and VINE CULTURE.

The most complete and exhaustive Treatise on
Grapes and their Culture ever published.

New Edition.

Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.

STANDARD PLUMS, DAMSONS, and Single

ALMONDS, per 100 or 1000. Price on application. Also

AUCUBAS, 1 to 3 feet, per 100 or 1000.

FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

Home-grown Vegetable and Field Seeds.

H. AND F. SHARPE will be pleased to
make special offers of their fine selected stocks of
VEGETABLE and FIELD SEEDS of 1890 growth, and
raised from carefully selected stocks. The quality is excep-
tionally fine, and prices low.

Seed-Growing Establishment, Wisbech.

SPECIAL OFFER.—1000 RED CURRANT
TREES (Houghton Castle), good strong stuff, at 15s.
per 100.

E. BONNER, Rose Nurseries, Car-Colston, Bingham.

WEBBS' SPRING CATALOGUE FOR 1891,

Beautifully Illustrated with Five Coloured
Plates, and hundreds of Engravings, and con-
taining complete Cultural Instructions; also
an original article on "Artistic Gardens," &c.

NOW READY, POST-FREE, 1s.,

which may be deducted off subsequent Orders.
Gratis to Customers.

Seedsmen by Royal Warrants.

WORDSLEY, STOURBRIDGE.

THE PENNY PACKET SEED COMPANY.

Having now Posted our CATALOGUE, 1891, to all our Cust-
omers, we shall be obliged if any who may have failed to receive
this as usual will communicate with us. The Catalogue will
be sent to intending purchasers, Gratis, on application.

BIDDLES AND CO., Loughborough, Leicestershire.

HENRY CANNELL & SONS' KENTISH SEEDS.

Certainly the Best in England.

OUR warm CLIMATE, more favourable
SOIL, and NATURAL FACILITIES, which no other
seed growers APPROACH, with the energetic, EXTEN-
SIVE, and DETERMINED business ways we adopt, both to
GROW and supply DIRECT from our FIELDS, enables us to
RETAIL at nearly wholesale prices, and deliver carriage free.
Samples also free, which kindly COMPARE with your previous



supply and neighbours, and you will be SURPRISED at the
BOLDNESS, colour, and pure STRAINS of OURS above
those of the others (who have to purchase and chance
all their seeds), you will at once REALISE the CORRECT-
NESS and VALUE of giving ATTENTION to this announce-
ment. Send for ours, which will be found the most practical
and useful of all Catalogues for 1891, beautifully illustrated,
and showing plainly the secrets of high-class cultivation,
and descriptions of all valuable newly-introduced Flowers and
Vegetables.

PERFECT SEEDS ONLY FROM

**H. CANNELL & SONS,
SWANLEY, KENT.**

SELECT VEGETABLE
SEEDS
CHOICE FLOWER
SEED POTATOS GARDEN TOOLS SUNDRIES
BEST QUALITY ONLY PRICES MOST MODERATE
DELIVERED FREE BY RAIL OR PARCEL POST
ILLUSTRATED DESCRIPTIVE
PRICED CATALOGUE No 389
POST FREE ON APPLICATION
DICKSON'S SEED GROWERS CHESTER

BASON'S WONDERFUL "NEW MILL-TRACK" MUSHROOM SPAWN

is the best, and has achieved more success than any other
Spawn in the world, vide Press Notices and recent Testi-
monials, with dates, from leading authorities throughout the
Kingdom. Price, 6s. per bushel of sixteen cakes, the largest
ever offered (cases and packing free).

Testimonial from Mr. J. W. KIRK, Gardener to the Right
Hon. Lord Selborne, Blackmoor, Petersfield, Hants, Nov. 22,
1890:—"I have a grand crop of splendid Mushrooms from your
'New Mill-track' Spawn. The beds are quite a picture. I cut
in exactly 5 weeks from time of spawning. The Mushrooms
are of excellent quality. I may say I have grown Mushrooms
a number of years with success, but yours is certainly the best
Spawn I ever used."

Sole Proprietor and only Manufacturer of the "New Mill-
track" Mushroom Spawn for Home and Export, WILLIAM
DD. BASON, 25, Victoria Buildings, Wolverhampton.

MANUFACTORIES—Tempest Street; Town Wells Fold; and
Finchfield, Wolverhampton.

THOMAS PERKINS AND SONS,
34, Drapery, Northampton,
Have a large Stock of the following, well-grown, and good
Roots:—

ASH, common, 2 to 3, 3 to 4, and 4 to 5 feet.

ALDER, 2 to 3 feet.

BEECH, 2 to 3, and 3 to 4 feet.

BIRCH, 2 to 3, and 3 to 4 feet.

BLACKTHORN, per sample.

BROOM, white, 2 to 3 feet.

DOGWOOD, red, 2 to 3 feet.

CHESTNUT, Horse, common, stout for avenues.

FIR, Larch, 1½ to 2, 2 to 3, and 3 to 4 feet.

" Scotch, 1 to 1½, and 1½ to 2 feet.

GORSE, common, transplanted and seedling.

HAZEL, 2 to 3, and 3 to 4 feet.

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THE
Gardeners' Chronicle.

SATURDAY, JANUARY 3, 1891.

THE "CHRONICLE" JUBILEE.

WHILE annual or even more frequent
stock-takings are essential to success in
business, jubilee reckonings and balance-sheets
must needs be of the highest interest, and even
of national importance. For it is largely through
horticulture that we live and move, and have
our being, and every day it is becoming of more
importance to the welfare of the body politic.
Peering back into the mists and shadows of the
fifty years that have come and gone since the
strong Doctor and the fortunate gardener
launched the *Gardeners' Chronicle*, the most
marked difference observable between then
and now is the enormous extension of horti-
cultural knowledge and practice. Fifty years
ago horticulture was infinitely more of a select
guild, or art, than it is to-day; its secrets were
then known, its pleasures enjoyed, by compara-
tively few. Those who mastered most of its
secrets seemed disposed to keep them to them-
selves. Nor can we marvel, however much we
may regret, this narrowness of spirit; for it
was generally that the possessor of the greatest
number of horticultural secrets was the most
fully equipped for wringing success from Nature,
or commanding it through the ministry of Art.
Both alike were very largely empirical fifty
years ago—they were feats of memory rather
than efforts of intellect. And truly there
were giants of memory in those days. Crammed
full of Loudon and the older writers, though
their maxim was thorough, their manner was
ponderous, and daily adding to their muster-roll
of secrets, facts gleaned from experience,
many of the older practitioners became living,
working encyclopædias. They were looked
up to with veneration by the young gar-
deners of the period, their word was accepted
as law, and their advice as the only gospel of
success—and deservedly so, to a great extent, for

their knowledge ran deep. This was greatly to their credit, and it was not their fault if it ran in rather narrow channels, as it could hardly do otherwise.

There were few or no broad streams of literature, either monthly or weekly, when the *Gardeners' Chronicle* was founded. Individualism ruled and reigned over the whole field of horticulture in those days. The field was much narrower than now, but was it or was it not as fully occupied? Those with the widest knowledge of past and present will probably be the least disposed to dogmatise. Extreme opinions are held on the question. The good old times, the grand old men, dwarf modern gardeners and their doings into pigmies. True, there are now many more of them; but what of that, if it takes more than one modern gardener to rival one of the giants of the olden times? No one disputes that the stream of horticulture has broadened, but what if it has also shallowed in equal or greater measure? Be that as it may, the broadening is a national blessing; for just as a rushlight is better than absolute darkness, so the merest taste of horticultural pleasures is to be preferred to none. The weekly issues of the *Gardeners' Chronicle* and its cottagers' gardeners' calendars with other means, has done good work in bringing the pleasures and profits of gardening within reach of the industrial classes and struggling masses. Nor is it the fault of this great source of light and leading if the knowledge of modern horticulturists has not been much deepened as well as indefinitely widened. Prior to its advent, the diffusion of knowledge was necessarily slow; it was mostly handed down by tradition, from father to son. This mode of transmitting knowledge had other defects besides its slowness. It arrested growth, the same old secrets were retailed in the same way, and resulted in the same consequences, provided the conditions were the same. But here the most fertile cause of failure came in for the most potent factor among all the many conditions of production, this was and is the living gardener, and of these there were never two exactly alike. Hence the dangers and difficulties of the ancient regimen, with its endless burdensome series of cultural secrets carried into practice by cultivators of infinitely varied capacities and endowments. But where the cultural secrets were valuable, and were repeated by gardeners of equal talents, great and good results were often reaped in the olden times. The *Gardeners' Chronicle* did great and good work by shifting the basis of cultural and productive force from the old empiricism, with its series of cast-iron rules, to the surer and more durable foundation of intellectual activity. Everything is of course possible to the latter, which knows of neither exhaustion nor finality.

The *Gardeners' Chronicle* came on to the horticultural field like a shock of corn in its season. About the year 1830 there had been a great quickening among the dry bones of horticultural science and practice. This had created an insatiable desire for more horticultural light and sounder leading. The *Gardeners' Chronicle*, and the "Theory and Practice of Horticulture" by its first Editor, partially satisfied and indefinitely extended the demand which the supply of almost a library of weekly papers has not yet been able to satiate.

The prospectus and first Leader of the *Gardeners' Chronicle* read in their comprehensive fulness and far-reaching scientific and practical aims, like the announcements of the latest

horticultural venture of the year 1890. Even the list of contributors will vie in might, if not in number, with that which the paper announces to-day. The first number offered to its readers a similar blend of science as the basis of practice as that found in December 27, 1893. From the first, too, the *Gardeners' Chronicle* news, foreign and domestic, its full chronicle of passing horticultural events, and of the kindred pursuits of agriculture and rural economy, have been so copious and complete, as to earn for the paper the well-deserved title of the *Times of Horticulture*. Says the first Leader, January 2, 1841:—"Gardening in all its branches, market gardens, kitchen gardens, orchards, forcing-houses, shrubberies, flower gardens, conservatories, lawns, nurseries, plantations, forests, rural

dener's friend, collecting what is useful to him, opposing wrong, defending right, and maintaining by every proper means the legitimate interests of all branches of knowledge connected with the subjects to which our journal is devoted."

Some twenty years ago it generously gave me much space to discuss the intellectual and social status and monetary reward of gardeners. It must be confessed, that notwithstanding various ameliorations of condition, the opinion very generally prevails among practical gardeners, that the advancement in their social and material status has not kept pace with their intellectual development, the multiplied demands on their time and energies, nor with the enormous progress made in the science and practice of horticulture.

But as to this latter, perhaps we moderns had better write with tremulous pen, and speak with bated breath. Careful reading of a few echoes from the *Gardeners' Chronicle* of 1841 would not only bear very favourable comparison with current horticultural literature, but might clip the wings of the youthful pride that takes for granted the enormous superiority of our present day horticulture over that of fifty years ago. Even so long ago as January 2, 1841, horticulture seemed to have reached the flood-tide of a great revival. Robert Errington, one of the most careful observers, and a very able practical gardener writes "On the actual state of Horticulture," in the seventh issue, of the horticultural progress of the previous seven years as equally astonishing, "whether we consider the immense quantity of new plants introduced, the stimulus given to new methods of cultivation by means of horticultural societies, or the interchange of ideas which has taken place through the various periodicals devoted to the art." This article is so remarkable as to deserve republication at the present day. In view of the Chrysanthemum centenary so brilliantly and yet so sadly closed in the loss of Shirley Hibberd, it is interesting to note that Mr. Errington says the flower has been much improved. Among Orchids, "wonders have been performed." Camellias may be had in bloom from October to May with the greatest ease, the Lily of the Valley and Neapolitan Violets may be had in bloom from November to May. The forcing of Roses, specimen dwarf plants of Chinese Azaleas and Cactuses, also convert the dulness of winter into the gaiety of spring. The introduction of exotics has also kept pace with other improvements. The stimulus given through horticultural societies to the superior culture is astonishing, and where botanical rarities are to be banished from the flower garden, greater variety both in masses and richer colour are being introduced, and less crowding indulged in.

"Landscape gardening has come in most decidedly for its share of improvement. That vague indescribable thing, called a shrubbery in former times, and which has very aptly been compared by Gilpin and others "to a snake with its tail in its mouth," has given place generally in modern gardening to picturesque masses and groups, presenting endless intricacy of outlines, and of course creating fresh interest at every step."

The growing taste for arboreta fostered by the splendid accessions just made to the Conifer family, was also adverted to. The principles of acclimatisation as regards the culture of Pears and other fruits; mound planting on stones and light soils as aids to earlier and higher maturity; eulogiums on the "Theory of Horticulture," and especially the chapter on Atmospheric Temperature, the importance of a moderate night

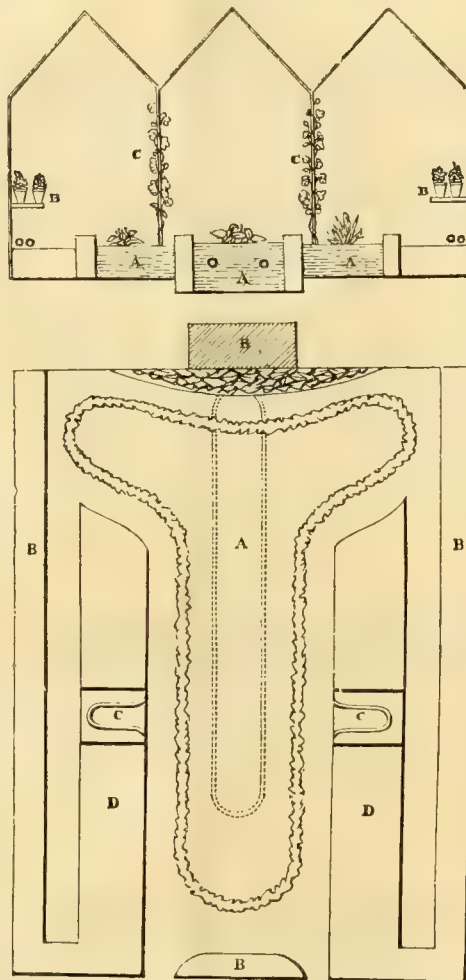


FIG. 1.—MRS. LAWRENCE'S ORCHID HOUSES AT EALING PARK: ONE OF THE EARLIEST ILLUSTRATIONS. (SEE P. 16.)

and garden architecture, landscape gardening, walks, roads, and all the multifarious matters connected with these branches of rural economy, are the points towards which our attention will be more particularly directed." Florists' flowers, vegetable physiology, systematic botany, vegetable chemistry, the gardening and agriculture of the British colonies, and the exposure of frauds—a function that the paper has never shrunk from—were also promised due attention.

The improvement of the education and condition of gardeners, the increase of their personal comfort and consequent elevation in the scale of society, was also promised in the first Leader, which contained also the following words:—"Our great object, in fine, will be to make our paper, in the truest sense of the word, the gar-

temperature, and of apportioning the amount of heat to the degree of light, the superiority of solar to fire-heat, and the practical importance of employing both to the uttermost by the use of impervious night covering for hot-houses, as illustrated by Sir Joseph, then Mr. Paxton of Chatsworth, are all crowded into this wonderful article of Mr. Errington's of fifty years ago. One can hardly take leave of him without a note of hearty admiration, and without asking ourselves which of us moderns could cram so much good sterling stuff into two columns of the *Gardeners' Chronicle* of January 3, 1891. *D. T. Fish.*

of every work of importance on the subject which may appear. Connected with this part of the plan will be a WEEKLY CALENDAR OF GARDENING OPERATIONS, given in great detail, and so adapted to the varying seasons as to form a constant assistance to the memory—Foreign and Domestic Correspondence upon Horticultural subjects—Reports of Horticultural Exhibitions and Proceedings—Notices of Novelties; in short, everything that can tend to advance the profession and benefit the condition of the workman, or which may conduce to the pleasure of his employer. Thus the GARDENER, the FORESTER, the RURAL ARCHITECT, the DRAINER, the ROAD-MAKER, and the COTTAGER, will all have the improvements in their respective pursuits recorded.

GARDENING is in many respects the art of creating an ARTIFICIAL CLIMATE, similar to that in which plants are naturally found: evidence, however, regarding the real nature of climate, as concerns vegetation, is greatly wanted.

PHYSIOLOGICAL INQUIRIES, and all those interesting topics which elucidate the harmony of nature, and the de-

Farming, it would be impossible, even if it were desirable, to exclude the general principles which relate to the cultivation of plants, whether upon a large or a small scale. Whatever, therefore, may be found important in that respect to the Farmer will be constantly reported.

To the FLORIST our Miscellany will have much interest, not only because everything relating to those rare and beautiful productions which are his peculiar care will be constantly treated of in such a manner as to make him thoroughly acquainted with the merits or demerits of new varieties, and with their best modes of cultivation, but also because we shall take care that such opinions as may be given are the results of an honest examination by competent judges unbiassed by personal interest.

IN THE SECOND PLACE we shall introduce that description of domestic and political News which is usually found in a weekly paper. We consider it unnecessary to dwell on this head further than to say, that we do not intend to range ourselves under the banners of any party; on the contrary, our



SIR JOSEPH PAXTON.

ORIGINAL PROSPECTUS OF
THE GARDENERS' CHRONICLE;
A WEEKLY RECORD OF RURAL ECONOMY AND GENERAL NEWS.

The Horticultural part Edited by Professor Lindley.

Gardening is admitted to be better understood in Great Britain than in any other country, and the number of works on the subject prove the patronage it receives, and the desire there is to extend the knowledge of its various branches. Many thousand persons are engaged in the business of Horticulture as a means of existence, and a vast number more are interested in the subject, for gardens are now an indispensable part of the domestic establishment of every person who can afford the expense. No one will, therefore, doubt the advantage which may be derived from the establishment of a Journal conducted in an honest and liberal spirit of good-will to all who are engaged or interested in Horticulture and Garden Botany, and who will thus have a cheap means of intercommunication on professional subjects.

The plan proposed to be followed in the management of THE GARDENERS' CHRONICLE is in THE FIRST PLACE to make it a weekly record of everything that bears upon Horticulture or Garden Botany, and to introduce such Natural History as has a relation to Gardening, together with Notices and Criticisms

pendence of the various parts of the creation each on the other, will also form a subject of discussion.

Another peculiar feature will be the introduction of information relating to FORESTING, or ARBORICULTURE. This is one of the most important subjects to which the attention of the public can be directed; for it is often little understood by those who have occasion to practise it, although the amount of property affected by the management of timber stands second only to that of land. The natural laws which govern the production of timber and regulate its growth, the value of it, the extent to which it is influenced by soil, and consequently to what circumstances are to be ascribed the great inferiority in quality of the same species grown in different places, are all points to which attention will be given. We shall endeavour to collect information upon that very important but much-neglected subject, the diseases of trees, and the cause of their decay, whether natural or accidental, as well as to convey the earliest notices of the introduction of new species, which promise to increase either the beauty or value of woodland property. When to plant, to prune, and to fell, WILL BE STATED WEEKLY IN THE CALENDAR, TOGETHER WITH THE WEEKLY GARDEN OPERATIONS.

Although it is not intended to occupy our columns with the details of AGRICULTURE, yet as Gardening is the parent of

best endeavours will be to make THE GARDENERS' CHRONICLE a full and comprehensive Record of Facts only—a Newspaper in the true sense of the word—leaving the reader to form his own conclusion and opinions; our object being the elucidation and discussion of the laws of nature, not of man. The reader will thus be provided, in addition to the peculiar feature of the Journal, with such a variety of information concerning the events of the day as will supersede the necessity of providing himself with any other Journal.

The proprietors are happy to announce that they have already received promises of contributions from great numbers of their friends and supporters; among whom the following may be more particularly named:—

Professor Daubeny, of Oxford	Mr. Bailey, Gardener to the
Professor Graham, Edinburgh	Archbishop of York
Professor Royle, of King's College	Mr. Caie, Gardener to the Duke of Bedford
George Barker, Esq., Birmingham	Mr. Moffatt, Gardener to the Duke of Newcastle
G. Bentham, Esq., Secretary of the Horticultural Society	Mr. R. Wilson, Gardener to the Duke of Norfolk
Dr. Greville, Edinburgh	Mr. Woolley, Gardener to the Duke of Sutherland

Mr. Cooper, Gardener to the Earl Fitzwilliam
 Mr. Henderson, Gardener to the Earl Fitzwilliam
 Mr. Smith, Gardener to the Earl of Hopetoun
 Mr. Buchan, Gardener to Lord Ragot
 Mr. Mitchell, Gardener to Lord Vernon
 Mr. Errington, Gardener to Sir P. Egerton
 Mr. Baxter, of the Botanic Garden at Oxford
 Mr. Campbell, of the Botanic Garden at Manchester
 Mr. Mearns, Zoological Garden, Manchester
 Mr. Shepherd, of the Botanic Garden at Liverpool
 Mr. Williamson, of the Botanic Garden at Sheffield
 Mr. Beaton, Gardener to Sir W. Middleton, Bart.
 Mr. Lushay, of Birmingham
 Mr. Mackay, of St. Helens
 Mr. Perrin, of Ayrburgh
 Professor Henslow, of Cambridge
 Sir W. J. Hooker, of Glasgow
 The Hon. and Very Rev. W. Herbert, Dean of Manchester
 John Rogers, Esq.
 Mr. Paxton, Gardener to the Duke of Devonshire
 Dr. Horner, Hull
 Mr. Minto, Gardener to the Duke of Buccleugh
 Mr.illery, Gardener to the Duke of Portland
 Mr. Collinson, Gardener to the Marquess of Westminster
 Mr. Scott, Gardener to the Duke of Sutherland
 Mr. Frost, Gardener to the Countess of Grenville
 Mr. Jennings, Gardener to the Earl Derby
 Mr. J. Wilson, Gardener to the Earl of Surrey
 Mr. Law, Gardener to Lord Carlisle
 Mr. Booth, Gardener to Sir C. Lemon
 Mr. Green, Gardener to Sir E. Antrobus
 Mr. Cameron, of the Botanic Garden at Birmingham
 Mr. Marnock, Curator of the Regent's Park Garden, &c.
 Mr. Niven, of the Botanic Garden at Dublin
 Mr. Smith, of the Botanic Garden at Hull
 Mr. Appleby, Gardener to T. Brocklehurst, Esq.
 Mr. Menzies, of Hope House, near Halifax
 Mr. Whitting, of the Deepdene

Amateurs, Nurserymen, Gardeners, and all other persons interested in Horticultural pursuits, are invited to favour the Editor as early as possible with communications upon subjects of professional interest, addressed to the Office, 3, Charles Street, Covent Garden. May be ordered of all Newsmen.

STRUCTURE AS A GUIDE TO CULTIVATORS OF PALMS.

We have been favoured with a note on the structure of Palms in relation to their cultural requirements, which originally appeared in the *Bulletin della R. Società Toscana di Orticultura*, and which is amply worth bringing before our readers:—

"Italy is one among the few States of Europe which, by virtue of its climatic conditions, has been able to extend hospitality to a very considerable number of species of that princely family—the Palm. With the dwarf indigenous form (*Chamærops humilis*, L.), there has been associated for centuries the majestic *Phoenix dactylifera*, L., but it is only during the last decade that, through the general march of horticulture and the special efforts of enthusiastic amateurs, about 40 species have been successfully introduced into those localities specially favoured by nature with mildness of climate. The Italian horticulturist cannot find greater satisfaction than in carefully and intelligently studying the requirements of this plant, in order that he may treat them in a suitable manner. Let us begin by observing the Date-palm (*Phoenix dactylifera*, L.). A well-known Arab saying gives briefly the requirements for Date-palm culture in the words, 'Feet in the water, the head in the fire.'

"If we substitute sunshine for fire, we may, to be consistent, render water as moist soil, especially since this Palm is certainly no aquatic plant, but, on the contrary, suffers from excess of moisture at the root, unless the soil be naturally porous and sandy. From this we might proceed to argue that a moist soil is indispensable to the life of the Date Palm, but this conclusion is far from being in accordance with our knowledge of the facts. We find rather in the *Phoenix dactylifera*, as in many other plants long acclimatised, a capacity to adapt itself to diverse circumstances, in which it may have been forced to live, provided only that the temperature permit (minimum 25° to 26° Fahr., i.e., 6° to 7° frost) modifying its structure according to the local conditions. Examining the structure of its leaves, we find that these are in every part so constructed as to receive, hold, and conduct to the stem the atmospheric moisture which falls upon them in the form of dew or rain. In fact, it may be observed that every leaflet adhering to the rachis is moulded to the form of a V-shaped channel, in which a film of dew, however thin, concentrates itself in drops, which, arriving at the base of the leaflet (furnished with a gland probably able to absorb a minute quantity of water) find their way down the leaf to the trunk. The leaf itself is provided with shallow

flutings, both upon its upper and its lower surfaces, by which more or less quickly (according to the inclination) they again discharge themselves upon the trunk. The dense fibrous coat which clothes the stem is designed for three distinct functions, viz., to defend the young leaves against inclemency of the weather; to shield the trunk not yet arrived at the indurated stage from bruises; and finally to absorb and retain the water received from the leaves to the furtherance of vegetation throughout the plant.

"A phenomenon most deserving of attention on dewy mornings is the appearance of sparkling drops chasing one another down the leaves towards the centre of the plant, so that the thick web upon the trunk becomes perfectly saturated with moisture, whereas the bark of other trees remains almost completely dry. This faculty of appropriation of moisture from the air explains why the Date Palm—which might be called a 'dew-funnel'—can grow in places deficient in water, so far as the soil is concerned. The inner layer of fibre becomes rotten, little by little, owing to the presence of the water introduced by the leaves, becoming thus reduced to vegetable mould, which is kept in its place by the exterior web of fibres yet remaining intact, and also, indeed, by the dried leaves which hang from the stem. To this mould, formed out of the fibre of the plant itself, is added sand carried by the wind. By means of this atmospheric agency and that of birds, seeds of small plants are very often introduced, which, by growing as well as possible, under the circumstances, increase the bulk of earth around the trunk.

"In time of drought, the Palm, not deriving sufficient nourishment from its terrestrial roots, will put forth aerial ones numerous enough to sustain itself with the assistance of this humus and the nightly dews.

"Glancing now at the other kinds of Palm, e.g., genus *Cocos*, we find very different—I may say entirely opposite—characteristics. In these everything indicates their absolute dependence upon the soil in which they live. In truth, their leaflets and their rachides instead of being conduit-shaped, V, as in *Phoenix dactylifera*, are the very reverse—convex, or fashioned like a roofing tile, A, in such a manner that rainwater and dew fall from them to the ground. The sparse fibrous material at the base of these leaves evidently serves only for resistance or the defence of the leaves against impetuous winds. Furthermore their stems are not capable of putting forth aerial roots, as is the case with the Date Palm." *L. Winter, Bordighera.*

TEA AND COFFEE SUBSTITUTES.

(Continued from p. 759, vol. viii.)

CAPRIFOLIACEÆ.

40. *Triosteum perfoliatum*, L.—An herbaceous plant of North America, where it is known as wild coffee, fever root, or wild *Ipecacuanha*. The hard seeds when roasted and ground are said to be a good substitute for coffee.

41. *Viburnum dilatatum*, Thunb.—This plant was first noticed as the source of a peculiar kind of tea in a report in 1885 by Mr. Alexander Hosie, of a journey through Central Tau-chuan. It was noticed in a communication by myself to the *Gardeners' Chronicle* for September 26, 1885, p. 402, and to make these notes more complete, I reproduce it here. Referring to the discovery of this tea by Mr. Baber, Mr. Hosie says, "If my memory is not at fault, he (Mr. Baber) was regaled by a priest on Mount O-mei, with tea possessing both the flavour of milk and sugar. It may have been in the very Temple on the mountain's side, in which I am now writing, that Mr. Baber was agreeably surprised. At any rate, I am sipping an infusion, which is, without doubt, sweet, and which is declared by the priest to be brewed from a naturally-prepared tea-leaf. It is a large dark-brown leaf, and is very sweet when chewed. The people at the bottom of the mountain, whom I first questioned regarding this tea, asserted that the leaves were sweet because they were first steeped

in molasses; but the balance of evidence, as I have since found from extensive enquiry, is against such artificial preparation. The tree is said to grow in only one gorge on the mountain, whence the leaves are brought for sale." We are indebted to Mr. Hosie for a sample of this tea, which consists of the entire leaf rolled up loosely into little balls, and almost black in colour. Upon chewing a portion of a leaf, it was found to be decidedly sweet, with a strong suspicion of liquorice rather than molasses, as stated by Mr. Hosie. Upon soaking the leaves and flattening them out, they were found to be those of *Viburnum dilatatum*, Thunb. To prove that the leaves of this plant possessed no natural sweetness, we obtained a few leaves from a growing plant and dried them, and found that neither in their fresh, and still less in their dried state, have they any marked flavour. Moreover, the leaves of the Mount O-mei Tea are transparent, as if they had been steeped in some solution, while those which I gathered and dried are opaque, and yet retain their green colour. It seems certain, then, that this singular tea owes its sweetness to some foreign substance, as stated by "the people at the bottom of the mountain, and that substance may be molasses, but is in all probability liquorice."

RUBIACEÆ.

42. *Oryanthus Gerrardii*, Loud.—Under the name of Wild Coffee from Natal, there are some fruits of this plant in the Kew Museum. These fruits are about the size of a Coffee berry, and contain about six hard brown seeds, somewhat resembling in size and appearance a small shrivelled sweet Pea. They are, however, horny, like the true coffee, and upon roasting give off a burnt-like odour; this, however, might be more fragrant if carefully done in a closed and revolving vessel, and considering that the plant is a near ally to the true coffee, it might perhaps be made a useful substitute.

43. *Diplospora Sphaerocarpa*, Datz.—A small Indian tree of the Western Peninsula or the Western Ghats, from Bombay southward. It seems to be known as Jungle Coffee in Ootacamund, and the fruits, which in shape and size are like a coffee berry, contains a number of small seeds, which upon roasting develop a strong aroma like coffee, and when ground can scarcely be distinguished from genuine coffee. Samples of fruits and the prepared coffee are shown in the Kew Museum. *John R. Jackson, Museum, Kew.*

(To be continued.)

PLANT PORTRAITS.

AGNOSTUS SINUATUS, *Wiener Illustrirte Garten Zeitung*, June.

EICHORNIA AZUREA, *Revue Horticole*, December 1.
 IRIS PAVONIA, *Garden*, December 5, 1890.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × MURIEL HOLLINGTON, n. *hyb.**

THE little group of hybrids which have been raised from *Cypripedium niveum* as one parent is an exceedingly beautiful one. It contains C. × *Tautzianum*, C. × *microchilum*, C. × *Aphrodite*, C. × *Madame Van Houtte* (this I have not seen), C. × *Aylingi*, and

* *Cypripedium* × *Muriel Hollington*, n. *hyb.*—Leaves linear-oblong, obtuse, 2½ to 4 inches long, ¾ to 1 inch broad; light green, mottled with numerous darker blotches, paler underneath. Scape 6 inches high. Dorsal sepal nearly orbicular, 1½ inch long, by 1½ inch wide; apex folded as in C. *insigne*, white, disc light yellowish-green, with fifteen light delicate purple nerves, the seven centre ones interrupted in small spots, the broad white margin without markings of any kind. Petals obovate-oblong, obtuse, 2 inches long, 1 inch broad, white, with some purple hairs at base, upper half with six purple veins, and with similar transverse oblique connecting veinlets, lower half scarcely veined. Lip much like C. *niveum*, white, veined with lightest purple on sides only. Staminode also like C. *niveum*, white, with a little yellow in centre, and a few green nerves on either side. Probably derived from C. *niveum* ♀ and C. *insigne* ♂. *R. A. Rolfe.*

C. x Vipani. The present addition was raised in the collection of A. J. Hollington, Esq., Forty Hill, Enfield, by Mr. Ayling, and received an Award of Merit from the Royal Horticultural Society on Nov. 11 last. Mr. Ayling was not quite sure from which species the pollen was obtained, but it seems clear to me that it was *C. insigne*, whose characters are well represented in the hybrid. *C. niveum*, as usual, preponderates largely, but the spots, and especially the folded apex of the dorsal sepal, also the nerves of the petals, are evidently derived from *C. insigne*, while the leaf is also modified in the same direction. The flower is white, with the lip, petals, and dorsal sepal beautifully veined with light purple, the latter organ having a yellowish green disc. It is a most elegant little plant, and a distinct addition to the group. *R. A. Rolfe*.

ORNITHOLOGY IN RELATION TO AGRICULTURE AND HORTI- CULTURE.

(Continued from p. 750, vol. viii.)

THE STARLING.

Who is there among the dwellers in town or country who is not acquainted with the starling? that garrulous bird which haunts our houses in the spring, pouring out his cheerful song perched on the chimney pot or some coign of vantage, putting his whole soul into the business, screaming and flapping his wings as if his very life depended upon making as much noise as possible. To all appearance he is as black as the soot in the chimneys, but examine him closely and you will find his plumage a rich velvet black, beautifully shot with purples and greens whose metallic lustre is flashing and ever changing in the sunshine. Every feather is tipped with a small triangular buff or cream-coloured spot, in fact when closely examined we find him a very handsome fellow indeed.

The starling is essentially a citizen of the world, and is everywhere at home—wherever man has his abode, there in company with the audacious sparrow, we may be sure of finding him. He is found in all parts of the British Isles, and in all parts of Europe and the countries eastwards as far as Northern India.

The last twenty years has seen an enormous increase in the number of these birds, especially in the north. In Northumberland, for instance, the bird was entirely unknown not very many years ago. People used to come considerable distances to see the strange black birds, which had taken up their abode in some cliffs near Sunderland, but now they are common in both places.

Considering the starling from an agricultural point of view, I say, without the slightest hesitation, that as a friend of the farmer and gardener it has no equal. Its food consists of worms, grubs, slugs, small molluscs, flies, beetles, ticks, and other insects, berries, and now and then a little fruit.

The destructive Tipula grubs, of which the starlings destroy millions every year, have been proved by Miss Ormerod to be almost indestructible by ordinary means. In the *Zoologist* of 1863, an interesting table is published, which was compiled by M. Prevost. It is a sort of catalogue of the food consumed by the starling every month:—

January.—Worms, grubs of cockchafers, and grubs in dung.

February.—Grubs, snails, and slugs.

March and April.—Grubs of cockchafers and snails.

May.—Grubs of cockchafers, snails, and grasshoppers.

June.—Flies, and grubs of various flies.

July.—Grubs and freshwater shell-fish.

August.—Flies, glow-worms, and beetles.

September.—Green locusts, grubs of carrion beetles, and worms.

October.—Worms and beetles.

November and December.—Snails, slugs, and grubs.

The starling is extremely fond of ticks, and most

dwellers in the country must have seen the birds perched on the backs of sheep, busy searching for these insects. During the nesting season, the number of grubs and insects of various kinds destroyed by them to feed their hungry brood is almost incredible, and were I to give the estimated numbers I am afraid they would be received with unbelief. The amount of good work done by the starling is simply incalculable, while the harm they do is practically nil. True, they will sometimes take a little fruit, but it is only very occasionally, and then in such small quantities as hardly to be noticed. Grain they will hardly touch. Not many weeks ago I observed a mixed flock of starlings and sparrows frequenting a stubble field to feed. Their actions seemed very suspicious, and I was very much afraid they were all making a meal off the fallen grain. To satisfy myself I shot one or two, but not a trace of grain could I find in their crops, but the sparrows were full of it.

A very stupid charge has been brought against the starling by very stupid people, who state that he is in the habit of sucking the eggs of other birds, and disturbing the eggs of the pigeons in the dovecote. It does not require any extraordinary powers of observation to prove that this charge is entirely devoid of truth. I cannot do better than quote the words of that celebrated Yorkshire naturalist, Charles Waterton, who in his very interesting book says:—"So certain am I that the starling never sucks the eggs of other birds, that, when I see him approach the dovecote, I often say to him, 'Go in, poor bird, and take thy rest in peace. Not a servant of mine shall surprise thee, or hurt a feather of thy head. Thou dost not come for eggs, but for protection; and this most freely will I give thee. I will be thy friend in spite of all the world has said against thee; and here at least, thou shalt find a place of safety for thyself and little ones. Thy innocence and usefulness demand this at my hands.'"

Waterton proved his friendship and confidence by making suitable nesting sites for these birds, and in a small ruin he established no less than twenty-four families. That his kindness would be fully repaid by the birds there cannot be the slightest doubt.

Grubs, worms, larvæ, beetles, flies, and hosts of other insects, &c., they feed upon as stated before; are also extremely useful as scavengers, and should any dead body or decaying animal-matter be thrown into the fields, the starlings soon clear it away and prevent it tainting the atmosphere.

It is amusing to see them hawking for flies. I have often seen them chasing butterflies; no doubt a very dainty morsel for them. The writer in the *Zoologist* for 1883, mentions a case where he had seen starlings busy taking pieces of bread and other food from the surface of a river as they were floating down.

The whole life of the starling is passed in good work; and as a friend of the farmer he cannot be surpassed. He is worthy of everyone's protection; and I sincerely hope that all farmers and gardeners will be able to say with that fine naturalist, Charles Waterton: "The starling shall always have a friend in me. I admire it for its fine shape and lovely plumage; I protect it for its wild and varied song; and I defend it for its innocence."

In their nesting habits they show how cosmopolitan they are. They usually commence building in April, when almost any place is chosen for the site of the nest—under eaves, in dovecotes, fissures in rocks, in spouts, holes in trees or banks, in heaps of stones, in rabbit burrows—in fact, anywhere. The writer found a nest built behind a slate which had been reared against the door of a hay chamber in a farmyard. A well-known Yorkshire ornithologist told me an interesting incident relating to these birds, showing how well they can adapt themselves to circumstances. The naturalist referred to, during a visit to the Orkney and Shetland Isles in June last, found a large number of starlings nesting on an island in the middle of a loch, in close proximity to a large colony of great black-backed gulls, as there were no cliffs

or buildings of any kind near. The birds had built their nests in the ruins of some old walls, among heaps of stones, and in holes on the ground. The nest is usually built of straw with a few feathers intermixed, and from four to six eggs are deposited; sometimes, however, this number is exceeded, and it is no uncommon event to find a nest containing seven eggs, whilst I have found as many as nine; on one occasion fifteen. The latter nest was built in the corner of an outhouse, and as nesting sites were scarce in the neighbourhood, I think there can be no doubt that two birds had been driven on that account to use the same hole and nest.

A more cleanly bird than the starling it would be impossible to imagine. The nest is kept scrupulously clean, all the deposit from the young birds, which is enclosed in a sort of bag, is immediately carried away by the parents some distance from the nest. They are extremely fond of bathing, and will indulge in this habit to almost any extent; a tame one which I once had, bathed himself five or six times a day. It was a treat to watch him, when so occupied; he revelled in the water, and it seemed to him to be the height of enjoyment; alas! this habit was the cause of his death. He had gone out one day to have his usual bath under the stable tap, the day was bitterly cold and frosty, and unfortunately the door had been closed against him. When he returned to preen himself before the kitchen fire, he could not get in, and when found, he was almost frozen to death; every means were taken to revive him, but to no effect, he died in a few moments after being found. The hole in which the nest is built is never really deserted. When the young are ready to fly, the old birds and young disappear early some morning into the country, where they stay continually day and night for weeks. After that time the old birds return to the hole every day throughout the winter, and often roost therein at night; they are occasionally accompanied by the young ones. If two broods are reared in a season, the parent birds stay a shorter time in the country with the first brood. *Riley Fortune, F.Z.S.*

(To be continued.)

THE HORTICULTURAL HALL.

THE correspondence in these columns as to the suitability of the Aquarium for flower shows, points to such an obvious moral, that I am almost ashamed to draw it. Nothing seems to me more obvious than that there is a real want in London of a central building for horticultural purposes. To provide such a building is the object of Baron Schroder's scheme. If the proposed Hall were in the hands of a body of trustees or of an independent committee of management, it could afford accommodation not merely to the Royal Horticultural Society, but to all the other societies who take up particular parts of the horticultural field. No doubt these societies are proud of their independent organisation, and would be indisposed to lose in any degree their individuality; but of this, with a business-like arrangement, there need be no risk. The Royal Horticultural Society wants rooms for its library and offices, and for its meetings once a fortnight. This leaves a very large margin of time when the buildings would be available for other bodies. It is emphatically, it seems to me, a case where a combination of interests would be able to effect an object which it is doubtful if any one can attain acting independently. The gain to the horticultural public would be, that they could point to a central building as the home of everything that was the outcome of its activity; and I do not doubt that the individual societies would strengthen one another by working under a common roof.

I do not know whether it is from the possession of a more than ordinarily catholic horticultural mind, but I must confess that almost everything horticultural interests me. Perhaps it is from having been an old-fashioned gardening amateur before I was a botanist. The "orthodox Dahlia Show" may be "dreadful,"

but I must confess I have a weakness for it. There are certain effects of tone and colour to be found in a Show Dahlia which I do not meet with in any other flowers. I know I lay myself open to the retort that as Lord Melbourne, I think, said of the man who professed to like dry champagne, "such a man would say anything." I cannot help it. A weakness for Dahlias does not, however, blind me to the merits of other specialties. I look at a Carnation for the gratification of one kind of appreciation, and at an Auricula for that of another. But it would be a great convenience to be always able to go to the same place to see all these good things, I care not under what auspices, each in its season. If this could be brought about, then the next thing would be a horticultural calendar with all the fixtures for the year. Horticultural amateurs, whether belonging to the Royal Horticultural Society or not, would study such a *menu*, and would come to town, knowing precisely where to go, when the contents for any particular month pleased their taste. I daresay, however, there would be many like myself who would be inclined to follow the advice lately given me by an experienced person at a particularly good dinner, "It is all right, you had better go steadily through." *W. T. Thiselton Dyer, Kew.*

BOOK NOTICE.

THE SILVA OF NORTH AMERICA. A description of the trees which grow naturally in North America, exclusive of Mexico, by Charles Sprague Sargent, Director of the Arnold Arboretum of Harvard University, illustrated with figures and analyses drawn from Nature by Charles Edward Faxon, and engraved by Philibert and Eugène Picart. Vol. I, Magnoliaceae to Ilicineae. Boston and New York, Houghton Mifflin & Company, 1891. (25 dols.)

We copy the title of this work in full because, whether we regard it from the point of view of pure botany, gardening and woodcraft, or from the standpoint of art, typography and book-production, it stands out in all respects as a most remarkable undertaking. Great expectations were naturally indulged in when it was known that Professor Sargent was engaged in the preparation of an extended treatise on the trees of North America. His position as Director of the Arnold Arboretum, his relations with other botanists, his extended travels, gave him special facilities for the task. The census report on the forests of North America—prepared by him, and reviewed in our columns at the time of its appearance in 1884, showed that not only was he in the possession of special facilities for the task, but that his personal qualifications were such as to enable him to turn those opportunities to the very best account. In the census report he showed great power of dealing with vast masses of detail, clearness of conception, accuracy of judgment, and unfaltering industry. That work laid the foundations of the one now before us. Botanically speaking, the necessary researches were made, and the ground plan laid down in the census report, and now we are called on to admire the superstructure raised on that careful foundation. The "Silva," of which the first volume is before us, is a large quarto volume of 119 pages of thick handsome paper, accompanied by fifty engraved plates. The drawings have been mainly executed by Mr. Faxon, and show a branch of the tree, together with details of the flowers and fruit. Mr. Faxon's drawings are evidently faithful, and pleasing without any straining after artistic effect, which so often spoils illustrations intended for botanical purposes. They have been beautifully engraved by MM. Picart, under the direction of M. Riocreux. The work, then, so far as its illustrations go, may take rank among the highest productions of its class. It would have been a useful addition if a small woodcut could have been given showing the habit of each tree; and in certain cases, an illustration of the timber and its microscopic characters

would have been of great service. Life, however, is short, and the plan of the work as it is, is sufficiently extensive to tax the energies of its author, without the additions we have mentioned. Advertising to the text, we find first, a dedication touching in its simplicity—thus it runs, "To Asa Gray, friend and master, the first volume of the *Silva* of North America is dedicated in grateful memory." The words are few, but to the friends and associates of master and of pupil they are deeply significant. The preface sets forth the reasons that induced Professor Sargent to undertake the task. He passes in review the works of his predecessors, from Humphrey Marshall, who wrote the *Arbustum Americanum*, in 1785, from Michaux, father and son, down to Engelm and Emerson. All these works were limited in their scope, dealing with special areas or special groups of plants. The census report, above alluded to, dealt with all the trees of the North American continent, excepting Mexico, upwards of 400 in number. "Books, however," says the author, are guides towards obtaining a knowledge of trees. To be really understood, they must be studied in the forest; and therefore since the plan of writing this *Silva*



FIG. 3.—[ONE OF OUR EARLIEST CONTRIBUTORS.]

was formed, I have examined the trees of America growing in their native homes from Canada to the banks of the Rio Grande, and the mountains of Arizona, and from British Columbia to the islands of Southern Florida. I have watched many of them in the gardens of this country, and in those of Europe, and there are now hardly half-a-dozen of the trees, which will be described in this work, which I have not seen in a living state." It is to the plan of nomenclature adopted by Professor Sargent that the greatest objections will be raised. It is not necessary to discuss the abstract superiority of this or that system, at least in these columns, but we may express our regret that loyal obedience to the conventional rules laid down at the Paris Congress has not been shown. We are not concerned to uphold the intrinsic merits of those rules, nor to dwell upon their defects. Nomenclature is required for practical purposes, and is to be chiefly valued for its stability. In practice, it most often happens that a purely arbitrary system is better than a descriptive one, or one that may be in accordance with the state of knowledge at the time. But if one set of botanists adopt one conventional set of rules, whilst another follows some other plan, the

results are confusion, useless expenditure of labour, and burdensome synonymy. It is for these reasons that we regret to see any departure from the rules laid down by M. Alphonse de Candolle, adopted at the Paris Congress of Botanists, and carried out in such standard works as Bentham and Hooker's *Genera*, and most recent works. The very first plant mentioned in the volume before us affords an illustration of the inconvenience of these changes. It is the *Magnolia foetida* of Sargent. A reference to the synonymy shows that under this name is intended the tree universally known as *Magnolia grandiflora*. It would demand too much space for us to enter upon the reasons which may have led Professor Sargent to make this change. He does not mention them himself in his text. The arguments for and against would be long and uninteresting to our readers, so that we must confine ourselves to the mere expression of regret that he should have deemed it necessary to make the change. We extract the account of *Magnolia foetida* (*alias grandiflora*) in order to illustrate the plan upon which the work is constructed, omitting, however, the synonymy and bibliographical references, which are so full that they would occupy much space in the transcribing.

"MAGNOLIA FOETIDA.

"*Magnolia* Bull. Bay.

"Leaves evergreen, coriaceous, ferruginous, tomentose beneath. Pistils woolly. Fruit and shoots of the year densely pubescent."

Here follow synonyms and bibliographical references, omitted here.

"A noble tree, of strict, pyramidal habit, 60 to 80 feet in height, with a tall, straight trunk, sometimes, under favourable conditions, 4 to 4½ feet in diameter. The bark of the trunk, on fully-grown individuals, is a half to three-quarters of an inch thick, grey or light brown in colour, covered with thin appressed scales, rarely more than an inch long; that of the branches is smooth, light grey, and much thinner. The leaves, which fall in the spring at the end of the second year, are bright green, shining, coriaceous, oblong or ovate, strengthened by a prominent midrib and primary veins, and borne on stout petioles an inch or two long. They are 5 to 8 inches long, and 2 to 3 inches broad. The underside, as well as the petiole, winter-buds, and spathe, is coated with a thick, dark rusty tomentum, varying greatly in length and density. The deliciously, fragrant, creamy-white proterogynous flowers, 7 or 8 inches across when expanded, continue to open from April or May until July or August. The petaloid sepals, and the six, or sometimes nine or twelve petals, are abruptly unguiculate, oval, or ovate, those of the inner rank often somewhat acuminate, concave, and coriaceous. They are 3 or 4 inches long, and 1½ to 2 inches broad. The base of the receptacle and lower part of the filaments are bright purple. The fruit is ovate or oval, rusty brown and pubescent, 3 to 4 inches long, and 1½ to 2½ inches broad. The seeds are nearly ½ an inch long, somewhat triangular, often flattened on the face opposite the raphe.

The northern station of *Magnolia foetida* is on the coast of North Carolina, south of the Cape Fear River. In South Carolina and Georgia it is rarely found more than 50 or 60 miles from the coast. In Florida it extends across the peninsula as far south as Mosquito Inlet on the east coast and the shores of Tampa Bay; it is common in the maritime portions of the Gulf States as far west as the valley of the Brazos River, in Texas, extending through western Louisiana to southern Arkansas, and appearing on the bluffs of the lower Mississippi River as far north as the mouth of the Yazoo River, in Mississippi.* *Magnolia foetida* flourishes in rich moist soils. Near the coast it is generally confined to the borders of river-swamps and pine-barren ponds; in western Louisiana it is often the characteristic and most conspicuous feature of the forest; and here, and on the rich high rolling hills of the Mississippi bluffs, this tree reaches its greatest development. It is usually found associated with the Swamp Chestnut Oak, the Water Oak, the Willow Oak, the Beech, the Hornbeam, the Black Gum, the Water Gum, the great Tupelo, and the Liquidamber.

* *Magnolia* Inglefieldi, the direct ancestor, perhaps, of *M. foetida*, was common in the Arctic region during the Tertiary period. (Heer, *Fl. Arct.* vii. 121, t. 69, f. 1, t. 85, f. 3, t. 96, f. 9.)

"The wood of *Magnolia foetida* is harder, heavier, and more valuable than that of the other North American *Magnolias*. The thick sapwood generally consists of seventy to eighty layers of annual growth; it is creamy-white, soon turning light brown with exposure, and is not easily distinguished from the rather lighter heart-wood. This, when perfectly dry, has a specific gravity of 0.6360, a cubic foot of the dry wood weighing 39.64 lb. The wood of this tree is little used, except for fuel, although well suited for the finer kinds of cabinet work, and the interior finish of houses.

"It does not appear who first brought *Magnolia foetida* to the attention of European botanists. The earliest account, that of Plukenet, was published in his *Amalthum Botanicum* in 1705.* It is not known who first introduced living plants into Europe; a single specimen, said to have been brought from the banks of the Mississippi, was planted near Nantes in 1732;† and two years later, according to Aiton,‡ it was cultivated in Sir John Colleton's garden at Exmouth, in Devonshire. *Magnolia foetida* is the most splendid ornamental tree of the North American forests. It is now widely cultivated in the extreme southern States, and has become a striking and beautiful feature in the gardens and streets of many southern cities. It is precariously hardy as far north as Philadelphia. It has been generally introduced into the gardens of temperate Europe and Asia, although in Great Britain often requiring the protection of a wall to insure its blooming.

"Several varieties have appeared at different times in European nursery-gardens, especially in those of central and western France, where the propagation of the evergreen *Magnolia* has been an important industry since its first introduction. These varieties differ principally in the form of the leaf and in the duration of the flowering period. The variety *exoniensis*,§ raised in England early in this century, with a rather fastigiate habit of growth, oblong elliptical leaves densely clothed with tomentum on the lower surface, and somewhat contracted flowers, is considered in that country the most distinct, and, from its habit of flowering when only a few feet high, the most valuable for cultivation. The variety *angustifolia*, which appeared at Angers about 1825, is one of the most distinct and permanent of these seminal varieties.|| The variety *præcox*, another French variety, is distinguished by early and continuous blooming."

In this manner are described in the present volume, thirty-four of the 400 and odd trees which constitute the North American *Silva*. They are arranged in botanical sequence, the order followed being that of the *Genera Plantarum* of Bentham and Hooker. The genera are treated in the same way as the species, indications being added of their geographical distribution, and a conspectus of the North American species, by means of which the species may be readily determined.

Numerous footnotes supply welcome information relating to botanists and travellers, as well as to various incidental matters connected with the history of particular trees.

With this we must take leave for the present of this noble volume—we say for the present, for it is obvious that a work like this will be in constant use for reference by all who are interested in the subjects of which it treats.

BURNT EARTH.—Some of our correspondents speak highly of burnt earth for the growth of Alpines and other difficult plants, especially Mr. Wolley Dod and Mr. Wood. We wish some of them would tell us more fully about it, especially what soils are best for burning, for I suppose all are not equally good—and a simple way of preparing it.

* *Tulipifera arbor* Florida, lauri longe amplioribus sp'endentibus et densioribus foliis, flore majore albo, 206. *Magnolia altissima*, flore ingenti candido, Catesby, *Nat. Hist. Car.*, ii., t. 61.—DuRoi, *Traité des Arbres*, ii., t. 1. *Magnolia foliis oblongis subtus ferrugineis, flore amplissimo candido, bacis rubellis*, Trew, *Pl. Ehret.*, 8, t. 33, 35, f. 2. *Magnolia foliis lanceolatis persistentibus, caule erecto arboreo*, Miller, *Dict. Icon.*, ii., 115, t. 172."

† *Merlet de la Boulaye, Nouveau DuRoi*, ii., 220."

‡ *Hort. Kew.*, ii., 251."

§ *London, Arb. Brit.*, i., 261. Loddiges, *Bot. Cabinet.*, t. 814."

|| "Another narrow-leaved form, with curiously undulating leaf-margins, of unknown origin, is now found in the gardens of northern Italy under the name of *Magnolia Hartwegii* [?]."

FRUIT-CURING IN THE SOUTH OF FRANCE.

ABOUT 60 miles above Bordeaux there falls into the Garonne, a fine river, which, taking its rise among the mountains of Cevennes, follows a course of some 150 miles until its junction with the Garonne, says the *Kew Bulletin*. This river is called the Lot, and the two rivers together confer the name on the Department known as Lot and Garonne. For several miles along the lower reaches of the Lot, and in the country immediately adjacent to the spot where it enters the Garonne, is produced the fruit known, when it has been specially prepared, as French plums. For over a hundred years the industry has been fixed in this locality, and still, with the sole exception of a valley in Servia, there is no other place where the same trees are cultivated. The tree is called *Prunier d'ente*; "enter" is an old French word meaning to graft, and it is simply so called because this particular species was formerly the only Plum in this district that ever was grafted. Now there are, practically, no Plums other than the *Prunes d'ente* grown in the neighbourhood. Higher up the

and stock required for the holding; he also keeps the buildings in repair, including the house used by the metayer. The latter finds the whole of the labour except such extra labour as is needed during harvest time. The metayer during the year has entire control of the farm, and buys and sells, subject, if required, to the consent of the owner. He renders account of all produce from the holding consumed by himself and family, and at the end of the year, the balance of profit is divided equally between the owner and the metayer. During the last few years the metayers have fared badly, for the *Phylloxera* has devastated the vineyards, and sad it is to see acres and acres of land now deprived of those crops. The holdings vary in extent from 10 acres to sometimes 50 and 60, and on every holding in the lowlands are to be seen rows of the *Prunier d'ente*. [We shall continue our extract in a subsequent issue, showing what has been done in England in preserving plums. ED.]

FORESTRY.

TREES FOR CHALKY SOILS.

WILLOWS in various kinds are excellent examples of how well moisture-loving trees succeed on chalky soils; indeed, it is not too much to say that three species, at least—*Salix caprea*, *S. alba*, and *S. fragilis*—flourish with surprising success in what would usually be described as a barren chalky soil, or, in other words, one that is almost destitute of any surface-covering of vegetable earth.

The Goat Willow (*S. caprea*) springs up spontaneously all over the chalk district of Kent, and in numerous instances it is the only vegetation to be found, such as in the surroundings of old chalk pits.

Quercus Ilex has many advantages as a tree for planting where chalk abounds in quantity, and in such it luxuriates to an extent that we have rarely seen excelled. The bright, healthy, and abundant foliage clearly indicates that the warm chalky soils of particular parts of Southern England are well suited for bringing this handsome and useful shelter-producing evergreen tree to perfection. Better than almost any other evergreen does this Oak withstand cold and cutting winds, and when once thoroughly established where such are prevalent, the growth, both upward and laterally, is fairly rapid. The evergreen Oak is usually transplanted with an amount of difficulty, it forming a strong and deep-running tap-root, and but few fibrous rootlets; but this, by judicious nursery management, may be greatly obviated. Pruning, or, better still, cutting off the tap-root with a sharp spade, and oft-transplanting, are the two best means of obtaining well-rooted plants of this particular tree.

Of *Pyrus*, several species—indeed, almost all—are peculiarly adapted for planting in chalky soils. The Bean Tree (*P. Aria*) flourishes on the chalky downs of Kent; what may also be said of the Rowan (*P. aucuparia*), and the wild service tree (*P. torminalis*).

The white Beam Tree can survive where hardly a particle of soil exists in combination with either chalk or limestone, and where fully exposed to the strongest sunshine; indeed, in this respect it is a somewhat remarkable tree.

The sweet or Spanish Chestnut is largely employed and is indeed throughout the chalk districts of Southern England the principal plant used for the production of Hop-poles. It will grow with great vigour where but a small quantity of loam exists in conjunction with the chalk, and in such soils attains to a large size and produces timber of excellent quality. Some days ago we took the dimensions of a couple of these trees growing on the chalky downs of Kent, the larger of which had a stem whose circumference at 3 feet and 5 feet from ground-level was 11 feet 2 inches and 10 feet 3 inches, while 16 feet in length of the butt contained exactly 100 feet of wood. So uniform of size was the stem of this tree that the girth at 8 feet was 10 feet.

The other specimen girthed 14 feet 3 inches and



FIG. 4.—[ONE OF OUR ORIGINAL CONTRIBUTORS].

Garonne, round the old town of Agen, and in other parts of southern France, another Plum, the *Prunier commun* is largely grown, and its fruit treated similarly to that of the *Prunier d'ente*, but the produce is very inferior, and only suitable for stewing. But it is believed that nowhere, except in the Servian valley, is the true *Prune d'ente* at present grown; and though many experiments have been made with other varieties, no others have yet been discovered that will yield the established qualities of the French plums. It is rather capricious in its growth, for its area of cultivation does not extend very far from the river bank. It appears to delight in a rich alluvial soil of a rather sandy nature, but which contains a sufficiency of clay to make it very retentive of moisture.

The centre of the French Plum district may be said to be at Clairac, a quaint little old-fashioned town built on a steep hill-side overlooking the Lot, almost more Spanish-looking than French, its houses shaded from the fierce southern sun with wide outspreading eaves and flower-clad balconies. In this and the neighbouring Communes, the metayer system is in full operation, and it appears to work well and harmoniously. The owner of the land engages the metayer, and supplies all the implements

13 feet 1 inch respectively at 3 feet and 5 feet from the ground.

Cratægus, of sorts, start away freely, and attain to a large size on the chalk formation, one of the largest trees of this kind of which I have kept a note growing almost on pure chalk between Keston and Down, in Kent. At a yard from the ground the stem of this giant specimen has a girth of 14 feet 6 inches. The finest forms of the Thorn, such as Paul's Crimson, do unusually well in similar soil, and many noteworthy plants may be seen in the gardens and grounds of the Kentish farmers and landowners.

Of shrubs that succeed in a satisfactory way on chalk soils, particular mention should be made of *Clematis vitalba*, than which plant we question much if there are any others that are equally well adapted. Wherever an old chalk pit is found, there this *Clematis* grows with unusual luxuriance, twining around and supporting itself on other stronger-growing shrubs. During the autumn and winter months, the hedgerows in many parts of Kent are rendered conspicuous in a high degree by the flossy, feathery carpels of this native climbing shrub.

Cornus sanguinea is a fitting companion for the latter, the bright fruit and twigs being a great source of attraction during the leafless months.

Viburnum Lantana and *V. opulus* should find a place in every chalky garden, both being shrubs of great beauty, and peculiarly suitable for planting in such soils.

Euonymus europæus grows freely enough where a great quantity of chalk is present in the loam, which may, with equal force, be said of Hazel, the Bird Cherry, the Strawberry Tree, *Arbutus*, *Laburnums* (all the hardy kinds), the *Philadelphus coronarius*, *Ribes sanguineum*, *Hypericum calycinum*, *Privets* of sorts, the *Weigela*, particularly *W. rosea*; *Phillyrea angustifolia* (this attains to a larger size in the chalk than I have seen elsewhere), and that curious but pretty shrub, *Leycesteria formosa*. *Coluteas* also seem to do well, and as they are both curious and interesting, should find a place amongst the shrubs chosen out for planting in chalk soils.

One word regarding the preparation of the soil and choice of plants will here be opportune, and should be acted upon by everyone who has the planting of chalky soils on hand. Trenching is a preliminary step in the planting of chalk soils that should on no account be neglected; but at the same time, this important operation must be performed in a common-sense way if success is to crown the efforts of the planter. Usually a few inches, or, may be, a couple of feet, of good loam overlies the chalk, and this in the operation of trenching must not, as is usually done in ordinary soils, on any account be buried, but kept as near the surface as possible, and incorporated with a quantity of the chalk. The choice of plants is another point of importance, and in effecting it, it is well only to procure such as are well-rooted, of robust growth, and bushy in proportion to their height—all lanky, ill-rooted, and meagre-looking subjects being discarded. *A. D. Webster, Holwood, Bromley.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

DENDROBIUMS.—With a view to keeping up a succession of flowers of *Dendrobiums*, it is necessary to occasionally examine all the plants, so that those which may be getting too forward may be retarded, and *vice versa*, it not being good practice to have the houses full of flowers at one time, and comparatively nothing at another. *Dendrobies* at present in flower are *D. heterocarpum* and *D. nobile*, and others may be made to flower at this season, but it is better to let them come in a little later, when they will have larger clusters of flowers than would be the case were they to flower at this season. Those to be pushed forward may consist of *D. Findleyanum*, *D. Wardianum*, and *D. crassinode*; and should a considerable number of these plants exist in the collection, no difficulty will be found in keeping up a succession of flowers of each variety till the end of

the month of March, and very much later if so desired, but I do not advise very late blooming, as it leaves but a short period of the best-growing season in which to make and mature new growths.

Dendrobies, although they may be sending out their flower spikes, must be kept upon the dry side, as the root movement will not be perceptible for some time longer. *Dendrobiums* make the best growth in a moist atmosphere, and with a considerable amount of moisture at the roots, but they also should have a long spell of comparatively dry treatment in a low temperature when at rest. *Dendrobiums* that may not be required in flower before the month of March, should be maintained for the next four weeks in a house at a temperature of 40° to 45°, atmospheric moisture being greatly lessened.

Calanthe Veitchii and *C. vestita* going out of flower may be at once turned out of their pots, the soil broken or cut away from the pseudobulbs, and carefully placed in boxes of sphagnum moss that is kept in a slightly moist state, and put where there is a temperature not less than 60°.

DISAS.—The temperature of the pit or house should be kept at 48° to 50°, but if it be allowed to fall below the minimum figures, the ends of the leaves will turn brown and the foliage become spotted, greatly disfiguring them. These bad effects may be brought about in a single night, if water is too freely distributed about the house the last thing, and a low temperature maintained. I find that these plants do very well in the same house as the *Masdevallias*. *A. G. Catt, Parkfield Gardens, Hallow, Worcester.*

THE FLOWER GARDEN.

TAKING the general outlook, with the ground frozen and covered with deep snow, little can be said or done in this department; but when this state of things comes to an end, we shall be able to concentrate our strength on such outdoor operations as will need the earliest attention. Although these are suspended for the present, there are many things that can be attended to under cover, as, by-the-by, sticks, stakes, and labels will be required in great numbers, and the preparing and making of them may go on, keeping them in different lengths and sizes, bundled up all ready for using when the longed-for sunny days do come. In many places wooden stakes are difficult to get, and in such cases it is advisable to have iron ones instead, which, if purchased in rods, can easily be cut and pointed by the blacksmith, and in the end they will be found to be much cheaper than wood, and for *Dahlias*, *Hollyhocks*, *Sunflowers*, *Delphiniums*, and all tall-growing plants, they are just the thing; and very stout wire cut into suitable lengths, comes in well for the shorter and smaller plants. Wire of a smaller size just twined round each iron and then pulled off and out, or so twisted as to make it spiral, except a foot or so to go into the ground, forms a capital support for the flower stems of *Carnations*, as then they need no tying, but may quickly be worked in and made secure against wind and weather. Bamboo canes are also good for the purpose, and durable, and they are offered at a cheap rate by sundriesmen, and are excellent for amateurs who have not woods or plantations to run to.

BULBS AND ROOTS, such as *Gladiolus*, *Cannas*, and *Dahlias*, will need looking over, as it often happens that the first-named, if stored on shelves, in a too dry place, become shrunken, which greatly detracts from their strength, and to prevent this loss it is advisable to put them in sand at once, and they are always much safer in that way, as each kind can be dropped into a flower pot or pan with the name, and kept in a sound condition till the season arrives for planting them out. *Cannas* may soon be started in heat: the best way of managing them is to divide the clumps into as many pieces as there are crowns, or are wanted, and place them in a frame, plunging them in a bed of leaf mould, from which they will lift in May or June, with lots of roots, and be in fine order for turning out into the borders. Seeds of these noble plants take a long time to germinate, and it is better to soak them for twelve hours or so in tepid water, and to sow early, as otherwise any raised in this way will be small. Besides those sorts famous for their foliage, there are now some that are equally desirable for their flowers, and these are known as *Crouse's Hybrids*, and fine things the best of them are, making, when well grown, grand beds of a bold character and distinctive appearance when judiciously placed. *Cannas* form quite a new feature in the flower

garden, producing tall branching spikes of magnificent bloom, of various shades of colour, which show off in pleasing contrast with the leaves of the plants. *Grevillea robusta* is sure to come in useful, but seedlings must be raised early to obtain them of suitable size; and so also must the good old *Verbena venosa*, as that takes at least a couple of months to get up. These, then, should be sown at once in gentle heat, and, to assist germination, the box or pans the seeds are in should be covered with a pane of glass, as then warmth and moisture are more regular, and there is always less need for watering the soil.

PROPAGATING.—If stock for bedding is at all likely to be short, no time should be lost in introducing old plants into suitable temperatures, for the purpose of accelerating growth and producing cuttings, which, in a short season, will strike freely, especially such things as *Coleus*, *Iresine*, *Alternantheras*, *Ageratums*, *Petunias*, *Heliotropes*, *Lobelias*, *Fuchsias*, and others of that class, as well as *Pelargoniums*, the variegated kinds of the last-mentioned being the slowest to move. These should, therefore, be potted off from store pots at once, and placed in gentle heat, the most suitable positions for them being a shelf near the glass in any Peach-house or vinery at work, as there they will get full light, and be less likely to damp off than they would in pits or frames, with the little air there playing around them. *J. Sheppard, Woolverstone Park, Ipswich.*

PLANTS UNDER GLASS.

THE CONSERVATORY.—During this dull period of the year, this structure should be kept as attractive as possible, and now that the *Chrysanthemums* are nearly over, we shall have to depend chiefly on plants from the greenhouse and forcing pits, consisting of *Primulas*, *Cinerarias*, *Roman Hyacinths*, *Cyclamens*, *Calanthes*, different varieties and species of *Haths*, *Epiphyllums*, hybrid *Rhododendrons*, &c. Great judgment is required in the arrangement of the different subjects, so as to afford them such parts of the house as will be beneficial to them, and to make them as pleasing to the eye as possible.

THE GREENHOUSE.—Great care will be necessary with the occupants of this house at the present time in affording them water, and it should be given early in the day. *Cinerarias* and *Primulas*, which have filled their pots with roots, and are showing for blooms, will be greatly benefited by a little tepid weak manure water once or twice a week; also as light a position as possible. Be very careful about giving air during this spell of severe weather which we are passing through, the temperature should not exceed 45° by night, with a rise of 5° or 10° by day.

Look over the stock of *Chrysanthemum* cuttings put in last month, and should there be any late or scarce varieties still required, lose no time in procuring them. Also prepare soil, pots, &c., in readiness for potting the early-struck cuttings next month. I find that *Chrysanthemum* cuttings strike much better under hand glasses in a cool vinery than elsewhere, an arrangement which is also convenient for the gardener, as he can give them the requisite attention without exposing them to frosty air. Examine them carefully every day, and should there be any damp on the inside of the hand-glasses, have them rubbed quite dry with a dry cloth every morning.

FORCING-HOUSES AND PITS.—Continue to bring in a succession of *Roman Hyacinths*, *Tulips*, *Lily of the Valley*, *Polyanthus Narcissus*; also clumps of *Spiræa japonica*, *Solomon's Seal*, and a few plants of *Deutzia gracilis*, and *Azaleas Deutsche Perle* and *Fielder's White*. The occupants of these structures will be benefited by syringing them overhead once or twice a day. Maintain the night temperature at from 65° to 70°, with a rise of from 5° to 10° by day.

THE STOVE.—The chief work in this department at the present time will be the thorough cleaning of all plants infested by mealy-bug, brown and white scale, using for this purpose *Fir-tree oil*, or some other trustworthy insecticide; also cleanse the houses by thoroughly washing the sashes with soft-soap and water, and dress the walls with hot lime-wash. If not previously done, lose no time in securing a supply of good fibrous loam, leaf-mould, peat, and sand, in readiness for use when required, a little forethought at the present time saving much inconvenience when the busy season commences. Most of the occupants of this house will be at rest, and should be excited as little as possible. During

the frost, care must be taken in not keeping a high temperature at night, and if it fluctuate between 55° to 60° it will be sufficiently high; by day, the thermometer may rise from 5° to 10° with sun-heat. A roof-covering of some description at night is very beneficial in keeping the house at the required temperature, and preventing aridity. Watering and damping down should be done with great care, and, in the case of the first, as early in the day as possible. *R. Milner, Penrice Castle, Swansea.*

FRUITS UNDER GLASS.

EARLY MELONS.—When penning these notes, the thermometer stands at 8°, or 24° of frost, and those who have very early forcing on hand will require to prepare everything in readiness for getting to work in better weather; and much may be done in this way by making up heaps of leaves and stable-dung in readiness for hotbeds. For very early Melons, I prefer to sow a few seeds in about the second week in December, so as to have plants of good size ready for planting out in the middle of the month of January. Failing this sowing, no time should be lost in sowing in small 60-pots, one seed in a pot, and placing the pots in a bottom-heat of 70° to 80°, keeping the soil on the dry side till the seedlings appear above ground. The watering-pot should be very charily used, as the seeds rot in the soil if the latter be too moist. Beds should be made up on hotwater-pipes for the early plants, aiming at maintaining a steady bottom-heat. Hotwater pits are not necessary, for Melon culture can be carried on with ordinary fermenting materials and when this has to be done, plenty of leaves should be mixed with the manure, the heat lasting much longer, and being steadier. For Melon growing good loam should be placed in small heaps on the beds, making it firm, and a little fine compost being used when planting. I have seen leaf-soil and decayed manure used for this purpose, but I think it is a mistaken practice, that results in weakly instead of the more desirable sturdy growth. Do not place too much loam on the beds for early fruiting, but add it as the plant's roots extend. In later forcing this is not necessary. When the heat in the beds declines to 80° to 85°, planting may then take place, making the plants firm in the soil, and not affording much water, but well syringing the house or pit, and keeping the evaporating pans filled, which will have the effect of checking the increase of red-spider. On affording water let it be warm, and keep the collar of the plants dry from the beginning, and give a night temperature of 65° to 70°, and 70° to 80° by day, giving air on favourable occasions.

STRAWBERRIES.—These plants may now be prepared if early fruit is wanted, although those who may require fruit early in February will have made a start some weeks since. There is not much gained by starting very early, the results not compensating the grower for his labour and fuel. The first week in January will be a good time for fruit in March, and as there are different modes of getting the plants into growth, I intend to advise a simple method, namely, plunging the pots in a warm bed made of fresh leaves, and brought up close to the glass. The pit or frame should have a thick covering at night, so as to ensure an even temperature, and I find this old plan one of the best, and certainly better than shelves in a vinery, the warmth from the leaves assisting the flower-spikes to push up, which they do not do so well on shelves at a distance from the glass. The cleansing and preparation of the plants were so ably treated in the Calendar for December 13, that it is not necessary to say more on the subject; though I may remark, I do not advocate top-dressing to the extent that it is often carried out by the removal of a lot of top-soil in the pots, and thus injuring the roots in that part of the pot. We never top-dress our plants at forcing-time, and only clean the surfaces of them if any top-dressing is needed; it consists of decayed cow-dung. A heavy dressing at starting is often very deceiving, the new material keeping too wet, whilst the body of roots lower down in the pots may be suffering for want of moisture. The night temperature in the pit should range from 45° to 50° in mild weather, with a rise of 10° by day. Give the plants a slight damping over twice daily in fine weather. Succession-plants should be placed on shelves in fruit-houses just started, and these will form a succession. For early forcing I prefer Vicomtesse H. du Thury, King of the Earlies, and Crescent Seedling. *G. Wythes, Sion, Brentford.* [Directions for Vineries will be given in our next issue. Ed.]

THE HARDY FRUIT GARDEN.

HINTS AS TO GENERAL WORK.—The more important operations in this department, viz., planting, lifting, and root-pruning trees, have been at a standstill for some weeks, and none can be undertaken until mild weather sets in, when all arrears must be cleared up with all speed. For the present we must content ourselves with the examination of the blinds and other means of protection employed in the spring of the year, getting all needful repairs done. In doing this kind of work, it is well to label each length of netting and canvas, indicating the use to which it is to be put. All the stock of wooden stakes required by young trees and Raspberries will need overhauling and putting in readiness for future use; this, and the preparation of labels for trees of all kinds planted, or to be planted, if done now, will lighten the pressure of work at a later period.

YOUNG TREES will require watching where ground game is found, and should be protected with strips of wire netting, or by painting the stems 3 feet high, with a mixture of soot, cow-dung, clay, Gishurst, and paraffin—the last two in moderate proportion.

PRUNING GOOSEBERRIES.—Although the best time to prune these plants is shortly after the fruit



FIG. 5.—[ONE OF OUR EARLIEST CONTRIBUTORS]

is gathered, many gardeners defer it to a later date, which has its advantages if bullfinches and tomtits abound. In pruning the bushes, keep the centre moderately clear of shoots, endeavour to give a nice rounded form to the bushes, let each main branch be terminated by an unstopped young shoot, and spur back to an inch or so all lateral shoots springing from the main ones; remove all suckers from about the stem. Do not prune, if it can be avoided, when the branches are frozen. After the frost is out of the ground, remove the upper portion of the soil under the bushes, and give a thorough dressing with new soil, lime, and soot, to destroy the grubs of Gooseberry caterpillar. If the lime and soot be scattered over the bushes, moss on the branches will be killed. In making new plantations, the ground should be trenched, and if poor, well manured. In planting, keep the earlier varieties apart from the latest—an advantage when protecting the fruits. In anticipation of a thaw, wheel soil and manure for top-dressing to where it will be required, leaving it in heaps. *H. Markham, Mereworth Castle, Maidstone.*

THE KITCHEN GARDEN.

GENERAL WORK.—We have passed through one of the most severe months which has been experienced for many years, and we are now in the New Year with but very little, if any, improvement

in the weather. Trenching and digging have been in abeyance for some time past, and for several days after the snow disappears, it should not be attempted, as more harm than good would be done. If not already done, let the stock of Pea and Bean-sticks be examined, and the best preserved, and put in readiness for use. Bean-sticks, which are too short for the proper use when repointed, make good supports for tall-growing Peas, when stuck in among the ordinary Pea-sticks. New sticks of all kinds should now be cut or bought, and prepared and sorted for use. Examine fruit nets, doing any repairs that they may want; also get a sufficient number of seed-boxes in readiness, putting the handiest man to this kind of work.

PEAS AND BEANS.—The first sowing of Peas may now be made in 60-pots or in boxes, for the transplanting on warm borders at a later date. The pots or boxes should be put into a vinery or Peach-house just started, or in pits where the heat does not exceed 50°. Neglect of this will be weakly plants. William Hurst and William I. are good for this purpose, the latter being the one which I prefer. Sow also a sufficient quantity of Broad Beans in pots or boxes for planting out; for these sowings, boxes are better than pots. These should be filled with a mixture of loamy soil that will hang together somewhat when the plants are transplanted. The seed should be sown in rows 3 or 4 inches apart in the boxes, and lightly covered. If the soil be moist, give no water for a few days; and as soon as the seeds sprout, bring the boxes close up to the light, and when the seedlings are 3 inches high, remove them to a cooler place. In pots a dozen or more seeds may be sown. The best Broad Beans for early sowing here are Sutton's Mammoth Long Pod and Carter's Leviathan, which always prove to be quite as early as the so-called earlier varieties, and they have much more handsome pods, and the quality is good.

LETTUCE.—Sow a pinch of white Cos Lettuce—Superb is a good one; also All The Year Round Cabbage Lettuce. Sow in pans, and place in a nice warmth, pricking the seedlings out when they have two pairs of rough leaves.

FORCING.—Old Mushroom-beds should be replaced with new ones, to keep up the supply. Wherever new beds are made, it will be found that less damping of the floors will be necessary, and also less artificial heat. After the newly-made beds are spawned, which should be done when they have attained a temperature of 80°, as long as they do not go higher, the loamy covering of soil should be put on them, making it firm and level. The temperature may range from 55° to 60°.

Get materials for hotbeds prepared for Carrots, Radishes, Potatoes, &c., and these should consist of two-thirds hard tree leaves and stable manure, although the latter may be made good enough for the purpose, in the absence of the leaves. *C. J. Waite, Glenhurst Gardens, Esher.*

THE APIARY.

As after the turn of the year the queen bee recommences laying eggs, and from this time forward the brood nest is slowly enlarged, beekeepers should be on the move also. Spare hives should be obtained, and orders given for anything likely to be wanted in the shape of sections, section crates, frames, comb foundations, &c., which appliances can be bought cheaper at this time of year, when makers are not so busy as later. In buying section crates, and sections, it is well to point out that what is known as four-way sections are now considered to be the best for general use. Instead of having only one opening at the top and the bottom, they have a similar aperture at the sides as well, and are arranged in the crate so that there is a bee space a quarter of an inch between the rows. The advantages are that the bees can cluster all round each section, and so better generate and conserve the heat which enables them to build cells up to the extreme edges of the section, and completely fill it with honey. They also are not under the necessity of leaving passage-ways or "pop-holes," as they are sometimes called, at the corners, and which detracts from the finish and appearance of the section.

Any hives that require moving short distances in the apiary, can be placed in the position it is intended for them to permanently occupy, after the bees have been confined for a few weeks by cold weather. It is a good plan to arrange hives with the backs abutting on a path, taking care that the bees have a clear flight for several yards in front. *Expert.*

EDITORIAL NOTICES.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

WEDNESDAY, JAN. 7 { National Chrysanthemum Society, at the Royal Aquarium (two days).

SALES.

MONDAY, JAN. 5 { Dutch Bulbs, at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 7 { Roses, Fruit Trees, Ornamental Shrubs, Japan Lilies, and Dutch Bulbs, at Stevens' Rooms.
Lilies, at Protheroe & Morris' Rooms.

FRIDAY, JAN. 9 { Orchids, at Protheroe & Morris' Rooms.

SATURDAY, JAN. 10 { Roses, Fruit Trees, Ornamental Shrubs, Japan Lilies, and Dutch Bulbs, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—36°.4.

Our Jubilee Year. On the 2nd of January, 1841, appeared the first number of the *Gardeners' Chronicle*. The present year, 1891, is, therefore, our year of Jubilee. Under the circumstances, it will not be deemed inappropriate if we talk a little about ourselves, and dilate somewhat upon the state of affairs horticultural as reflected in our columns at that time.

FIFTY YEARS AGO.

In the first place, we may be permitted to call attention to the Prospectus, which is reprinted in another column. The promises held out in that prospectus we have endeavoured to fulfil, and although we are conscious of not having always fully realised our own ideal, we are buoyed up by the knowledge that we have conscientiously done our best, and we have seen homage paid to our success, at home and abroad, by the sincerest of flatterers, the imitators and copyists.

Few readers can have any conception of the difficulties attendant on the production of a first number. In the case of the *Gardeners' Chronicle*, we have it in evidence that the paper was reset five times before it was considered fit for the public inspection. "When it did appear," says one immediately concerned in its production, and whose letter is before us as we write, it met with general approval, "notwithstanding the small type and solid appearance." The sale of the first number was considered at that time astonishing, though now-a-days a different adjective would be used. It did not reach 3000

copies; but 1000 copies were also distributed gratis as advertisements. Such, nevertheless, was the subsequent demand, that the two first numbers—at least, in so far as the horticultural part was concerned—had to be reprinted.

As gardening has extended its scope, and lovers of gardening have augmented, so the demands upon our space have increased. At first, eighteen or twenty columns weekly sufficed for a chronicle of horticultural affairs, and an equal amount of space was devoted to general news. In 1843 the *Agricultural Gazette* was added, so that for many years the paper consisted of three separate sections, with as many different editors, and devoted respectively to gardening, to farming, and to general news. As stamp duties were repealed and paper cheapened, the necessity for the newspaper ceased, the daily papers supplied the requisite information better and more fully than we could do, the space was grievously needed for exclusively gardening intelligence, and so the general news portion of the journal was abandoned after 1869.

In like manner, the growing necessities of the gardener resulted in the secession of the *Agricultural Gazette*, so that since 1873 the "*Chronicle*" has been devoted solely to horticulture, the increased space being largely utilised by illustrations, which in olden times were rarely and scantily furnished. In the first number there was but one, that relating to British Oaks, and for many years it happened that illustrations were given at intervals only, so that many numbers have none; they are now counted by hundreds in each year. The price was originally 6d. per week, and this was reduced to 5d. when the stamp duty was taken off in 1862. At this price it remained for several years, till in 1887 it was decided to lower the price to 3d., thus reducing the cost by two-fifths without any material loss to the subscribers. The result was a large increase in circulation—an increase that, we are happy to say, is steadily maintained, in spite of the fact that there are now eight or nine weekly competitors, where formerly there were but two or three.

It is not our intention, however, to write the general history of the *Gardeners' Chronicle*; our present concern lies exclusively with the first volume, that for 1841.

The *Gardeners' Chronicle* was founded by Dr. LINDLEY and Sir JOSEPH PAXTON, in conjunction with others who were not so directly concerned as they were with horticulture. Its establishment was largely due to the unsatisfactory state of a portion of the gardening Press of that day, which was not conducted with that breadth of purpose now considered desirable, which pandered to popular caprice rather than endeavoured to lead the public to appreciate higher things, and which was conducted with a scurrility and intemperance of language now happily obsolete.

The general outlines of the careers of LINDLEY and of PAXTON are well known to horticulturists and botanists. We have not space, on this occasion, to advert to them at any length. Suffice it to say that in 1841, LINDLEY, in addition to his professorial work at what is now University College, was really the acting manager of the Horticultural Society, and had the general superintendence of the garden at Chiswick, then a many times larger and more important establishment than it is now, and was also conducting the *Botanical Register*. PAXTON, who had worked as a lad in the same garden, was the head-gardener at Chats-

worth, and the trusted friend of his employer, the then Duke of DEVONSHIRE.

Horticulture has never furnished two men so competent as those two to direct the fortunes of a horticultural journal. The weekly *Calendar of Operations*, which has always formed a conspicuous feature of the *Gardeners' Chronicle*, was in the first instance written entirely by "JOSEPH PAXTON, Chatsworth." No one knew better than he what were the requirements of the gardener in his every-day work, and no one was better fitted to supply them. PAXTON, moreover, had lately published his *Botanical Dictionary*, and was conducting the *Gardeners' Magazine of Botany*. But it would be quite superfluous to pronounce any eulogy on these two great men. They have been judged by their works long ago, and their place in the hierarchy is settled beyond possible doubt; nevertheless, it is fitting at this, the beginning of our Jubilee year, to lay before a new generation of readers the portraits of the founders of the *Gardeners' Chronicle*.

EARLY CONTRIBUTORS.

Editors, however, would be deprived of half their work, and their readers of nearly all that they have a right to expect were there no contributors. On the first page of the new journal will be found a list of the principal contributors, comprising then, as now, the "flower" of the gardening community, and the leading men in those branches of science connected with gardening. It may be interesting to compare this select list of contributors with the much larger one that is now published from time to time, of those friends to whose kindness we are under such obligations, and to whose knowledge our readers are so much indebted.

Of the contributors mentioned in the original list not one remains, though some, like MARNOCK have only recently been taken from us. Of course, additions were speedily made to the number, and among these was a gentleman still happily among us, and one of whose taste, skill, and knowledge of gardens, and of what to grow in them, as still exercised, we made special mention not long since—we allude to Mr. JAMES BATEMAN. On March 27, 1841, appeared the first of a series of articles on Orchidaceous Epiphytes by JAMES BATEMAN of Knypersley; other communications from his pen followed, and in 1890 we had also the pleasure of inserting contributions from him, as we hope long to be able to do. As the last survivor of the contributors to our first volume in 1841, our constant friend and supporter since, we tender our homage and our gratitude to JAMES BATEMAN in 1891. In the first-named year appeared Mr. BATEMAN's truly *magnum opus*—one unrivalled in its way—the *Orchilaceae of Mexico and Guatemala*, with noble illustrations of plants, and quaint woodcut tail-pieces by CRUIKSHANK. A copy will be found in the Lindley Library. A description of Mr. BATEMAN's Orchid-houses at Knypersley is given in 1841, p. 263. Professor BABINGTON, of Cambridge, also still left to us, is mentioned, but we have failed to find any direct communication from him in the first year, though he also contributed to our columns of 1890.

In the first volume will also be found contributions from CHARLES DARWIN, an occasional contributor till the last years of his life; Dean HERBERT, Professor DAUBENY, Dr. ROYLE, HENSLOW of Cambridge, ERRINGTON, TILLERY of Welbeck, McINTOSH of Dalkeith; SOLLY, whose articles on horticultural chemistry were reprinted under the title of "*Rural Chemistry*;" CURTIS, the celebrated



Wm Lindley

entomologist, who was after a few years succeeded by the venerable Professor WESTWOOD, still our honoured referee on matters entomological. PHILIP FROST, of Dropmore, well remembered by many of the present generation, MORREN, the father of the late Professor at Liège, whose death has created such a void among his friends; and L. VILMORIN, were also among the contributors to the first volume. ROBERT THOMPSON, an honoured name so long as pomology exists, first appears as the writer of a note on the Dunmore Pear at p. 671; and ROBERT FORTUNE, afterwards to achieve renown as a traveller and collector, appears several times as a contributor.

BERKELEY did not write much in the first volume, but his familiar initials, "M. J. B." were from that time till a year or two before his death, seldom absent from our columns. BERKELEY was a tower of strength to us in all questions relating to the physiology and to the diseased conditions of plants, especially those dependent on the presence of fungi.

Some notes and reflections concerning those amongst the early contributors who were practical gardeners are given in another column by Mr. FISH, who shows, as we think rightly, that while the number of average gardeners has largely increased, the number of first-rate all-round gardeners has not increased in proportion.

In the very first number are communications from Paris and Madras, forerunners of that extensive correspondence and wide circulation since developed in all our colonies and dependencies, as well as in America. The descriptions and illustrations of new plants, and other articles of permanent interest, have given an abiding value to the paper, back volumes of which are eagerly sought for at high prices, the more so, that they can no longer be supplied in the ordinary manner, the stock being long ago exhausted.

It is of course quite impracticable to allude to all the horticultural events of 1841, but we may, in passing, refer to some of the more important.

Kew.

Foremost in importance is the announcement, at p. 179, of the fact, that Sir W. J. HOOKER, then Professor of Botany at Glasgow, "has been appointed to the charge of the Royal Botanical Garden at Kew. We trust that this wise step will be accompanied by such other changes and improvements in this important establishment as will ensure its efficiency, and prove that the ill-advised plan of destroying it, last year entertained by certain gentlemen connected with the Government, was never approved of by Her Majesty's responsible advisers." Of the proposals which appear so grotesque now, to place Kew under the charge of the Horticultural Society, or to abandon it altogether, we wrote in a recent volume. We may be excused from noticing the fact that the establishment of the *Gardeners' Chronicle* and the reorganisation of Kew were contemporary events, and that from that time to this the friendly and most valuable assistance of its directors and of its officials of all grades and in all departments, has been uninterruptedly given to us, to the great benefit of our readers. It is of interest in relation to Kew to note, on p. 535, a notice to the effect that, "We are extremely glad to find that improvements are in progress here. That persons, provided they do not touch the plants, should be permitted to walk through the grounds without attendance, is of itself a great step beyond the old system. On enquiry, we found that there was a large increase of respectable company; and we are

informed that neither plants nor flowers have been injured by the visitors since the alteration which was made last April." We are constrained by considerations of space from quoting the remainder of the passage, signed, like the one following it, relating to "Ealing Park, the seat of Mrs. LAWRENCE," by "W. M.," the initials of the elder brother of the present Editor, upon whom devolved much of the work of preparation of the new venture.

It is also mentioned on another page, that Kew was enriched during this year by the acquisition of the Cacti and numerous other plants, which had formed part of the collection of Mr. LAMBERT.

In 1841, Sir JOSEPH (then Dr.) HOOKER, who was destined to succeed his father as Director of Kew, was in the Antarctic regions with the expedition under Sir JAMES ROSS, and here he laid the foundations of his great reputation, which, so far as horticulture is concerned, was so greatly added to by his researches in the Sikkim Himalaya a few years after.

THE HORTICULTURAL SOCIETY.

The Horticultural Society—it was not Royal in those days—occupied then, as now, much of our attention. It would be very interesting, did space permit, to take note of the doings of the Society, and of the plants exhibited at its meetings. It must suffice to say that at the very first meeting recorded in our columns—that for December, 1840—the first collection mentioned was a group of Orchids from Mrs. LAWRENCE, the mother of the present President of the Society, and comprising *Zygopetalum Mackaiana*, with thirteen spikes of flowers, and a noble plant of "the old *Epidendrum nutans*." Heaths were exhibited by Mr. JACKSON, of Kingston. Mr. GREEN, among other things, sent "some of the best December Cucumbers we ever saw, grown in a manner peculiar to himself." *Chrysanthemums* came from Mr. EDMONDS, gardener to the Duke of DEVONSHIRE, and others. Among the Potatoes shown was "Early Champion," Pansies and seedling Correas, Marie Louise Pears, retarded by matting the trees up in October when the foliage was still on, were also shown. Other Pears were exhibited, with accompanying comments, from the garden of the Society. At the January show, Mrs. LAWRENCE was again to the fore with Orchids, in spite of the inclemency of the weather. Mr. JACKSON once more sent Heaths, and Mr. TILLERY exhibited a remarkable fruit of the Madras Citron or Pummeloe, measuring 2 feet in circumference, and weighing 6 lb. An enormous Shaddock, 2 feet 4 inches in circumference and 5 lb. 15 oz. in weight, from a shoot grafted on the Citron, attracted great attention; it was one of ten of the same size, the plant having been trained on the back wall of a conservatory. Guavas, Granadillas, stoneless Litchis, the latter exhibited by Mr. REEVES, and, so far as we know, not seen since; Black Hamburg Grapes grown without fire-heat, and numerous Apples, made up a show which must have been better and more interesting than any we expect to get now in January.

Obviously we cannot pursue this subject further, but it may be of interest to know that in that year the Society was flourishing, its regular income exceeding its expenditure by £1578.

The Duke of DEVONSHIRE was President, Dr. HENDERSON Secretary. It is not stated in the report who was the Treasurer. His descendant, Mr. CROWLEY, would be highly satisfied to be able to report a similarly good balance now. In that year, too, it is noted that over 19,000 people attended the garden meetings at Chiswick, and

that, when there were neither railways nor trams, and when the population of the surrounding district was not a fourth of what it now is!

BENEVOLENT INSTITUTION FOR THE AGED AND INDIGENT GARDENERS AND THEIR WIDOWS.

Such was then the title of what is now known as the Gardeners' Royal Benevolent. It is recorded of it, "on January 23, that it is now established beyond any probability of failure." Mr. BOWLER was the Honorary Secretary, and Mr. ROGER CUTLER, like ourselves, celebrates this year his Jubilee in connection with the Society! Among those attending the dinner on that occasion, we find some names that are now names only, such as those of GROOM and CHANDLER, firms which have long since ceased to exist; but others are still represented among us, as LANE of Berkhamsted, and Low of Clapton. Mr. POWNALL, the chairman, alluding to the aid given by the Press, said that "he had ever found the Press the plough of every benevolent institution, and when the plough was got to work, the crop was generally very productive." We do not find the amount of income and the number of pensioners recorded, but we all know what excellent progress has been made in an institution of which we are privileged to emphasise the statement made by our predecessors "that it is in every way deserving of support." H.R.H. the Duke of CAMBRIDGE was then President, and among the committee were such well known names as Beaton, Cattleugh, Chandler, Charlwood, Groom, Gaines, Henderson, Lane, Low, Mountjoy, Noble, Osborn, Paul, Sangster, Toward, and Waterer of Knap Hill. At the election on the 3rd of June in that year, two candidates only could be elected!

NOVELTIES OF 1841.

At p. 503 a new manure called guano is mentioned for the first time, and its composition and uses are alluded to. In some notes on RIVERS' nursery at Sawbridgeworth, it is noted with reference to Roses, "that an Italian variety called *Manettii*, of strong growth, has been found to make an excellent stock for Teas and Chinas;" while on p. 343, it is announced that Messrs. LUCOMBE PRINCE & Co., of Exeter, had sent a new Rose by them called *Rosa devoniensis*, and of which high praise was given, praise which subsequent experience has amply endorsed. MYATT had just introduced his famous British Queen Strawberry, which was made the subject of a Leader, and the *Stephanotis* was a novelty. The *Deodar* had been just introduced on a large scale, and very high estimates were made in editorial and other articles as to its value—estimates which have not wholly been justified. The *Araucaria imbricata* is first noted as having flowered in Italy. The curious *Cytisus Adami* attracted the attention of Mr. DILLWYN in this year, as it continues to do year after year, specimens being sent to the Editors every season as a wonderful novelty—wonderful, indeed, but no longer novel.

A hybrid Aloe, raised by Mr. RICKETTS, gardener to W. H. BALDOCK, Esq., of Petham, near Canterbury, is described [by Mr. MASTERS, presumably], it was a hybrid between Aloe variegata, the Partridge-breasted Aloe, and *Gasteria verrucosa*, one of the Tongue Aloes. The plant is still in existence, and its interest as a cross between two such distinct sections has not diminished with time.

Mr. MASTERS also alludes in this volume to his introduction to the Kentish farmers of *Trifolium incarnatum*, which he had obtained in Belgium some few years previously.

It is curious also to note that the lovely blue

Leschenaultia, which attracted so much attention at the Temple Show last year, was the very first flower alluded to in our columns, the British Oak alone having precedence of it.

FLORISTS' FLOWERS.

Florists' flowers received attention, and perhaps to an even greater extent than now, or, at least, in a more restricted and specialised form, for "properties" were then objects of greater veneration than they are now. To show what an Auricula was like in 1841, we add an illustration (fig. 7).

What the Hyacinth of the period was like may also be seen from a figure we are sorry to be unable to repeat. Double Hyacinths were then the fashion. We have improved since then in taste and in cultivation, as any visitor to our present spring shows will admit who compares the plant figured in 1841 with those now exhibited. The article accompanying this illustration was written by a name still held in honour—that of POLMAN MOY, of Haarlem. It is interesting to note, with reference to the Hyacinth, that CARTER of Holborn, and SUTTON of Reading, to take them in alphabetical order, were advertisers of these bulbs fifty years ago, as now. Great progress has been made with the Calceolaria (fig. 10), Auricula, Pansy (fig. 9), and Pelargonium, as may be judged from the illustrations given in our first volume, and some of which we are enabled to repeat. Dr. HORNER, of Hull, the father of the present florist, was at that time a frequent contributor to our columns on the subject of his favourite hobby.

ADVERTISEMENTS.

Now-a-days, when papers must be low-priced, few, if any, can cover their expenses by the sale of copies or by their circulation only, however large it may be. The advertisements, then, are a most important factor in the conduct of a journal. From this point of view it is significant to note that in the earlier numbers not more than three columns of advertisements appear! and though the number gradually but very slowly increased, it is evident that a relatively high price and a low expenditure were then required to make the paper a success. In fact, only eighteen or twenty columns of horticultural matter, with no woodcuts, or only very few, and those of the simplest character, were then given at a cost to the subscriber of nearly double what he pays now for twice and sometimes three times the quantity of matter, to say nothing of the illustrations!

The old advertisements to which we have referred are very interesting to look back upon, and afford material for a history of horticulture quite invaluable. Fortunate are those who, in binding their copies, have not destroyed the advertisement sheets. We can only allude to a few samples to confirm our statement. The very first advertisement is one by T. RIVERS, jun., of a new perpetual Rose called Prince Albert, described as a cross raised by M. LAFFAY, of Paris, from the Bourbon Gloire de Rosamène, fertilised with the pollen of some Damask and hybrid China Roses [*sic*!] Plants at a guinea each were announced to be delivered to subscribers at Mr. KERNAN'S, 4, Great Russell Street, Covent Garden. The name of RIVERS is still in the fore front, and many of our older readers will remember KERNAN, but the Rose—where is it? Lower down, in the same column, R. MARNOCK announces having entered into an engagement with the Royal Botanic Society of London, in consequence of which he informs the reader that he has taken a partner to assist in the business of

a nurseryman at Hackney, where they "hope to receive that support which it will be their constant endeavour to deserve." TYSO & SON, of Wallingford, advertise Ranunculuses [who does now?], CATTLEUGH, PAMPLIN, and GAINES offer Geraniums, or what we now know as Pelargoniums; GROOM recommends his collections of florists' flowers, and had even then a good stock of Liliun lancifolium; JAMES CARTER warrants his flower-seeds as genuine; T. & E. BROWN recommend their Dahlias; and JOHN STANDISH offers Fuchsia corymbiflora. Numerous hot-water engineers claim public notice, among them the still famous firm of J. WEEKS & Co.

Of the advertisements of HUGH LOW & Co., further mention must be made, as they are very interesting. At p. 425 there is an advertisement of a select list of plants offered by this firm, and comprising fourteen narrow columns of small type. The historian of gardening will find it to his profit to look down this list. We can only note in passing, that there are mentioned in it twenty-six species of Acacia, sixty-one kinds of Camellia, fifteen species of Banksia, as many of Fuchsia, 118 kinds of Heath (!), twenty-two species of Verbena, &c. Interesting as it is, we must forbear to cite more; but from an inspection of this list it is clear that while New Holland and greenhouse plants generally were far better represented then than now, stove plants, fine foliage plants, "decorative plants," Ferns, and plants grown for "cut flowers," are better illustrated now. In the long list before us there is no Orchid, no Fern, and no Nepenthes.

Among other early advertisements we note that "Mr. KNIGHT (the predecessor of Messrs. VEITCH), had the honour to inform the nobility and gentry that his large scarlet Tree Rhododendron (the true arboreum), was in flower."

Messrs. PROTHEROE & MORRIS were instructed by the executors of the late Mr. HOGG, to offer to public competition at the Mart, a portion of his celebrated collection of Carnations and Picotees. YOUELL of Woolwich, and MASTERS of Canterbury, offered what were then large collections of Orchids; and the three columns of Succulents, advertised by the last-named nurseryman, comprise many plants that might be sought for in vain now-a-days in the trade.

Among other advertisers were the once-familiar names of ROLLISSON, and of SALTER of Chrysanthemum fame, then at Versailles; WOOD of Maresfield, NUTTING, KEYNES—who offers Dahlias, and J. and C. STEVENS, the famous auctioneers.

NEWS.

Amongst the interesting events of 1841 that were recorded in our newspaper for that year, it may not be uninteresting to remind our readers that the birth of H.R.H. the Prince of WALES was chronicled in it, while at an earlier period it was noted that the Princess ROYAL, the now widowed Empress of GERMANY, had to be vaccinated a second time, as the first operation was not successful. We are further told that Her Royal Highness was vaccinated by Mr. BLAGDEN, in the presence of Prince ALBERT, from the child of a lady residing at Brompton. The lady and her child left town for Windsor, in company with the Court physicians. The QUEEN and Prince ALBERT, it is related, went skating a day or two after, so that the Royal parents had, happily, no cause for anxiety in the matter.

The weather that was experienced about the time that the *Gardeners' Chronicle* was in preparation, and for some time after, was singularly like that which has hitherto prevailed this season, fogs being in both cases noted as remark-

able for their density and obscurity, and the frost for its intensity and duration.

The *Great Western* steamship accomplished the voyage from New York in fourteen days ten hours! The Atlantic greyhounds now do it in less than half the time. Consols were at 88½. The great botanist, A. P. DE CANDOLLE, the originator of the *Prodrromus*, and the author of so many works of the highest value to botanists, died in this year, as also did the celebrated botanical artist, FRANCIS BAUER. DICKENS was writing *Barnaby Rudge*, as announced in our advertising sheet, and *Punch* was established, and it may cause some amusement if we insert the original advertisement, as it appeared in our columns.

TOO-TO-TOOIT-TOOIT.

ON SATURDAY, July 17, 1841, will be published, Price THREEPENCE (size of the *Athenaeum*), No. 1 of a new weekly Work of Wit and Whim, Cuts and Caricatures, to be called PUNCH, or the London Charivari. This *Gulfuograph* will be a refuge for wit, an asylum for the thousands of orphan jokes which are now wandering about without so much as a shelf to rest upon, and will contain original humorous and satirical articles by all the funny dogs with comic tales.

Published (for the Proprietors) by R. BRYANT, at "Punch's" Office, 13, Wellington-street, Strand; and sold by all booksellers.

LEIGHTON'S *Flora of Shropshire*, LINDLEY'S *Elements of Botany*, and a selection from KNIGHT'S horticultural papers, were issued in this year. LIEBIG'S *Organic Chemistry* was also published in the form of an English translation by LYON PLAYFAIR. It formed the foundation of much that lies at the root of vegetable physiology and the cultivation of plants, and wrought great good to agriculture, though in some particulars, the great German Professor has been proved to have been in error in his notions. The two SCHOMBURGKS were collecting in Guiana; WILLIAM LOBB, who afterwards introduced the Wellingtonia, was in Brazil. The return of M. LINDEN from Mexico is announced, and soon after we hear of him with SCHLIM in Colombia and Venezuela; and news from HARTWEG, then collecting in Guatemala for the Horticultural Society, are given on the same page. FUNCK and GHIESBREGHT were like LINDEN, also collecting in equatorial South America. At this date, BENTHAM, who shortly became the Secretary to the Horticultural Society, brought out his description of the plants collected by HARTWEG.

One subject that has lately occupied attention at the hands of the Rev. Professor HENSLOW in our columns, viz., the influence of coloured light on vegetation, was also treated of by Dr. HORNER in our first volume.

Then, as now, the editor complained that correspondents sent miserable scraps for naming, badly packed, and insecurely labelled, aggravating the evil by wrapping them in cotton-wool; then, as now, confusion existed as to the relative functions of editor and publisher, and communications on gardening and botany found their way to the latter, while letters relating to advertisements and other business matters were addressed to the editor as now!

And here we must bring our retrospect to a close, not indeed from any want of matter, but from lack of space, and from the notion that the reader may not feel the same interest in the matter that we do. We cannot, however, enter upon our jubilee year without a tribute to the memory of those that are gone, and an expression of hearty gratitude to contributors, advertisers, and readers for their generous support for the last half-century—support which, we hope, will be vouchsafed for the next. So far as in us lies, we will, with a continuance of their aid, endeavour to keep up the old reputation of the

Gardener's Chronicle as the "*Times of Horticulture*," and cater for the best interests of our clients.

"JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—The third part of the twelfth volume has just been issued, containing the papers read at some of the meetings and conferences of the past year. Mr. GOLDRING's paper on spring-flowering trees and shrubs, calls attention to a class of plants now rather neglected. The very useful essays on Pæonies by Messrs. PAUL and LYNCH will be highly appreciated, as also that on hardy flowers by the Rev. C. WOLLEY DOD, containing some very valuable hints for the cultivators of these plants. The proceedings of the Carnation Conference include many matters of interest, historical, cultural, and botanical. In his paper read at the Fern Conference, Professor BOWER deals with speculative matter of high importance, but too abstruse for such an audience, and having, so far as can be seen at present, no very direct relation to matters cultural. The papers on hybrid Ferns, plumose Ferns, and hardy Ferns, are all valuable contributions to knowledge, though some of Mr. LOWE's statements are so extraordinary, that before they can be accepted they must receive confirmation at the hands of other observers. The fact that Ferns do cross, or perhaps even hybridise, must be considered as established, but the multiple fertilisation by means of the spermatozoid of different varieties acting on one and the same germ-cell, and ultimately resulting in the production of the characters of three and even four varieties on the same frond, is certainly open to question. The fact cannot be gainsaid after inspection of the specimens showed at the conference—it is the explanation, or reason why, that requires further substantiation. In the meantime, Mr. LOWE's experiments are most interesting, and suggestive as throwing light on the origin and perpetuation of varieties, and their gradual evolution into species. Their cultural importance is also great as indicating a possible means of procuring certain variations at will. Singularly enough we do not find any list of the awards made at the Fern conference; other papers in this part are devoted to fruit evaporating (Mr. Badger); to the Hollyhock (Mr. Douglas), and the Gladiolus by Messrs. Lemoine, Kelway, and Baker.

A LIBELLER PUNISHED.—There has recently been tried at Brussels, a case in which the committee of the Cercle d'Arboriculture of Belgium, sought redress from the representatives of a Brussels journal against a statement that the medals awarded at a certain exhibition were not gold, nor of the value they pretended to be. The Court having heard the evidence, decreed that the defendant should pay a fine of 200 francs, insert a full statement of the judicial decree in his own paper, as well as in two other journals selected by the plaintiffs. It is thought that political antagonism was at the root of the matter. In any case, the value of a prize should never be estimated in money value, as if it were a commercial transaction.

THE SCHOOL OF HORTICULTURE OF VERSAILLES.—M. EDWARD ANDRÉ has published his report on this famous establishment, in which he gives an account of its foundation, illustrated by a plan of the garden, details the methods of cultivation, describes the houses, explains the system of instruction of the pupils, and gives a summary of the results obtained. It is only fifteen years since the old Potager de Versailles was transformed, under the superintendence of Mr. Hardy, into the completely equipped establishment it now is. Here the pupils have an opportunity of studying practically the details of every branch of horticulture, and of obtaining instruction in those general principles in the absence of which no progress can be made. More than 500 pupils have already passed through the school, a large percentage of whom have obtained important situations in various countries besides France. We never see the reports of the Conti-

mental establishments of this kind without regretting our deficiencies in these respects.

PARIS.—The business so long conducted under the management of MM. THIBAUT & KETELEER at Sceaux, has been transferred by their successor, M. J. SALLIER, to Neuilly, 9, Rue Delaizement. It is at the entrance of the park at Neuilly, a short distance from the Bois de Boulogne, within easy and speedy access of Paris.

MOLLE. KOCH.—This lady, whose delicately faithful drawings of Cyripediums we have had occasion to note, has lately married M. FOUGERAT, and proceeded with him to Shanghai.

ORCHID EXHIBITION AT THE HAGUE.—We have received a copy of the regulations for this exhibition, to be held at the Hague, Telken Academie, 3, Princesse Gasse, from May 28 to 31.



FIG. 7.—MODEL BLOOM OF FLORISTS' AURICULA IN 1891.

"The show will be international." The schedule comprises three divisions—one for exotic Orchids, containing eleven classes; one for hardy terrestrial Orchids, comprising four classes; and a third for cut flowers, to which five classes are allotted. In each class will be awarded Gold, Silver-gilt, or Silver Medals according to merit. Intending exhibitors and visitors to this important exhibition should apply to Ihr. L. J. QUARLES V. UFFORD, Spiegel Straat 8, La Haye, Holland. The regulations and programme are in English.

JAPANESE CONIFERS.—Dr. HENRY MAYR, lately Professor in the Forestry Department at Tokio, has published a *Monographie der Abietinien des Japanis-*



FIG. 8.—MODEL BLOOM OF FLORISTS' LACED POLYANTHUS IN 1891.

chen Reiches, with seven coloured illustrations, which will be of great importance. For the moment, we can only announce the publication of the treatise, which will have the more interest for our readers in that the latest recension previous to that of Dr. MAYR was published in these columns by Dr. MASTERS, being founded on the specimens collated by JOHN VEITCH, CHARLES MARIES, ROBERT FORTUNE, and others. We believe the book may be had from GUSTAV HIMMER, of Munich.

"THE GARDENERS' MAGAZINE."—We extract the following announcement from the last issue of the above:—"In referring to the death of Mr. HIBBERD, it is necessary to state that there will be no change in the general character of the *Gardeners' Magazine*. It will continue to maintain its independence, and not be associated with any party or interest, but will have for its object the promotion of horticulture, and the interest of those engaged in it. The post of Editor, left vacant by the death of Mr.

HIBBERD, has been filled by the appointment of Mr. GEORGE GORDON, who during the past twenty years has taken a large and important part in the management of the paper. He will be supported by the able staff of contributors who have for so long a time been associated with the journal, and arrangements have been made with other well-known writers to supply interesting and valuable information covering a wide range of subject. The present Editor will not only strive to maintain its position, but, with the assistance he has secured, he believes that the journal will be strengthened in every direction to meet the popular taste, as well as the enthusiast in horticulture." Our best wishes go with Mr. GORDON in his new undertaking, for although he does not bring to it the picturesque qualities of mind of his predecessor in the post, he has sterling qualities and much practical experience, both horticultural and journalistic, which should be of much advantage to him in conducting the paper.

ALMANACS FOR THE NEW YEAR.—We are in receipt of several Almanacs for 1891. From Messrs. FOSTER & PEARSON, Beeston, Notts, comes one showing a month on a sheet, and a summarised calendar of garden work is included. A handy pocket-book is sent by Messrs. BEN. REID & Co., Aberdeen, garden calendars and miscellaneous tables, and useful information being included. Messrs. J. WEEKS & Co., King's Road, Chelsea, S.W., also issue a pocket-book of a similar nature. The eighteenth issue of Calvert's *Mechanics' Almanac* will be found by artisans to be as useful as it has been in previous years. Messrs. SEVEREYNS send us an elegantly got-up calendar, lithographed in colours. The *Weather Almanac* of Mr. B. G. JENKINS has also arrived; it contains a forecast of the weather for every month, and much general information useful for gardeners and farmers.

NATIONAL CHRYSANTHEMUM SOCIETY.—The next exhibition of this Society will take place at the Royal Aquarium, Westminster, on January 7 and 8. How far the wintry weather has operated in retarding late-blooming Chrysanthemums, will be shown on this occasion. It is much to be desired that all growers will co-operate to make this exhibition successful.

RIO JANEIRO.—The Vicomte de SAINT LEGER has just established in Rio a company under the title of the *Companhia Floricultora Brasileira*, for the purpose of providing amateurs with Orchids and other plants. The capital is 500,000,000 reis, or 1,250,000 francs = £50,000.

NURSERY AND SEED TRADE ASSOCIATION.—The announced resignation of Mr. F. C. GOODCHILD as secretary to this association will be received with regret by those who know how greatly he has promoted the welfare of the Association.

MR. S. SUMMERS, who has acted as Foreman at the Royal Horticultural Society's Gardens, Chiswick, for some years, was, on Tuesday, December 30, in the Council-room there, presented with a handsome writing-case, accompanied by an address, on his removal shortly to another sphere of labour. The presentation was made by Mr. J. BARRY, on behalf of the men, who showed their appreciation of the recipient's services in this agreeable manner.

THE BRITISH FRUIT GROWERS' ASSOCIATION.—At a recent meeting of the above body, arrangements were made to hold Conferences in Fruit during 1891 at the following places:—Dublin, in August, in conjunction with the Royal Horticultural Society of Ireland; at Cardiff, also in August, on the occasion of the Cardiff Horticultural Society's Show; at Edinburgh, on one of the days of the International Exhibition in September; and at the Crystal Palace, Sydenham, in the same month. The dates and programme will be announced later, and invitations from several other important centres are under consideration. Committee meetings will be held in the

Horticultural Club-room, Hotel Windsor, Victoria Street, S.W., at 5 P.M., on Thursdays, January 8, February 5, March 5, April 2, May 7, June 4, July 2, August 6, September 3, October 1, November 24, and December 17. Suggestions and offers of assistance at the Conferences named above should be sent to the Hon. Sec., Mr. LEWIS CASTLE, Hotham House, Merton, Surrey.

WILLIAMS' MEMORIAL FUND.—The committee having decided on closing this Fund on Saturday, January 17, they beg that any still intending subscribers will kindly remit the amounts to either of the Hon. Secs., Mr. J. LAING, The Nurseries, Forest Hill, and Mr. A. OUTRAM, 7, Moore Park Road, Fulham, S.W., or to the Hon. Treasurer, Mr. H. J. VEITCH, 544, King's Road, Chelsea, S.W.

"PFLANZENFAMILIEN."—The last issued parts of this valuable work on the families of plants contain descriptions of the genera of the following families, copiously illustrated with woodcuts: Podostemaceæ, by Professor Warming; Crassulaceæ, by Dr. Schönland; Cephalotaceæ and Saxifragaceæ, Zygothylaceæ and Cneoraceæ, the last name a newly-separated family, constructed to include the genus Cneorum only, by Dr. Engler; Malpighiaceæ, by Dr. Niedenzu. The work is published in parts by Engelmann of Leipzig, and may be had of Williams & Norgate, London.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT THE WOODLANDS, STREATHAM.

NUMBERS of beautiful and novel varieties of *Cypripedium insigne* are now flowering in the Woodlands' collection, including *C. i. Measuresiana*, *C. i. nitens superbum*, *C. i. Sallieri*, *C. i. speciosum*, *C. i. punctatum violaceum*, and many distinct unnamed kinds from recent importations, and flowering for the first time in Europe. R. H. Measures, Esq., is an indefatigable collector of all *Cypripedia*, and, in addition to those named above, we noted the very rare *C. Minerva*, a distinct hybrid raised from *C. elegans* × *venustum*; also the new *C. Pitcherianum superbum*, which is one of the largest and most showy of the hybrids. In such a large and complete collection as this, one is able to compare the many kinds, and note differences—for instance, *C. Fitchianum* and *C. Atys* are precisely similar, and a good judge might be excused for saying they were poor forms of *C. Bullenianum*; another instance of similarity is shown in *C. Amesianum*, *C. Rowallanianum* and *C. Measuresianum*. These, however, have points by which they can easily be distinguished, and all are beautiful, *C. Measuresianum* being much the finest of the three. *Cypripedium Lemmonianum* was flowering in perfection, and is quite the finest hybrid of the rosy-coloured section, of which *Sedeni* is the type; many variations of the beautiful *Cypripedium Leeanum* are in bloom, amongst them a specially brilliant example named *superbum*, Woodlands' var., by far the finest form of this grand hybrid we have seen. *C. regale*, another scarce cross raised by J. C. Bowring, Esq., of Forest Farm, Windsor Forest, is also very finely in flower; mention must also be made of a handsome and distinct new species at present unnamed, having port wine-coloured sepals and petals, and a white and green striated upper dorsal sepal. *J. G.*

CALANTHES.

These are now a magnificent sight at Hollowmead, near Teignmouth, S. Devon. There are several hundred plants of *C. Veitchi* and *C. rubra oculata* in full bloom in the large conservatory, where the temperature descends to below 40° on cold nights. The plants are all growing in comparatively small pots, there being three or four bulbs to a 5 or 6 inch pot. Mr. Willis, the gardener, withholds water from the end of October until the beginning of March, and the result is the finest show of *Calanthes* in Devonshire. The spikes vary in height from 3 to 4 feet,

and one fine specimen would, when fully developed, be quite 5 feet. At the back of the *Calanthes* are a quantity of *Euphorbia jacquiniæflora*, which Mr. Willis grows and propagates with much success. Some of the plants were fully 8 feet in height, while others were no more than 18 inches. These dwarf plants are also invaluable for table decoration. *H. S.*

CATLEYA PUMILA × LODDIGESII.

In the last number of the *Orchidophile*, we find a description of this hybrid, raised by M. Maron. The plant is at present less than three years old, and has not attained its full dimensions. The flower is flat, like that of *C. pumila*; the bright rose-coloured petals

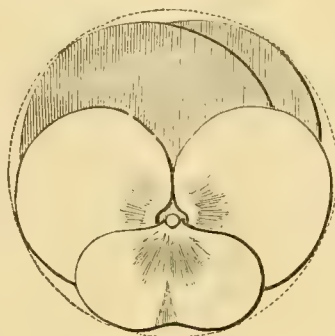


FIG. 9.—MODEL BLOOM OF FLORISTS' PANSY IN 1811.

are narrower than the sepals; the lip two-lobed, deep purple, marked with purple lines; the lateral lobes yellow.

FOREIGN CORRESPONDENCE.

ORCHIDS IN BLOOM AT GHENT.

M. HYE-LEYSEN has now in bloom a splendid *Lycaste Skinneri alba* bearing seven flowers. We have noticed in full bloom at M. Van Imshoot's establishment, *Compactia macroplectrum*, with a fine cluster of white flowers, spotted with carmine;



FIG. 10.—MODEL BLOOM OF FLORISTS' CALCEOLARIA IN 1811.

Maxillaria picta, *Oncidium janeirense*, *Sophranites cernua*, *Epidendrum ciliare*, *Lycaste Schilleriana*, *Oncidium pulveratum*, *Masdevallia bovarense*, M. Veitchi grandiflora, M. chelsoni, M. macrura, *Lælia autumnalis atro-rubra*; *L. Lindleyana*, bearing a charming white flower, the lip of which is half white, half pink; *L. anceps*, *Brassia caudata*, *Zygotopetalum brachypetalum*, *Cymbidium Mastersii*, *Dendrobium bigibbum*, *Cattleya labiata chocoensis* var. Miss Neillson, *Calanthe vestita luteo-veluta*, *C. veratrifolia*, *Traceyana* an interesting Japanese Orchid with mauve flowers; *Cattleya luteo*, *Tricosma suavis*, *Acropera Loddigesi*, *Miltonia candida*, *Odonoglossum grande*, *Schleiperianum*, *Cervantesi roseum*, *constrictum*, *ornithorhynchum*, *sceptrum*, &c.; *Oncidium Forbesi*, *cucullatum giganteum*, *Cypripedium*

Sedeni, M. Canham, *baibatum coerulescens*, *pavonicum*, *Spicerianum*, &c.

In the houses of MM. Desbois et Cie there are now open no fewer than 1500 blooms of *Cypripedium insigne*, open on eighty plants, which are specially grown for cut flowers. Besides these, we have seen the following *Cypripediums* in bloom:—*barbatum*, *Sylhetense*, *Harriisianum*, *insigne*, *Maulei*, *callosum*, *Dayanum superbiens*, *Gallieri Hyeianum*, *Spicerianum*, *insigne Chantini* (?), *insigne Wallacei*, *javanicum*, *Moulmeinense*, *Dauthieri*, *insigne maxima*, *Crossianum*, *nitens superbum*, *Boxalli*; and these, *Selenipediums*, *Dominianum*, *Hartwegianum*, *albansense*, *Sedeni*, *cardinale*, and *calurum*. This is a wonderful list, especially when we remember that MM. Desbois et Cie have only a small collection of 100 species, varieties, and hybrids. *C. de B.*

UNITED STATES.

In recent issues of the *Gardeners' Chronicle* and other journals, I remark that Orchid growers in the old country have very poor success with *Dendrobium formosum* and *D. giganteum*. Mr. Sander's method of growing the plant as given in your issue of November 8, should be a good way of killing it with kindness. H. G. in the *Garden* of October 18 says, it is a pity that we have not learned the secret of succeeding with it year after year, and that most Orchid growers manage to flower it only once. It will no doubt be interesting to your readers, and Orchid growers especially, on your side of the water, to know how well it is done here. Mr. Geo. McWilliam, gardener to Mrs. J. W. Lasell, received four plants from Messrs. Low of Clapton, on June 23, 1885, which are just now blooming for the sixth time, and are in splendid health, promising to continue flowering yearly as they have done for any length of time.

The enclosed photograph, taken last week, is a group of three plants (the fourth one being out of flower), the number of flowers on the stems are six, eight, nine, ten, and the largest twelve perfect flowers, and are damped off before opening. The longest stem measures 28 inches, and is 2½ inches in circumference, leaf 6½ inches in length with a width of 2½ inches, nineteen leaves on the stem. The width of the flower is 5 inches and length 5½ inches. Mr. McWilliam treats his plants as follows: in resting he at first kept them for six weeks in a temperature of 45°, but now he has doubled the time, the temperature remaining the same, and this he thinks is one of the main causes of his success. In starting the plants, they are put in a house of 55°, till growth begins, and to finish growing in one of 70° to 75° highest night temperature, with plenty of moisture in the house. When ready to flower, the plants are again kept at a temperature of 55°, and remain in that degree of warmth during flowering. I have no doubt that if some of the Orchid growers on your side will only give this plan a fair trial, they will succeed perfectly with it, for why should not this noble plant do as well in your climate as in ours? Mr. McWilliam grows it in baskets of sweet, rough fibrous peat, charcoal, crocks, and nice fresh sphagnum moss. Other Orchids under his care do exceptionally well, and of which you may hear from me occasionally. *W. S., Whitingsville, Mass.*

FLOWER SHOW IN NEW YORK.

During the last week in December, an immense exhibition of Orchids, Chrysanthemums, foliage and economic plants, was held by the well-known firm of Pitcher & Manda, Short Hills, N.J., and viewed from all points, was an undoubted success.

The exhibition was held in the famous "Madison Square Garden," in the heart of New York City, and formed an immense amphitheatre covering one whole block of 1½ acres, the show itself covered 30,000 square feet, and considering that the plants were sent direct from the nurseries, 20 miles distant from the city, at midwinter, some idea can be given of the greatness of the undertaking, and the risk attending the conveyance of 200 four-horse vanloads of plants, &c.

Nearly 100,000 persons visited the exhibition

during the week. The whole of the arrangement of the plants was carried out with sole regard to effect, and was a complete success.

On entering, a tropical scene met the view; directly in front stood a grand collection of specimen plants of Chrysanthemums, including all the best new and old varieties; to the right and left of these stood two groups of fine specimen foliage plants, as *Alocasia Sanderiana*, *Heliconia aureo-striata*, *Aralia filicifolia*, *Dracæna Doucettii*, and many others. Continuing down the centre walk, a pyramidal group of *Pandanus Veitchii* was reached, and to the right and left of this were groups of Chrysanthemums, arranged in gradations of colour, some of them strikingly novel. Next came a splendid crescent-shaped group of Palms and Tree Ferns, consisting of large handsome specimens of *Cibotium princeps*, *Dicksonia antarctica*, *Alsophila excelsa*, *Cyathea medullaris*, *Caryota urens*, *Licuala grandis*, *Sabal umbraculifera*, *Kentia Belmoreana*, &c., which was bordered with small plants of *Areca*, *Kentia*, *Raphis*, and *Phoenix*.

Passing the flower tent where twelve pretty girls were selling cut flowers, one of the main features of the show was noticed, an immense bank of Orchids, *Nepenthes*, *Anthuriums*, and other fine plants, which was 80 feet long, 30 feet high, and in some instances 20 feet broad. In the foreground were massed *Cypripedium insigne*, *C. Harrisianum*, *C. Spicerianum*, *C. Sedenii*, &c.; here and there in the group were dead Cedar trunks, upon which were hung bright-flowered *Cattleyas*, *Lælias*, *Oncidiums*, &c., and from others hung *Nepenthes Mastersii*, *N. Northiana*, *N. Veitchii*, and many others.

To the right and left in this great exhibit, were stationed groups of *Anthurium Andreanum*, *A. Scherzerianum*, *A. Ferrierense*, with their numerous showy spathes. Dotted about were fine specimen plants of *Vanda cœrulea*, *Lælia Gouldiana*, *Dendrobium*, *Chrysanthemum*, *Oncidium varicosum Rogersii*, *Phalænopsis Schilleriana* and *P. amabilis*, *Zygopetalum Mackaili*, &c., &c. Standing opposite, but on the other side of the path, were large squares of Chrysanthemums, consisting of the following varieties: *W. H. Lincoln*, *Harry Wiedner*, and *Cullingfordii*. A splendid specimen of *Latania borbonica*, at this part of the show, nearly 60 feet in height, attracted much attention. It was alleged to have been owned by Washington.

Besides the other groups, too numerous to mention, there were many tables arranged with plants; one consisted of 135 distinct species and varieties of *Cypripedium*.

The table of economic and medicinal plants was an interesting addition to the attractions of the show. Noticeable was the table of *Lilium longiflorum Harrisii*, the plants being well in bloom; also that of a table of cut Roses, and another of *Erica hyemalis*. A collection of cut Chrysanthemums, with immense flowers, and a group of the hairy-petalled novelty, *Mrs. Alpheus Hardy*, grown in pots, with one flower on a stem, were observed. The plants had been struck in July, and grown entirely indoors, which appears to be the secret of success with this variety. Much praise is due to Mr. W. A. Manda for the admirable manner in which the show was devised and carried out. *Our New York Correspondent*.

SCOTLAND.

THE YEAR 1890.

If not of a very striking character, the events of the past year in Scotland were neither few nor uninteresting. Happily, the list of notable men who have joined the majority is small, but Scottish horticulture is so much the poorer by their removal. The untimely death of Mr. James Alexander, of the firm of Messrs. Dicksons & Co., Edinburgh, was an event widely regretted. In the removal of Mr. Webster, of Gordon Castle, whose long and useful career there is widely known, gardening in the North lost one of its most earnest and intelligent workers—one whose memory will be kept green for

years to come by the several varieties of Plums and Apples which he raised, the merits of which are the combination of high quality with a hardy constitution, a fitting theme for northern localities. Mr. John Stewart, W.S., Edinburgh, for many years Secretary to the Royal Caledonian Horticultural Society, an amateur cultivator of hardy fruit, will be missed as a familiar figure by the older frequenters of the shows of the Society.

Meteorologically, the conditions of the year were far from being favourable. An open winter merged into a prolonged ungenial spring, which was followed by cold dripping weather till September, which month, and the early part of October, afforded us brilliant sunshine and genial warmth, both much needed by the backward vegetation. In the earlier districts, crops of Apples, Pears, Plums, Gooseberries, and Black Currants were thin, owing to frosts in the late spring, or prolonged starving wet weather during the blossoming period. The last-named fruit never, perhaps, commanded so high a price before, viz., £1 per Scotch gallon of 12 imperial quarts. In higher latitudes crops were abundant, and of good quality, and realised fair prices. Strawberries, in nearly every district, were most abundant, and prices fell to the lowest point on record—fetching, at one time, only 9d. per dozen punnets.

Potato disease in moist cold districts assumed an alarming aspect, but the fine weather in September arrested its progress materially. That the supply of the tuber is, however, lower than it has been for some years is shown by the comparatively high prices obtained at the close of the year. Champions, for instance, which, in 1889, fetched 30s. per ton for even the best samples, easily command 100s. per ton at the close of 1890.

Considerable activity marked the year in the fruit-growing districts in the direction of improvement and extension of orchards; the introduction of superior varieties of hardy fruits, and the better methods of culture, desirable features which should command universal attention, so that the standard of quality and value of our home produce may be raised.

Commercial gardening has been on the whole substantially progressive. Market gardeners, especially those who give their attention largely to the production of vegetables and flowers, will look back upon 1890 as a year of super-abundance of crop generally, and of consequently rather low prices; but on the other hand, the seed and nursery trades showed a marked improvement during the year, which at its close shows a tendency to expansion with the advent of its successor. The improvement is felt in all departments, but particularly in those of forest trees, fruit trees, and Roses.

The usual machinery for the dissemination of horticultural knowledge, and the cultivation of public taste in the art, such as flower shows, literary and scientific associations, have been extremely active and successful. Every little community has now its annual flower show, and every large centre its association for monthly meetings for the reading of papers, hearing lectures, and conducting discussions on horticultural matters. The projected monster International Show of the Royal Caledonian Horticultural Society, of which the revised schedule has been recently issued, bespeaks for 1891 the biggest event of the kind ever held in Scotland. Chrysanthemum culture, which was vigorously carried on in the southern parts of the country a year or two ago, has spread rapidly to the east, the west, and the north, the last new irruption on the mainland occurring at Inverness in December last; but who may say that it will not over-run the Islands also?

Considerable uneasiness has been caused in the latter part of the year to the promoters of the Edinburgh flower shows, the market gardeners, and the public generally, by an announcement that the two rival railway companies each desire to appropriate the Waverley Market for railway purposes. Determined opposition to the schemes of both companies is on foot, and it is to be hoped that Scottish horticulturists will be able to preserve to themselves

and the public admittedly the finest show hall in Britain.

The institution by Professor Bayley Balfour of horticultural classes at the Royal Botanic Garden, Edinburgh, is an important event of the year. The classes, which are held in the evening, for the convenience of young gardeners, are well attended, and are presided over by the Professor and his assistants. In connection with this subject, it is regrettable to have to announce that the horticultural classes carried on for the last two years at the Heriot-Watt College, Edinburgh, have been discontinued. The comprehensive scheme of technical education, so well carried out under the Governors of that Institution, is incomplete without horticulture, and we trust they will see their way to reopen the classes for that branch of technical knowledge.

Changes among gardeners of note have been few. The transfer of Mr. Archibald McKeller from the gardens, Floors Castle, to those of H.R.H. the Prince of Wales, is, however, notable as being the second instance of a gardener from Floors having been selected to superintend a royal establishment within the present generation. The appointment of Mr. Charles Webster to succeed his father at Gordon Castle is at once a tribute to his own worth, and a guarantee that much of his father's unfinished work will be carefully carried on to completion.

The year 1890 has altogether, from a horticultural point of view, been to Scotland more prosperous than some of its predecessors, and its close leaves a substantial legacy of good to its successor. *W. S.*

GLASGOW BOTANIC GARDEN.

A Glasgow correspondent informs us that the Garden is likely in future to be placed under the control of the City authorities. It is to be hoped that this establishment, which was made so famous by Sir William Hooker before his appointment to Kew, and which then was the means of effecting so much for botany, and horticulture in general, as well as for teaching purposes connected with the University, will enter upon a career of renewed usefulness. The framers of the Act, however, seem rather to have put the cart before the horse: when in making provision for teaching of Botany by the University, they do so on condition that the enjoyment of the said gardens by the public shall in no manner be interfered with. This is reversing our conception of a botanic garden, which should subserve the interests of botany first, and those of pleasure seekers afterwards. There is no hardship in this, for while there are numerous recreation grounds and public parks, there is but one botanic garden. With wise management, however, this little inconsistency may be got over, and the claims of botany and of the general public be made not incompatible. Of the establishment, and its fine collection under the charge of Mr. Bullen, we have spoken on former occasions.

DATES OF SHOWS IN 1891.

As late arrivals, we may mention Dumfries "South of Scotland" Society's Show on September 2; and those of Galashiels on July 11 and September 12.

TREES AND SHRUBS.

FRAXINUS QUADRANGULATA.

This is a tree that one rarely sees in the British Arboretum, and yet it is one of the most distinct of the North American Ashes. There need be no excuse for the non-appearance of this distinct and, withal, pretty tree in our parks and gardens, for it is perfectly hardy, and the conditions under which it survives are, happily, easily enough secured in any part of these Isles.

It delights in a moist vegetable loam and breezy situation, and we have known it to attain to very large proportions when planted within a few yards of the sea. The square stems of the young branches in particular, and winged angles, will at once render recognition of this species a matter of no great trouble. Both sides of the leaf are of the same shade of green, while they are sharply dentated, or rather, serrated, and placed on short footstalks. It

is of fairly rapid growth, not at all particular as to soil.

Cold does not seem to affect the blue Ash to any extent; indeed, I question much whether one of the largest and finest specimens of this tree in Britain is not that which at present proves such a source of attraction to visitors in one of our bleakest and most wind-swept of English countries. *A. D. Webster.*

HOME CORRESPONDENCE.

RATS AND CHRYSANTHEMUMS.—During the late severe weather, the gardener at a friend's house noticed one morning two or three blooms missing from the front row of his much-prized Chrysanthemums. He thought it a pity that whoever had plucked them had not taken the trouble to get them from a back row. But next morning, what was his ghastly dismay on finding the whole front row stripped of blooms, save here and there a forlorn straggler. No trace to be seen, except a few leaves on the floor; but from the even way in which the stalks were snipped, he came to the conclusion that no human hand had done it. He accordingly set a trap, and next morning caught the depredator—a fine rat. The first night's tasting had evidently pleased him, and the next night he fairly gorged himself with the many-coloured delicate ambrosial food. Is this a rare thing in rat history? It was a great mistake to kill him. This was no common granary rat, but an æsthetic rat, of highly refined taste, which, if he had been properly interviewed, would have settled the question as to the relative excellence of Golden Dragon, Ed. Molyneux, and a dozen of rival mesdames. *Edw. Fison, Allington House, Ipswich.*

DO MUSHROOMS GROW IN THE DARK?—In your reply to "C. B. G." in your issue of December 20, you say the Mushroom is a parasite. Is not this a slip! All fungi are either parasites, deriving their food from other living plants or animals—or saprophytes—obtaining their food supply from decaying organic matter. It is in the latter I understood the Mushroom to be classed. I more particularly draw your attention to this matter, as "C. B. G." in the discussion which took place at Ealing on Mushroom growing also classed the Mushroom as a parasite. According to the above distinction between parasites and saprophytes, surely there can be no doubt to which the Mushroom belongs. There is a great distinction between the living and the dead. *A. Wright.* [True; but not so much between the living and the dying. Ed.]

THE ASH.—In the *Gardeners' Chronicle*, December 20 (p. 731), "R. D." gives an interesting article on the merits and culture of different species of forest and ornamental trees, and in speaking of the Ash he says, "The seeds are gathered in October and November, and put into pits until the following spring, in order that the coverings or skins of the seed may decompose. They are sown in spring—generally during the month of March—in beds, either in drills or broadcast, &c." Now this statement is rather misleading, for instead of sowing the seed the "following spring," it should be kept in the rot-heap and occasionally turned to promote the even and uniform decomposition of the rind, when the seeds will then be ready for sowing the second spring, after being gathered in the same way as recommended by "R. D.," so that the seed has to be kept in the rot-heap two winters and one summer before it should be consigned to the seed-bed. Instances have occurred where the seed was removed from the rot-heap and sown the following spring after being gathered, and as the plants did not appear above ground in summer, the seed-bed was dug over and another crop put into the ground, which of course was a great loss of labour, not to speak of the expense and disappointment; and it is chiefly with the view of preventing such mistakes that I have drawn the attention of cultivators to the subject. The green American Ash is propagated in the same way as the common Ash, and as it attains a similar size to that of the latter, and produces good thrifty wood, it is well worthy of the planter's attention. In Ireland this species reproduces itself by natural reproduction. *J. B. Webster.*

FOGS AND VEGETATION.—The notes on this subject in the *Gardeners' Chronicle* for Dec. 20, were most opportune, as during the last three weeks we have not had a gleam of sunshine or any clear sunlight.

I have in previous winters seen vegetation suffer badly from fog, but never to such an extent as this season; it is really disheartening to go into the houses and see the havoc the fog has made with plants and fruit. We escaped without any injury worth mentioning through November, that is, we had fog for a short time only, and not continuously, and we were congratulating ourselves on the large quantity of bloom we should have for the new year, judging by the progress forced plants had made. The last few days have altered all that. We have done what was possible to prevent injury—by maintaining a somewhat drier temperature, which answers when fog lasts for a short time, but with the low temperature we have had, and dense fogs, those who have much forcing will have suffered badly in spite of every precaution. Our houses at this date, as Mr. Hudson observed with his, are covered with a greasy black deposit, not easily detached, and when it is removed by much labour, it is as bad as ever in 24 hours afterwards. I do not intend to make any remarks upon vegetation in the open, this having been fully treated on in Mr. Hudson's paper, but I may note that very few of the Conifers do well with us, and no doubt the grand old trees of the deciduous Cypress do so well owing to the damp situation and to casting their leaves with their covering dirt annually. Rhododendrons do well on the clay bottom, making fine growths with us when they fail to grow at Gunnersbury. With regard to vegetation indoors, the effect of fog upon a soft or woolly foliage is destructive. As an instance of which, I may mention a house of Tomatos in robust health, showing abundance of bloom three weeks back, have not a leaf or bloom left. These plants were trained 1 foot distant from the glass, and facing the south in an upright position; the fruits that had set have now turned yellow and shrivelled up. Early Vines are the same, but fortunately our bunches this season were not advanced enough to be injured; other years they have when in bloom gone like the Tomatos. The Fig with us appears to suffer but little, and young trees in pots, so far, have escaped. A lot of Poinsettias standing in the front of a house—a warm, dry position—have lost every leaf. We also had a lot of Clitoria Ternate in a temperature of 60° to 70°, with strong, healthy foliage; they are now without a leaf, in spite of their having been watered with great care. Even the ordinary kinds of bedding plants have suffered in the same manner—I instance *Coleus*, *Iresine*, *Alternanthera*, and *Pelargonium*. A house full of winter-blooming *Pelargonium* presents a sorry spectacle, their blooms shrivelled up, and the leaves falling off. *Calanthes* are in the same state, and all colour disappeared from the pink varieties. Cucumber plants are like the Tomatos, and once healthy fruiting plants must now be cleared out; but that is not the only difficulty, for others, from seeds sown a month ago, are ruined. I find that it does not matter how many roots the plants may have, the fog kills them just the same. There are a number of plants similarly affected; and even *Roses* (not forced), but in a cool house, have suffered. *Seakale* is our best vegetable to force, as fogs do not seem to affect it, but no doubt that is owing to its being forced on the ground in a close place. *Asparagus*, on the other hand, which requires more light, suffers considerably, and comes up very weak. Fortunately, it is too early to injure other forced vegetables. *G. Wythes, Syon, Brentford, W.*

SEVERE WEATHER IN WORCESTERSHIRE.—On the morning of Monday, December 22, 27° of frost were registered here by one of Negretti & Zambra's standard instruments, standing 4 feet from ground. This degree of cold was accompanied by a heavy rime—very trying to vegetation. The thermometer did not indicate less than 20° of frost all that day; and six inches of snow fell. The year's rainfall up to date is 19.50 inches, being over eight inches below the average for the past nine years. *W. Crump, Madresfield Court, Malvern.*

DAMAGE TO TREES BY SNOW.—On the night of December 20, the weather, which had been cold, dull, and rainy most of the day, changed to snow, and by 10.30 about 9 inches had fallen. In the absence of wind, the snow had accumulated on the branches of Conifers and other evergreen trees to such an extent, that on walking through the grounds next morning, the scene presented was one of sad desolation and destruction. Many of the fine Cedars, for which the park is famous, were permanently disfigured. The Scotch Firs and *Pinus insignis* had large branches torn and twisted from them; *Abies Douglasi*, whose wood is so brittle

that half a gale will oftentimes snap the branches off, was also sadly disfigured by the snow. The Cork trees and the *Lucombe Oaks*, whose branches grow horizontally, suffered much. All trees and shrubs with long slender branches were bent down to the ground. Whenever the thaw comes, numerous branches will have to be sawn off, and others secured as best we may. It is many years since such a heavy fall of snow was experienced in this locality. *D. C. P., Powderham Castle, Devon.*

THE WEATHER IN WILTS.—During the past week more severe frosts have been experienced in Wilts than for a number of years past—in fact, a new record of low temperatures has been established. On Monday, December 22, our registering thermometers marked minimum 6°, or 26° of frost; maximum, 24°; next day (23rd), minimum, 27° of frost; maximum, 16°; or a mean temperature for 24 hours preceding of 11°, this being the lowest ever recorded here. The frost commenced on November 24, and, except on nine occasions, the thermometer has been below the freezing-point ever since. We have had only slight falls of snow compared with other places in the county, about 10 inches in depth altogether, although in places deep drifts were formed. *W. A. Cook, Compton Bassett.*

PORTUGUESE REMEDY FOR VINE MILDEW.—Attention has been fully called in the pages of the *Gardeners' Chronicle* to the composition and use of the "Bordeaux Broth," so successfully employed by the French Vine-growers as a preventive of mildew. I now write to mention a different use of nearly the same materials which has been adopted in Portugal. My informant is Mr. Alfred Tait, of Oporto, well known to gardeners as having introduced into cultivation several rare kinds of *Narcissus*. He says:—"After two years' study of the Vine mildew (*Peronospora viticola*), which is closely allied to the Potato-blight, I have succeeded in getting a powder made for me according to my formula, which has proved most successful in curing the mildew, and a friend here tried it on Potatoes and fruit trees, and said it cured their blights. The manufacturers, Messrs. Buchanan, 13, Princes Square, Glasgow, have patented the mixture, which contains sulphur, sulphate of copper, and lime, and is a very fine powder. It is applied dry when the leaves are wet with dew or rain. I have only worked in the interests of Vine-growers, including myself, as my vineyards have till now suffered severely from mildew; but the manufacturers took much trouble in preparing the compound, so I agreed to their patenting it." Mr. Tait goes on to say, that the results of this application have been so good, that he has just ordered 65 tons for three neighbouring Vine growers, and that he expects the manufacturers will hardly be able to produce it before spring in sufficient quantity to supply the demand. I may add, that the use of Bordeaux Broth in my garden seems so far to have been successful, and next season I shall try this dry powder against it. *C. Wolley Dod.*

ORNITHOLOGY.—I have been much interested in the papers on Ornithology, and there can be no doubt that much of the increase of birds in and about the gardens is due to the destruction of the larger carnivorous birds. But in many parts of the country these large birds have long ceased to be common or sufficient to preserve the balance of bird life. Two other causes have largely contributed to the increase. First, the gun-tax or license, which has very perceptibly decreased the number of guns in country villages. I can remember when in weather like the present, almost every boy in the village managed to get hold of a gun, and I remember one old gentleman saying, that there were more guns than sparrows; now the possessors of guns are very few. The other cause is the Act prohibiting the use of poisoned grain. When I first came here, I knew of but one rookery in the parish, and that at one time was almost destroyed by the rooks being poisoned in the wheat fields. Now there are certainly a dozen rookeries within a mile of my house. *H. W. E.*

ROSE MERVEILLE DE LYON.—I observe on p. 716 of the last volume of the *Gardeners' Chronicle*, this Rose is spoken of as a sport from Baroness Rothschild. M. Pernet, who introduced it, assured me at the time of its introduction, that it was not a sport, but a veritable seedling, and I take that view, independent of that assurance, on the following grounds. A Rose sport is usually, if not always, of the same shape or less double than the variety from

which it sports, which is not the case in this instance, if compared with Baroness Rothschild. *Wm. Paul, Pauls' Nurseries, Waltham Cross, Herts.*

COBBLER'S HEAL.—In the *Gardeners' Chronicle* of December 20, I find inquiries about a plant—Cobbler's Heal (Swd-le-y-crydd), indigenous to this country, and peculiar to this part of Wales; a valuable medicinal plant, sometimes known as the Wild Spinach. Will send you, or correspondents, some if required. *J. E. Roberts.* [Kindly do so. Ed.]

SOCIETIES.

LIVERPOOL HORTICULTURAL ASSOCIATION.

THE fourth annual dinner of the Liverpool Horticultural Association was held on Saturday evening, December 20, at the Eagle Restaurant, Castle Street, and was one of the most pleasurable gatherings ever held under the auspices of the Association. The company numbered upwards of 120. Mr. Fletcher Rogers, who has always taken a deep interest in the Association, presided, and was supported by Messrs. R. W. Ker, T. Davies, H. Middlehurst, P. Harbordt, T. White (Chairman of the Association), and T. Powell (Vice-Chairman). After the loyal toasts, the Chairman proposed The Liverpool Horticultural Association, congratulating the members upon the fact that as regarded finances this year had been one of the most successful ever experienced. He mentioned that the receipts at the recent Chrysanthemum show equalled the expenditure, a gratifying result which had never before been achieved. Mr. T. White, in responding, remarked that at the beginning of the year some of the old members of the committee left them, but the newly-constituted committee had worked hard, with the happy result that both shows had proved most successful. He hoped they would be unanimous, and that those who had separated from the committee would join them again, as they were valuable practical members of the Association. The chairman gave "The Horticultural Trade," and Mr. Ker, in responding, made an important suggestion, which was to the effect that Mr. Fletcher Rogers, who was one of the best-known merchants on 'Change, might still further benefit the Association by inducing his business friends to present a Cotton-brokers' Challenge Cup in connection with the Chrysanthemum show. As an inducement to the cotton-brokers, he mentioned that his firm had decided to present a silver challenge cup and ten guineas each year until the cup was finally won.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending December 27, is furnished from the Meteorological Office:—

"The weather this week was extremely cold and wintery over England, with overcast skies, and occasional slight falls of snow. Over Ireland and Scotland, however, it was more variable, and at times mild; in Ireland, some fine bright intervals have been experienced.

"The temperature has ranged from 7° to 12° below the mean in the English districts, and from 2° to 4° in Scotland, while in both the Irish districts the deficit has been 5°. The thermometer was generally lowest during the night of the 21st—22nd, when the sheltered instrument fell to within six-tenths of a degree of zero (F.), at Stokesay (Salop), to 4° at Cambridge, 6° at Hereford, 7° at Rothamsted, and 8° at Strathfield. In Ireland, the minima varied between 14° and 18°, and in Scotland between 15° and 21°. In the 'Channel Islands' the lowest reading was 27°. The highest of the maxima, which were recorded on irregular dates, ranged from 53° in 'Ireland, S.' to 39° in 'England, E.' and 36° in the 'Midland Counties.' In many instances the maxima at the more central stations were below 32°.

"The rainfall has just equalled the mean in 'England, N.E.' but in all other districts it has been less; over eastern and southern England and in the north of Ireland, the fall has been very slight.

"Bright sunshine has again been very deficient over Great Britain, but shows an increase in Ireland

and the Channel Islands. The percentage of the possible duration of sunshine has ranged from 8 to 16 in the former region, while over Ireland it varied from 27 to 29, and in the 'Channel Islands' was as high as 38."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10th's Inch.	In.	Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
	Above (+) or below (—) the Mean for the week ending Dec. 20.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.				
1	2	0	37	+ 210	— 117	4	257	54.6
2	4	0	62	+ 47	— 56	5	— 114	32.6
3	7	0	73	+ 154	— 83	5	— 185	24.2
4	11	0	100	+ 53	— 63	3	— 180	23.9
5	1	0	102	+ 32	— 55	2	— 177	22.2
6	12	0	97	+ 48	— 27	2	— 175	25.3
7	4	0	50	+ 101	— 112	9	— 218	52.7
8	11	0	55	+ 141	— 24	6	— 203	34.7
9	8	0	57	+ 49	— 81	1	— 212	37.0
10	5	0	36	+ 126	— 124	1	— 240	38.4
11	4	3	33	+ 127	— 49	2	— 232	40.8
12	6	3	27	+ 43	— 43	1	— 209	32.2

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10th's Inch.	In.	Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
	Above (+) or below (—) the Mean for the week ending December 27.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.				
1	2	0	35	+ 102	— 111	6	261	54.9
2	3	0	59	+ 39	— 35	4	— 218	32.9
3	7	0	74	+ 116	— 43	0 av.	190	24.9
4	12	0	106	+ 47	— 136	4	— 182	23.0
5	12	0	106	+ 23	— 126	4	— 180	22.4
6	10	0	85	+ 34	— 86	5	— 177	25.4
7	4	0	46	+ 89	— 90	4	— 222	53.2
8	8	0	65	+ 130	— 7	4	— 208	35.3
9	8	0	51	+ 74	— 118	1	— 216	38.0
10	5	0	40	+ 111	— 104	6	— 243	38.6
11	5	3	43	+ 109	— 25	5	— 226	41.1
12	6	1	21	+ 16	— 60	2	— 212	32.9

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, January 1.

Market very dull, with all classes of goods well supplied. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	3 6-7 0	Lemons, per case	20 0 4 0
— Nova Scotia, brl.	15 0-25 0	Melons, each	0 6-2 0
Cobs, Kent, 10 lb.	55 0-63 0	Pine-apples, St. Michael, each	2 0 8 0
Grapes, lb.	0 9-3 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4-0 6	Lettuces, per dozen	2 6-...
Beans, French, lb.	1 0-...	Mushrooms, punnet	2 0-...
Beet, red, per dozen	2 0-3 0	Mustard and Cress, punnet	0 4-...
Carrots, per bunch	0 6-...	Parsley, per bunch	0 4-...
Cauliflowers, each	0 4-0 6	Shallots, per lb.	0 6-...
Celery, per bundle	1 6-2 6	Spinach, per bushel	3 0-...
Cucumbers, each	0 6-0 9	Tomatoes, per lb.	0 9-1 0
Endive, per dozen	2 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

POTATOS.—Severe frost has caused a very short supply, consequently prices have advanced considerably; all kinds have risen 10s. to 15s. per ton.—*J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Evergreens, in var., per dozen	6 0-24 0
Aspidistra, doz.	18 0-42 0	Ferns, in var., per dozen	1 0-12 0
— spec. plants, each	7 6-10 6	Ficus elastica, each	1 6-7 0
Bouvardias, p. doz.	9 0-18 0	Foliage plants, various, each	2 0-10 0
Chrysanthem., p. doz.	4 0-18 0	Hyacinths, per doz.	1 0-12 0
— specimen plants, each	2 6-5 0	— Roman, per doz.	9 0-12 0
Cyclamens, dozen	9 0-18 0	Marguerites, doz.	6 0-12 0
Cyperus, per dozen	4 0-12 0	Mignonette, per doz.	4 0-6 0
Dacena terminalis, p. doz.	30 0-60 0	Palms, in variety, each	2 6-21 0
— viridis, per doz.	12 0-24 0	Poinsettias, dozen	9 0-15 0
Eucalyptus, in var., per dozen	6 0-18 0	Solanums, per doz.	9 0-15 0
Ericas, various, doz.	8 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Bouvardias, per bun.	0 6-1 0	Pelargoniums, scarlet, 12 spr.	0 9-1 6
Callaæthiopica, 12 bl.	9 0-13 0	— dozen sprays	1 0-1 6
Carnations, 12 blms.	1 0-3 0	Poinsettias, 12 blms.	4 0-12 0
Chrysanth., 12 bun.	3 0-12 0	Primulas, double, 12 sprays	0 6-1 0
— 12 blooms	2 0-6 0	Roses, Tea, per doz.	1 0-4 0
Cyclamens, per doz	6 0-12 0	— coloured, dozen	3 0-5 0
Eucharis, per dozen	6 0-12 0	— red, per dozen	3 0-6 0
Gardenias, 12 blooms	6 0-9 0	— Safrano, French, per box of 100	3 0-6 0
Heliotropes, 12 spr.	0 6-1 0	— ditto, per dozen	1 0-2 0
Hyacinths, Rom., 12 sprays	1 0-1 6	Stephanotis, per 12	9 0-12 0
Lilium, var., 12 bl.	2 0-6 0	Tuberose, 12 blms.	1 0-2 0
Maiden Hair Fern, 12 bunches	4 0-9 0	Violets, 12 bun.	1 0-3 0
Marguerites, 12 bun.	3 0-6 0	— Parme, Fr., bun.	5 0-8 0
Narcissus (paper white), 12 sprays	1 0-2 0	— dark, Fr., bun	2 0-4 0
— French, 12 bun.	4 0-9 0		
Mignonette, 12 bun.	2 0-4 0		

ORCHID-BLOOM in variety.

SEEDS.

LONDON: Dec. 29.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's market, as might be expected, was barely attended, and the business doing at a minimum. No description of seeds show any quotable variation. Owing to the prolonged frost, boiling Peas and Haricot Beans are held with increased firmness. Rape seed keeps very steady. There is no change in Mustard. Canary and Hemp seed tend upwards. For Buckwheat, Linseed, Dari, &c., former terms are realised.

FRUIT AND VEGETABLES.

SPITALFIELDS: December 31.—Fair supplies of green vegetables. Potatoes scarce, demand good. Fruit trade fair for a moderate supply. Prices:—Cabbages, 3s. to 4s. 6d. per tally; Savoys, 2s. to 5s. 6d. do.; Cauliflowers, 3s. to 6s. per dozen; Curly Kale, 1s. 6d. to 2s. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Brussels Sprouts, 1s. 9d. to 2s. 9d. per half-sieve; Turnip Tops, 1s. 9d. to 3s. per sack; Greens, 2s. 6d. to 5s. per dozen bunches; Turnips 3s. 6d. to 5s. do.; Carrots, 3s. to 4s. 6d. do.; Parsley, 5s. to 6s. do.; Parsnips, 8d. to 1s. 4d. per score; Beetroots, 4d. to 6d. per dozen; Endive, 1s. 6d. to 2s. per dozen; Cabbage Lettuces, 1s. 6d. to 2s. 6d. do.; Leeks, 3s. to 4s. 6d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Celery, 4d. to 1s. 4d. per bundle; Horse-radish, 1s. to 1s. 4d. do.; Spanish Onions, 8s. to 9s. per case; English do., 5s. 6d. to 6s. per cwt.; Dutch do., 3s. to 5s. per bag of 110 lb.; Belgian do., 3s. 9d. to 4s. 6d. do.; English Apples, 6s. to 10s. per bushel; American do., 16s. to 22s. per barrel; forced Rhubarb, 1s. 6d. to 2s. 6d. per dozen; Carrots, 20s. to 50s. per ton.

STRATFORD: December 30.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the undermentioned quotations:—Cabbages, 2s. to 4s. per tally; Savoys, 3s. 6d. to 6s. do.; Greens, 4d. to 1s. 3d. per sieve; do., 2s. 6d. to 3s. 6d. per dozen; Turnips, 3s. to 3s. 6d. per dozen bunches; do., 60s. to 70s. per ton; Carrots, household, 40s. to 50s. per ton; do., cattle-feeding, 26s. to 34s. per ton; Parsnips, 1s. to 1s. 6d. per score; Mangels, 18s. to 22s. per ton; Swedes, 18s. to 22s. do.; Onions, English, 100s. to 120s. per ton; do. Dutch, 3s. 6d.

to 4s. 6d. per bag; Bordeaux, 5s. 6d. to 7s. 6d. per case; Apples, English, 3s. to 7s. per bushel; American do., 15s. to 20s. per barrel; Celery, 8d. to 1s. per roll; Watercress, 7d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: Dec. 30.—Quotations:—Hebrons, 60s. to 110s.; Magnums, 55s. to 85s.; Scotch, 90s. to 120s.; Imperators, 65s. to 90s. per ton.

SPITALFIELDS: Dec. 31.—Quotations:—Magnums, 57s. 6d. to 100s.; Regents, 70s. to 90s.; Champions, 70s. to 80s.; Imperators, 80s. to 120s.; Hebrons, 60s. to 90s. per ton.

STRATFORD: Dec. 30.—Quotations:—Magnums, 75s. to 96s.; Imperators, 70s. to 85s.; Scotch Magnums, 95s. to 100s.; Hebrons, 70s. to 80s. per ton.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending December 27, 1890, and for the corresponding period in the previous year:—1890: Wheat, 32s. 5d.; Barley, 28s. 5d.; Oats, 17s. 11d. 1889: Wheat, 29s. 10d.; Barley, 30s. 6d.; Oats, 18s. 2d. Difference, Wheat, + 2s. 5d.; Barley, — 2s. 1d.; Oats, — 3d.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

THE DEODAR.—A correspondent asks whether this tree has been known to produce its cones in Great Britain. We remember to have seen one cone on a tree at Kew, a year or two ago, but with that exception we have not seen any instance.

NOTICES TO CORRESPONDENTS.

BOOKS: *J. W. S.* We should advise you to procure Nicholson's *Dictionary of Gardening* (Upcott Gill & Co., 170, Strand, London), it is more comprehensive and more recent than the work you name.

CHECK LIST OF CANADIAN PLANTS: *H. N. Ellacombe.* Apply to Prof. Macoub, Ottawa.

CULTIVATION OF POTATOS IN THE CHANNEL ISLANDS: *A. C. W.* Particulars with regard to this subject will appear in our next issue.

INSECTS: *E. M.* After careful maceration, and chemical and microscopic examination, we find that the mass of filamentous growth from the front part of the body of your caterpillar is vegetable, and that it is a fungus allied to the genus *Sphaeria*. The subject shall be fully illustrated in a subsequent issue. *I. O. W.*

LILIES IN POTS: *G. C. B.* These will remain healthier out-of-doors during the winter than under glass; and a good way to protect them from the weather and mice, is to pot them at once—the better time is from August to November—three or four bulbs in 10-inch to 12-inch pots, half-filled with loam, peat, and decayed manure, and sufficient sand to keep it open. Pot firmly, and leave plenty of space for top-dressing in summer. Stand the pots on coal-ashes, behind a north wall, packing them round with dry leaves. Cover the pots securely with pieces of boards, or slate, to keep out the mice, which are otherwise sure to devour the bulbs, and cover all over with one foot thick of leaves, and Spruce Fir branches over these to keep in place. On the advent of mild weather, the pots must be uncovered for the purpose of seeing which are beginning to grow, and these must be removed to a cool pit or house, and the others covered again, more or less, according to the weather.

MIGNONETTE: *S. H.* Your specimens are very curious and worth developing. At first sight it seems as if the main flower-stalks were branched, but it is more than this, for the flowers themselves are branched, and the result is a large panicle of bloom, instead of a simple spike, as usual. We have seen similar cases before. Propagate it by cuttings, and endeavour to fix it by selecting seed. We believe it might be developed from a botanical curiosity to a plant of commercial value.

NAMES OF PLANTS: *Flos.* Silver Bush, a Jersey name for *Clematis vitalba*; Silver Weed, the name given to *Potentilla Anseina* in Suffolk, North Yorkshire, and other places.—*E. J. D.* *Quercus Gramuntia*, originally found at Grammont, near Montpellier. It is also a native of Spain.

PEARS IN THE NORTH: *D. C.* The *Crassanes* of any kind are useless; also Van Mons, Leon le Clerc. Plant some of the following:—East and west aspects: Jargonelle, Thompson's, Dunmore, Beurré Diel, Brown Beurré, Winter Nelis, Ne Plus Meuris, Eyewood, Beurré d'Arenberg, Marie Louise d'Ucle, William's Bon Chrétien. South aspect: the last-named, Jargonelle, and Doyenné du Comice, to come into use early; Knight's Monarch,* Glout Morceau, Marie Louise, Hacon's Incomparable,* Beurré d'Anjou, Chaumontel,* Louise Bonne of Jersey, Fertility, Doyenné Boussoch,* Huyshe's Victoria. Most of these will ripen in the generality of years, those marked with an asterisk being such as will fail in wet, cool summers. Jargonelle is usually better in the north than in the south.

RED SPIDER ON WALL CHERRIES: *L.* There is no difficulty in keeping red-spider thoroughly in check if suitable measures are taken. The trees should be loosened from the wall, which should be syringed in frosty weather, and when thaw sets in pointed, if otherwise in good condition; but if old and full of holes, it should be washed over after pointing it with a thin cement "slip." This will imprison all eggs and insects hidden in the face of the wall that the freezing may not have destroyed. The trees themselves should be washed over in early February with Gishurst soap, 4 oz. to the gallon of water on the old wood, and of less strength on the young shoots. After flowering, the trees should be washed twice or thrice a week with the garden engine, and in the early morning. This should be followed up till the fruits begin to change colour, when it must be suspended until the crop is gathered, when if any spider be noticed, morning syringing may be re-instituted. In future seasons, the winter dressing of Gishurst soap, and summer syringings with clean water, should be sufficient to keep the trees clear.

ROSE-HOUSE: *L. B.* An answer by "H. J. C." to this enquiry will appear in our next issue.

CATALOGUES RECEIVED.

H. A. HESSE, Weener-on-Ems, Hanover—Wholesale List of Trees and Shrubs.

CHR. LORENZ, Erfurt, Germany—Seeds.

ROBERT VEITCH & SON, Exeter—Seeds.

J. LAING & SONS, Forest Hill, S.E.—Select List of Roses.

HARRISON & SONS, Leicester—Seeds.

WILLIAM FELL, Hexham—Spring Seed Guide.

FREDERICK ROEMER, Quedlinburg, Germany—Garden and Farm Seeds.

DICKSONS (Limited), Chester—Seeds.

ARMITAGE BROTHERS, High Street, Nottingham—General Seed and Plant List.

C. FIDLER, Royal Berkshire Seed Stores, Reading, Berks—Vegetable Seeds and Seed Potatoes.

DICKSON, BROWN & TAIT, 43, and 45, Corporation Street, Manchester—Seeds and Sundries.

DOBIE & MASON, 66, Deansgate, Manchester—Seeds.

THOS. LAXTON, Bedford—Vegetable Seeds and Roots.

THOS. METHVEN & SONS, 15, Princes Street, Edinburgh—Seeds and Implements.

STUART & MEIN, Kelso, N.B.—Amateurs' Guide.

COMMUNICATIONS RECEIVED.—*A.* Burns (with thanks).—*J. H.*—*A. G. O.*—*W. S.*—*O. Thomas.*—*G. E. C.*—*H. E.*—*Charlotte Budd.*—*W. Napper* (we cannot go into this matter again).—*Emigration Office.*—*E. J. R.*—*D.*—*Penrhyn.*—*J. Charlton.*—*J. D.*—*F. R.*—*G. B. C.*—*C. A. M. C.*—*R. A. E.*—*L. Linden.*—*Brussels.*—*P. Ghent.*—*P. C. S.*—*H. A. F. B.*—*F. J.*—*J. H. G.*—*R. F.* (electro, with thanks).—*G. T.*—*B. F.*—*J. S.*—*Sir P. H. R.*—*J. E. N.*—*R. J. H. G.*—*A. C. N.*—*Melbourne.*—*F. H. W.*—*W. R.*—*Sir W. B.*—*G. H.*—*W. W.*—*E. C.*—*F. W. B.*

BOOKS, PHOTOGRAPHS, &c.—Houghton, Mifflin & Co.—*Marquis of L.*—*H. B. B.* (under consideration).—*Dr. Muller-Graz.*—*Le Comte de St. Leger.*—*W. H. C.*—*C. A. M. C.*—*A. B.*—*Limerick.*—*J. C.*—*J. K.* (Vines, next week).—*J. Richardson.*—*T. S.*—*W. C.*—*H. E.*

DIED.—On December 26, at his residence, 36, King Street, CHARLES WILLIAM BUCK, of Centre Avenue, Covent Garden, and The Lodge, Brook Green, Hammersmith, in his seventy-eighth year. Friends, please accept this, the only intimation.

RASPBERRY CANES.—250,000 of the famous Fastolf variety for Sale. Price 25s. per 1000. In lots of 20,000 at 20s. per 1000, free on rail, Wisbech. Also 50,000 "Semper Fidelis," at 30s. per 1000.

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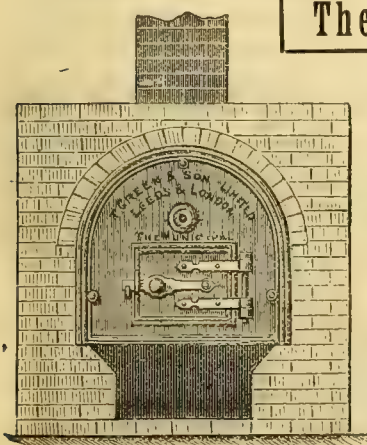
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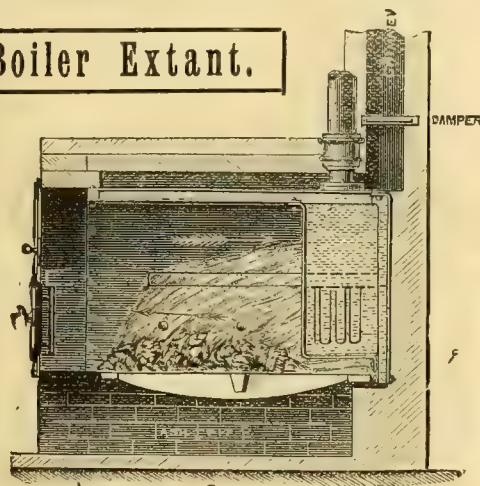
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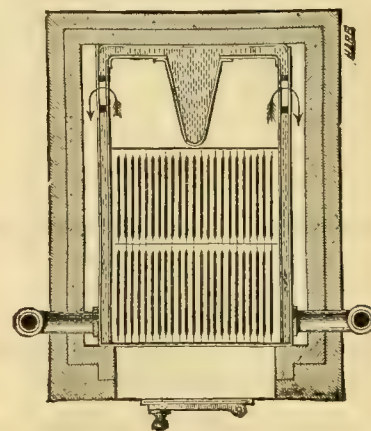
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The longitudinal section gives a view of the fire-box, water space, flues, &c.

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Model	Length	Width	Depth	Heat Capacity	Price
M B 1	3 ft. 2 in.	2 ft. 0 in.	2 ft. 0 in.	1000 ft.	£15 0 0
M B 2	4 0	2 0	2 0	1280	21 0 0
M B 3	5 0	2 3	2 6	2200	32 0 0
M B 4	6 6	3 0	3 0	4000	60 0 0
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Calculated to heat 4-in. piping as follows:—

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GENTLEMEN,—I have great pleasure in bearing testimony to the efficiency and satisfactory working of the Hot-water Heating Apparatus you erected in these public buildings. The buildings are four storeys high, and we have a total length of about 28,000 feet of piping in them, varying in size from 1½ in. to 6 in. diameter, with their connections, &c. The several offices and rooms can all be in operation at one time or separately, and the heat regulated by means of the valves to the temperature required, even in the coldest weather.

Two of your Patent Municipal Pattern Boilers, No. 4, work the whole of this piping easily, although we have three of them fixed. They are very powerful and economical in the consumption of fuel, and I am pleased to be able to report of them and the apparatus so favourably.

I am, Gentlemen, yours truly, THOS. HEWSON, Borough Engineer.

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GENTLEMEN,—The large Municipal Boiler which you sent me last year is doing its work satisfactorily; it is heating 5,000 feet of 4-inch pipe in one of my vineries, and I am quite sure that it has power to work a much greater length, while in cost of fuel it compares favourably with my other Boilers.

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Yours faithfully, (Signed) G. W. BASHFORD.

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THE CHEAPEST & BEST OF ALL. FIR-TREE OIL INSECTICIDE (soluble)

FOR PLANTS.—To make a solution for washing or cleansing purposes—Half-a-Pint of Fir-Tree Oil to ten gallons of water.

For Green and Black Fly, Thrip, American Blight, Woolly Aphis, &c.—Half-a-Pint of the Fir-Tree Oil to two or four gallons of water, or two or three tablepoonsfuls to the pint.

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The most efficacious way to use Fir-Tree Oil in small quantities is to apply it with one of HUGHES' APPLICATORS.

When applied to the roots of delicate plants the soil should be drenched with clean water immediately afterwards, in all other cases washing is not necessary. Used with Warm Water it is quicker in its action than when cold is used.

Soft or rain water is necessary, and Applied in Wood, Tin, or Pot Vessels—Galvanised Iron Vessels must not be used.

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Sold in Bottles, half-pints 1/6; pints 2/6; quarts 4/6; half-gallons 7/6; gallons 12/6 each.

Drums, 5 and 10 gallons each, at 11/- per gallon.

Manufactured by—**E. GRIFFITHS HUGHES,**
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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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SAFE—ECONOMICAL—EFFECTUAL.

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DUNCAN, FLOCKHART & CO., Chemists to the Queen,
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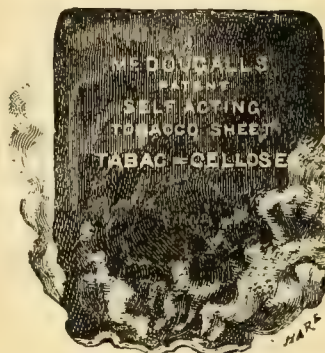
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MCDUGALLS' PATENT SELF-ACTING.



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No Hot Fuel
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Exterminates
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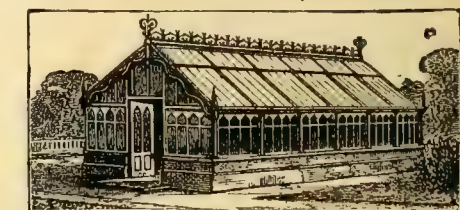
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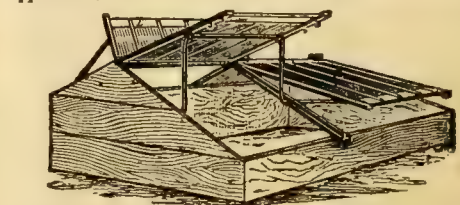
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of all descriptions.

C. FRAZER'S EXECUTORS, Horticultural Builders, NORWICH.



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A large stock always ready. The illustration shows a Two-light Frame, 8 by 6 feet; height at back 22 inches, front 11 inches, and at ridge 32 inches. Made of well-seasoned red-wood deal, with sides and ends 1 1/2-inch thick. Lights 2-inch thick, glazed with 21-ounce glass, and fitted with Improved Set-opes, as shown above, of which we are original inventors.

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3 " " 12 feet by 6 feet ...		Cases extra,	6 0 0
4 " " 16 feet by 6 feet ...		allowed	7 12 6
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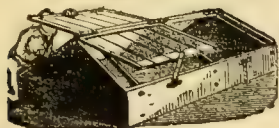
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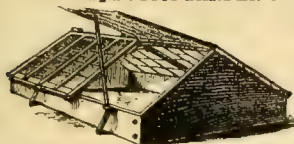
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All Frames made of selected Red Deal, painted three times, and lights glazed with 21-oz. sheet glass.

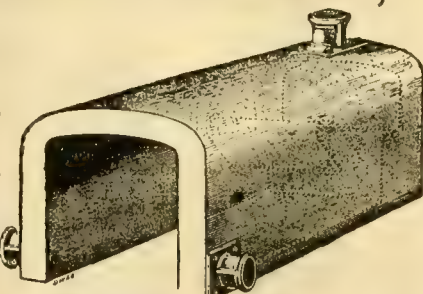
CUCUMBER FRAME LIGHTS.

6 ft. by 4 ft., glazed and painted ... 14s. each.
Un glazed and unpainted ... 5s. 6d. each.
Cash Prices. Carriage Paid on Orders of 40s. value.

BOILERS

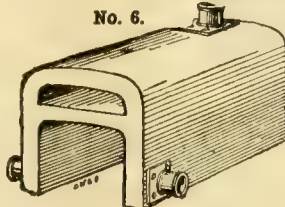
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SUPPLIED

AT THE
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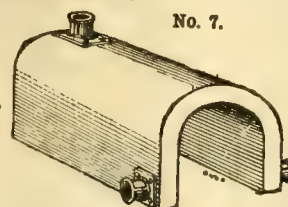
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APPARATUS
fixed by
EXPERIENCED
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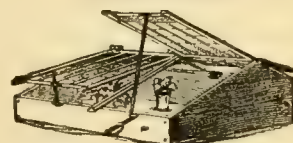
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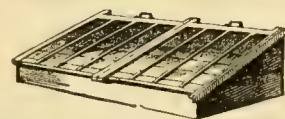
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4 ft. by 6 ft. £2 14 0 | 12 ft. by 6 ft. £3 17 0
8 ft. by 6 ft. 4 5 6 | 16 ft. by 6 ft. 7 8 6

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Wall Fruit Tree Protectors, Hand Lights,
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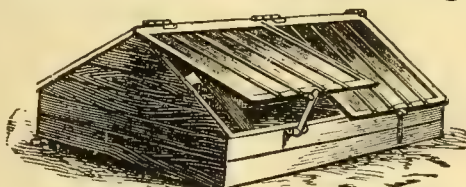
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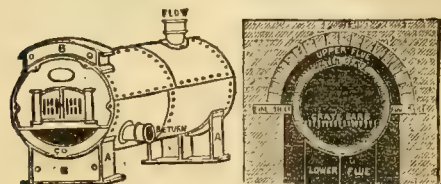


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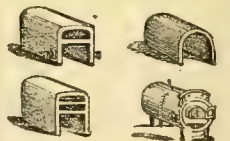


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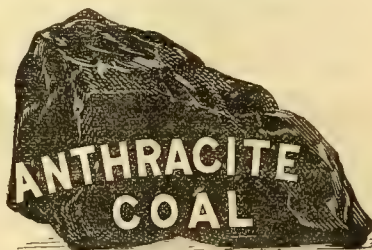
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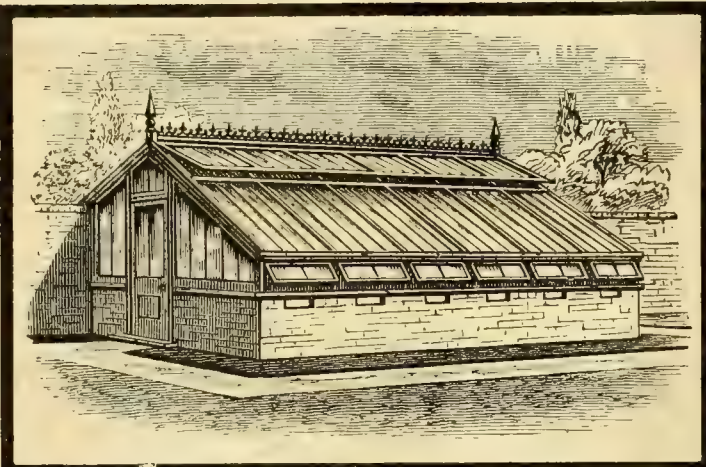
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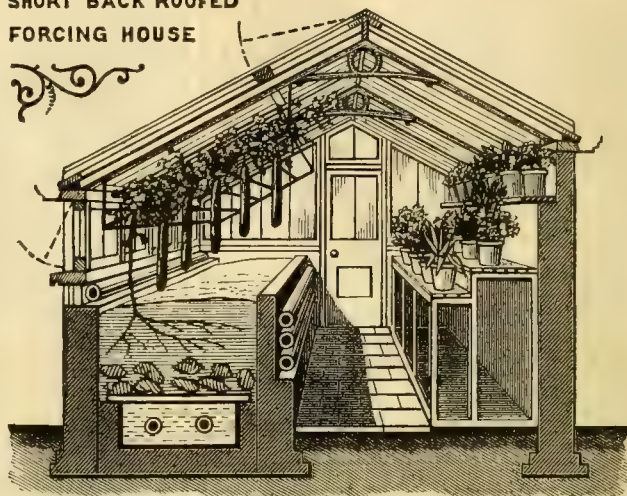
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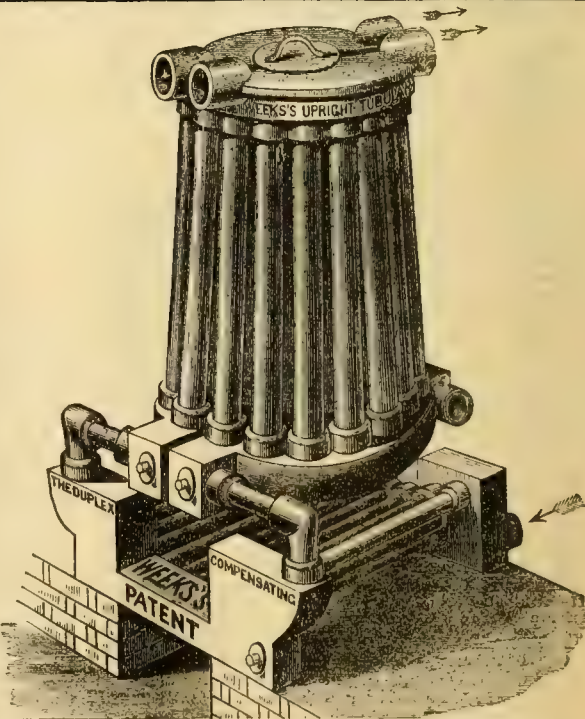
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ESTABLISHED 1841.

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SATURDAY, JANUARY 10, 1891.

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POST-FREE, 34d.

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To the Trade.

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WHOLESALE CATALOGUE OF SEEDS AND SUNDRIES has been posted to their Customers. Copies can be obtained from 237 and 238, High Holborn, London, W.C.

HARDY AZALEAS.—A selection of the most beautiful, many of which were raised in this Nursery, well furnished plants, covered with buds, from 1½ to 3 feet high.

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EXTENSIVE IMPORTATION of LILIES from JAPAN, comprising 10,000 splendid Bulbs of *Lilium auratum*, *L. speciosum*, *album*, and *rubrum*, *L. longiflorum*, &c.; also 5000 TUBEROSES, AMARYLLIS, LILY OF THE VALLEY Crowns, LILUM HARRISII, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 14.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.
(Weather permitting.)

1000 choice named Standard and Dwarf ROSES, 200 lots of HYACINTHS, TULIPS, CROCUSES, NARCISSUS and other DUTCH BULBS, CARNATIONS, PINKS, and other BORDER PLANTS, SPIRÆAS, FRUIT TREES, in variety; Ornamental SHRUBS and CONIFERS, Home-grown LILUMS, GLADIOLI, TUBEROSES, AMARYLLIS, and many other BULBS and ROOTS.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, January 14 and 17, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Monday Next, January 12.—Dutch Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 12, at half-past 12 o'clock precisely, HYACINTHS, TULIPS, CROCUSES, and other BULBS, just received from Holland; HARDY BULBS, LILIES, TUBEROSES, &c.; in all about 500 lots.

On view morning of Sale, and Catalogues had.

Wednesday Next.—Lilies.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 14, at half-past 12 o'clock, 10,000 LILUM AURATUM, 25 cases L. LONGIFLORUM, 2000 LILUM KRAMERII, and 1000 LEITCHLINII, just received from Japan; LILUM SZOVITZIANUM, 5000 American Pearl TUBEROSES; an assortment of hardy English-grown LILIES, a few lots of DUTCH BULBS, NARCISSUS, GREENHOUSE PLANTS, and FERNS from an English Nursery; Palms, &c.

On view morning of Sale, and Catalogues had.

East Dulwich, S.E.

JANUARY 14, 1891.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Seeger & Tropp to SELL by AUCTION, on their Premises the Orchid Nurseries, East Dulwich, S.E., on WEDNESDAY NEXT, January 14, at half-past 12 o'clock, a large and selected COLLECTION of well-established ORCHIDS, including:—

Odontoglossum excellens	Oncidium Mantini
Celia bella, in bud or flower.	Laelia elegans Wolstenholmeiæ,
This plant was awarded a	7 bulbs, 6 with leaves
First class Certificate by the	" " Turneri
Royal Horticultural Society,	" " irrorata
December 10, 1889	Cattleya Henriciana, a fine
Sobralia leucoxantha, true	lot
" xantholeuca	" labiata autumnalis,
Laelia anceps Schrodere	extra fine specimen.
Maxillaria Sanderiana, in bud	This is the true old
or flower	species
Cypripedium, embracing very	" guttata munda (Rchb. f.)
many rare and choice hybrids	Vandas—a choice collection of
Odontoglossum Alexandrie, in	about 100 plants, to be
large quantity	offered in one lot, among
Cymbidium elegans, fine speci-	which are large, well-leaved
men	specimens, and special varie-
Celeogyne cristata Lemoniana,	ties, true to name.
extra fine specimen	

and very many other choice and rare ORCHIDS, the whole of which are well-grown healthy plants. The Sale will also include importations in best condition of the beautiful *Laelia crista*, *Oncidium tigrinum*, *Odontoglossum pulchellum majus*, *Laelia majalis*, &c.

The plants will be arranged a week prior to the day of Sale, and Messrs. Seeger & Tropp cordially invite a visit of inspection. In the event of frost, purchases can remain on the Premises until the weather is favourable for their safe transit.

The nurseries are within 5 minutes' walk of East Dulwich Railway Station, L.B. & S.C.Ry., and frequent trains arrive from London Bridge and Victoria.

Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

ONCIDIUM MARSHALLIANUM.
UTRICULARIA NELUMBIFOLIA.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, and 213, Park Road, Clapham, S.W., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 16, at half-past 12 o'clock.

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A fine consignment of this superb Orchid, and considered to be one of the best Oncids in cultivation, producing in spring and early summer months long branching spikes, on which are borne the brilliantly coloured flowers. As an exhibition plant, this is one of the most graceful that can be staged, the rich golden-yellow flowers produce a charming effect. The plants offered are in very fine condition, some of them having still their spikes, thus giving evidence of their free-flowering character.

The Sale will also include a choice consignment of popular ORCHIDS, consisting of *Laelia Dayana*, *L. Dormaniana*, *Utricularia nelumbifolia*, *U. reniformis*, *Oncidium pretextum*, *Oncidium concolor*, *O. curtum*, *Colax jugosus*, *Odontoglossum crispum*, best Pachy strain, &c., &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

GREAT SALE OF LILIES.

10,000 <i>Lilium auratum</i>	2000 <i>Lilium Kramerii</i>
1,000 " <i>Leitchlinii</i>	4000 " <i>longiflorum</i>

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of LILIES, on WEDNESDAY NEXT, January 14, at half-past 12 o'clock precisely. On view morning of Sale, and Catalogues had.

Monday, January 19.

PRELIMINARY NOTICE.—SPECIAL SALE.

25,000 HARDY PLANTS and BULBS, consisting of Carnations, Picotees, Peonies, New French Cannas, and Dahlias; a magnificent collection of Iris, 500 Cypripedium spectabile, 1000 English-grown Lilies, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY, January 19, at half-past 12 o'clock.

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MESSRS. PROTHEROE AND MORRIS are instructed by Mr. William Barley, who is giving up the cultivation of Greenhouse Plants to SELL by AUCTION, on the Premises, Millshot Farm, Crabtree Lane, Fulham, on THURSDAY, January 22, at 12 o'clock, the whole of the well-grown GREENHOUSE PLANTS, 300 Maidenhair Ferns, 2500 Tuberose, 900 Arum Lilies, 1100 Palms in pots, &c.; 3000 Roses of the best sorts, Helleborus, 200 Glazed lights, two ponies very quiet to ride and drive, and other effects.

On view the day prior to the Sale. Catalogues may be obtained on the premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

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CATALOGUE on application.

HARTLAND'S YEAR-BOOK of Rare Seeds

For 1891 is now being gratuitously posted to all his English and Scotch customers. If any reader of the *Gardeners' Chronicle* wishes for a copy, and that he has not hitherto seen W. B. H.'s "Trade Lists," that are always *recherché* and original, sixpence in stamps will secure the "Year-Book," and 2s. 6d. the "Floral Album" of Conference Daffodils. Please write for one, or both, and you shall secure the thanks, with the best services of WM. BAYLOR HARTLAND, F.R.H.S., Old-established Seed and Rare House, 24, Patrick Street, Cork. (Please quote *Gardeners' Chronicle*.)

ASPARAGUS, 5-yrs. old for forcing, grand

roots, 7s. 6d. per 100; 3-yrs. old for planting, 25s. per 100. Cash with order. My Asparagus always makes top price at Covent Garden. Read the following unsolicited testimonial:—"Please send me another 200 5-yr. old Asparagus roots. I may say that the last 200 were the best lot of forcing roots I ever bought, and my employer says the quality is excellent." C. H. PERKINS, The Gardens, Milton Abbey, Blandford, December 27, 1890.

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SMALL SHRUBS.—Sweet Bays, 3-yrs., 4s.

per 100; C. macrocarpa, 8 to 10 inch, 60s. per 1000; Erecta viridis, 6 to 8 inch, 50s. per 1000; do., 8 to 12 inch, 80s. per 1000; C. Allionii, 1 foot, 12s. per 100; Cotoneaster Simonsii, 1 foot, 40s. per 1000; Cedrus atlantica, 2-yrs., 6s. per 100; C. deodara, 1-yr., 7s. per 100; Escallonia macrantha, 9 to 12 inch, 10s. per 100; Pinus cembra, 3-yrs., 30s. per 1000; P. insignis, transplanted, 9 to 10 inch, 60s. per 1000; P. excelsa, 2-yrs., 4s. per 100; P. Nordmannia, 2-yrs., 4s. per 100; P. nobilis, 2-yrs., 6s. per 100; Oaks, evergreen, 2-yrs., 9 inch, 60s. per 1000; Oaks, scarlet, 2-yrs., 2s. per 100; Retinospora plumosa, 6 inch, 40s. per 1000; 2 years transplanted, 8 inch, 80s. per 1000; R. squarrosa, 6 inch, 40s. per 1000; 8 inch, 80s. per 1000; Rhododendron ponticum, 3-yrs., 25s. per 1000; 4 to 6 inch, 40s. per 1000; 6 to 9 inch, 60s. per 1000. Stocks, clean, 90s. per 1000; Thuia Lobbi, 10 inch, 45s. per 1000; 15 inch, 60s. per 1000. English Yew, 1-yr., 25s. per 1000; 6 to 8 inch, 80s. per 1000. Spanish Yew, 6 inch, 6s. per 100.

GARLIES MITCHELL, Nurseryman, Stranraer.

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for LIST of good, healthy, cheap plants before ordering elsewhere. ODONTOGLOSSUM ALEXANDRIE, selected, 30s. per dozen; SOPHRONITIS GRANDIFLORA, 5s., 7s. 6d.; CYPRIPEDIUM BARBATUM SUPERBUM, 2s. 6d., 5s., 7s. 6d.; C. BOXALLII, fine plants, 5s., 7s. 6d. Cash with order. W. L. LEWIS, F.R.H.S., Chasewood, Southgate, London, N.

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NOVELTIES OF 1890.

ORCHIDS.

A NOTEWORTHY feature in the past year was constituted by the hybrid Orchids that were seen, the work chiefly of amateurs. Foremost among these, Sir Trevor Lawrence, Bart., M.P., presented several charming varieties, worthy to rank among such species as *Dendrobium nobile* and *D. Wardianum*, at the first meeting of the Royal Horticultural Society on January 11—a time of year which well indicates their usefulness. The showiest of these was *D. Juno* × (*Wardianum* × *Linawianum*), with flowers that bear a strong resemblance to those of *D. nobile nobiliss*; *D. Luna* × (*Findlayanum* × *Ainsworthii*) was one of the prettiest of them, and may be likened to a white *D. Findlayanum*; while following his *D. melanodiscus* × and *D. chrysodiscus* ×, Sir Trevor introduced yet another effective *Findlayanum* hybrid in *D. xanthocentrum* ×. Another novelty which made its debut at the January meeting was *D. nobile*, Burford var., a curious freak, resembling *D. n. Cooksoni*, but with the crimson of the labellum extending to the sepals instead of the petals. Another little-known *Dendrobe*, for the first time well flowered and exhibited, was Sir Trevor Lawrence's fine wax-like yellow *D. signatum*, and the like may be said of the pure white *Cattleya intermedia Parthenia*.

Still continuing our allusions to hybrid Orchids, we find Norman C. Cookson, Esq., of Wylam-on-Tyne, during the year, giving us some very desirable varieties, the more especially noteworthy being *Phaius Cooksoni* (*Wallichii* × *tuberosus*), a handsome and free-growing plant. Mr. Cookson also flowered during the year in his great store of hybrids, *Dendrobium Venus* × (*Falconeri* × *nobile*), and *D. Casiope* × (*japonicum* × *nobile albiflorum*), both very fine flowers; and from his *Cypripedium* crosses

several distinct things were noted, one of the best being, perhaps, *C. Doris* × (*venustum* × *Stonei*).

With hybrid *Cypripediums*, too, Drewett O. Drewett, Esq., of Riding Mill-on-Tyne, and Captain Vipan were eminently successful; and another amateur, A. J. Hollington, Esq., Forty Hill, Enfield, produced two of the prettiest new *Cypripediums* of the season in his *C. Aylingii* × (*niveum* × *ciliolare*), and *C. Muriel* Hollington. Late in the year, W. Howard, Esq., The Grove, Teddington, exhibited a fine massive hybrid between *C. Harrisianum superbum* and *C. Spicerianum*, named *C. Osbornei* ×; and during the year a most valuable acquisition in pure white hybrid Orchids was chronicled from the gardens of Sir Charles W. Strickland, Bart., Hildenley, Malton, Yorkshire, viz., *Calanthe Veitchii alba*. Following his endeavours with *Masdevallias*, so notably signalled in the bright yellow *M. Hincksiana*, Captain Hincks has produced another pretty pale rose-coloured hybrid—*M. Stella* ×; and there are various indications of the work in hybridising Orchids being carried on in other gardens.

Fine varieties of known species nearly always give some of the most beautiful and valuable novelties of the year, and with these Baron Schroder, as usual, stood first. His magnificent *Dendrobium Wardianum Schroderi*, is a marvellous giant form of that fine species, and so heavily coloured with purplish-crimson, that the back of the segments of the bloom are more showy than the front of ordinary forms. It is to *D. Wardianum* what *nobilis* is to *nobile*.

Cattleya Lawrenceana delicata and *C. L. Vinckii* of Baron Schroder are also two exquisite flowers, the latter having a decidedly blue tinge in its colouring. His *Phajus Humbloti alba*, a charming pure white petalled form; *Cattleya Empress Frederick*, a grand variety; and *C. Im-schootiana*, a noble flower with creamy-white sepals and petals, and a rich crimson-coloured lip. Other fine new forms of showy Orchids noted as coming from private gardens, were *Lælia elegans Broomeana*, the king of the *L. Turneri* section, and recently figured in the *Orchid Album*, from the garden of Joseph Broome, Esq., Llandudno; and the lighter coloured *L. e. Stand* var. from J. Statter, Esq., Stand Hall, Whitefield, near Manchester, the latter exhibiting the new *Cattleya aurea Statteriana*, a variety with little other colour in it than rich yellow. In this *C. Dowiana* section, new and good forms were certificated to E. G. Wrigley, Esq., notably *Cattleya Massiana*; and to A. Wilson, Esq., Sheffield, *C. Hardyana*, Wilson's variety; the latter gentleman also being the first to flower the Sanderian introduction, *Sobralia Wilsoni*. Amongst other noteworthy and new forms of *Cattleyas* were *C. Gaskelliana picta*, a fine variegated-flowered kind, hailing from the gardens of the Right Hon. J. Chamberlain, M.P.; the *C. Eldorado venusta* of Edward Moon, Esq., Cassio-bridge, an exquisite, large, white flower, with a crimson lip, veined and fringed with white; *C. Gaskelliana*, Cooke's variety, a whole coloured light rose form; and *C. Mendelii* "Alfred Smee," and *C. Trianae Tautziana*, two handsome novelties, each with crimson-tipped petals; *C. Trianae marginata* of Messrs. J. Laing & Son, a finely coloured and prettily white-margined variety. Among varieties of *Lælia anceps*, perhaps the largest and most beautiful of coloured forms, was that which recently flowered with W. J. Thomson, Esq., at Ghyllbank, St. Helen's, Lancashire, and described at the time in the *Gardeners' Chronicle*.

Among *Masdevallias*, which are of such great interest to some growers, should be noted a few good introductions, the best and most distinct of which were *M. Lowii*, an introduction of Messrs. Hugh Low & Co., which first flowered with Sydney Courtauld, Esq., Bocking Place, and who received a First-class Certificate for it at the Royal Horticultural Society's meeting, August 12. Mr. Courtauld also flowered and received an Award of Merit for the pretty *M. Courtauldiana*, and was the first to flower Messrs. Sanders' *M. Costaricensis*.

Messrs. F. Horsman & Co., of Colchester, announce a very pretty new species in *M. fulvescens*; R. J. Measures, Esq., of Camberwell, has the sole plant of the neat little *M. O'Brieniana*; Messrs. F. Sander & Co. have the fine purple *M. Rolfeana*, *M. Measuresiana* ×, *M. Amesiana* ×, and other hybrids; and from the Royal Botanic Gardens, Glasnevin, Dublin, we

their stock a pretty new dwarf purplish-crimson species flowered—*S. Lowii*. With Mrs. General Studd, of Bath, a very delicately-tinted pale lavender form of the old *Sobralia macrantha* has bloomed; and at the Royal Horticultural Society's meeting, Messrs. Jas. Veitch & Son, Chelsea, exhibited a distinct form of *Sobralia Warscewiczii*, which was much dwarfer, as well as more floriferous than the type, although it was not distinguished by a varietal name.

The same firm—Messrs. James Veitch & Son—who never fail with their quota of novelties, not merely plants differing from others already in gardens, but better in some respects, and generally on the side of showiness of bloom, again produced some phenomenal hybrids. Around their crossings of *Sophrontis grandiflora*, so well inaugurated by the production of the charming *Sophr-Cattleya Batemanniana* ×, much interest centres; and, again, at least two



FIG. 11.—*VERONICA CUPRESSOIDES*, TO ILLUSTRATE DIFFERENT FORMS OF FOLIAGE ON THE SAME PLANT. (SEE P. 42.)

have seen the pretty spotted *M. guttulata*. It was an especially noteworthy event, too, of last year, that, in honour of the clever and persevering Curator of these gardens, Mr. F. W. Moore, a new genus of Orchids has been founded by Mr. Rolfe on materials sent from Glasnevin—*Moorea irrorata*. This, the first species of the new genus, is something like, and equally as showy as, one of the brownish crimson and yellow forms of *Houlletia odoratissima*.

Sobralias are again gaining favour, and some good additions are due to the efforts of Messrs. F. Sander & Co., who have still large importations of some that are reputed to be new ones, and which have as yet to flower. Their *S. Sanderae* is a noble kind of the *S. xantholeuca* section, but with white flowers delicately tinged with primrose-yellow, and with a golden throat. Messrs. Hugh Low & Co., of Clapton, are also importers of these handsome Orchids, and from

lovely hybrids are forthcoming in *Epiphrontis Veitchii* × (*Epidendrum radicans* × *Sophrontis grandiflora*), and *Sophr-Cattleya Calypso* × (*Sophrontis grandiflora* × *Cattleya Harrisoniae*). The former is a dwarf and compact-growing plant, of a profuse-flowering habit, and dark heads of scarlet flowers, and the latter well worthy to accompany its nearer ally, *S. Batemanniana*. Other fine novelties of Messrs. Veitch are *Lælio-Cattleya, Proserpine* × (*Lælia Dayana* × *Cattleya velutina*), and *Lælio-Cattleya eximea* (*L. purpurata* × *Cattleya Warneri*), the latter a most gorgeous bloom. The like may be said of *Lælio-Cattleya Canhamiae* × (*L. purpurata* × *Cattleya Mossiae*), but its rosy hue is lighter.

Among hybrid *Dendrobes*, Messrs. J. Veitch produce a showy plant in *D. Aspasia* × (*aureum* × *Wardianum*), and their *D. Wardiano-japonicum* is a neat, little, white, flower, but not exhibiting

the improvement which the cross would suggest. Of their new hybrid *Cypripediums*, *C. H. Ballantine* (*purpuratum* × *Fairrieianum*) was one of the best, and exhibits the beauties which *C. Niobe* × and their other *Fairrieianum* hybrids do. *C. Numæ* (*Stonoi* × *Lawrenceanum*) was very fine; *C. Antigone* × (*niveum* × *Lawrenceanum*), a massive and handsome flower; and *C. Cleola* × (*Boissierianum* × *Schlimii albiflorum*), the most chastely beautiful white *Seleniped* ever raised. Among imported new species, Messrs. Veitch have a noble plant in *Dendrobium atro-vioaceum*, whose large flowers resemble those of *D. macrophyllum*, but they are creamy-white, with a lip of a rich violet colour.

In addition to those plants already mentioned, Messrs. F. Sander & Co., of St. Albans, were credited with many new and desirable Orchids of 1890, among them being *Miltonia vexillaria*, "Fairy Queen," the most beautiful of pure white *vexillarias*; *M. Bleui splendens*, *Odontoglossum excellens*, "Albert Edward;" the richly-spotted *O. crispum* *Rothschildianum*, and *O. c. Mundyanum*, the former with a yellow, and the latter with a white ground; *O. Wattianum*, an elegant new species; *Phalænopsis Micholitzii*, like an ivory-white *P. violacea*; *Cattleya O'Brieniana*, which has pale rosy-lilac flowers, resembling *C. Loddigesii* in shape, but with something of *C. Walkeriana* form in the lip; *Sophronitis grandiflora aurantiaca*, a pure yellow variety. *Sarcopodium Godseffianum*, a showy and curious new species, with yellowish flowers, marked with purple-brown, beautifully transparent when seen against the light, came also from Messrs. Sander & Co. The same firm also possess in *Cattleya Mendelii*, "Prince of Wales," exhibited at the Temple Show, the richest-coloured *C. Mendelii*; and they were the lucky importers of the much admired *Lycaste Skinnerii Youngiana*, which has white flowers equal in form to the best white *Lycaste*, but with a delicate Apricot-yellow glow on the petals, and darker Apricot-yellow tinge on the lip. This plant is in the possession of Reginald Young, Esq., Linnet Lane, Sefton Park, Liverpool, who received a First-class Certificate for it at one of the Royal Horticultural Society's meetings. Messrs. Sander have also flowered and exhibited the pretty yellow *Oncidium Roraimense*, and many new hybrid *Cypripediums* during the year, the most noteworthy being *C. Youngianum* × (*Roebelini* × *superbiens*); *C. Polletianum* × (*calophyllum* × *cenanthum superbum*); *C. Eyermannianum* × (*barbatum* × *Spicerianum*); *C. Maynardi* × (*purpuratum* × *Spicerianum*); *C. Castlemanum* × (*hirsutissimum* × *superbiens*); and *C. Hookeri Volonteanum*, a distinct imported variety.

Messrs. Hugh Low & Co., of Clapton, always strong in *Phalænopsids*, number three novelties among their introductions which flowered last year, viz., *P. Cynthia*, which also flowered with F. Wig, Esq., at Clare Lawn, East Sheen; *P. Schilleriano-gloriosa*, and the charming *P. violacea bellina*, the two former being natural hybrids probably. Messrs. Low also introduced the first natural hybrid *Angræcum* in *A. primulinum* (*citratum* × *hyaloides*); a fine new *Aërides*, *A. l'Ansoni*, a most beautiful thing that was apparently intermediate between *A. odoratum* and *A. expansum*, or perhaps some form of *A. falcatum*. Two new *Cypripediums* also appeared at Clapton, viz., *C. villosum* *Lowi*, which stands in the same relation to *villosum* that *C. insigne Chantinii* does to *C. insigne*; the upper half of the dorsal sepal is pure white, marked with purple. The other is of hybrid origin, between *C. Spicerianum* and *C.*

Lawrenceanum. It is named *C. radiosum superbum*.

Mr. Wm. Bull has been successful mainly in new forms of *Lælia purpurata*, *Cattleyas*, and hybrid *Odontoglossums*, many of which were in his Orchid show of last year, when some of them were noted in the *Gardeners' Chronicle*, May 10, p. 581.

Messrs. B. S. Williams & Son, of Upper Holloway, flowered some very fine spotted *Odontoglossums*, one of the best, a very beautiful spotted variety being figured in their *Orchid Album*, t. 403; and in the same number, the handsome *Calanthe Mylesii* ×, pure white with a tinge of yellow on the lip is figured. Messrs. Williams also flowered a distinct form of *Cattleya Mossii* named *C. M. decora*.

Messrs. Charlesworth, Shuttleworth & Co., sent from their fine collection at Heaton, Bradford, to the Manchester Summer Show, a fine series of their superb strain of *Odontoglossum crispum*, two of the spotted forms being of the highest order of merit; they were *O. c. Wrig-*



FIG. 12.—*TILLANDSIA VIRGINIALIS*: SHOWING TWO FORMS OF LEAVES ON THE SAME PLANT AT THE SAME TIME (SEE P. 42).

leyana and *O. c. Golden Hybrid*. Their large-flowered type of *Miltonia vexillaria* was also well represented, but none of the specimens came quite up to that of their importation which flowered with G. Le Doux, Esq., and which, as "Le Doux variety," received the Award of Merit of the Royal Horticultural Society. Its flowers are the largest of any, the labellum white, and the other segments delicately tinted with pink.

Among other new Orchids, the most noteworthy of the year were *Odontoglossum Pescatorei* Mrs. G. W. Palmer, and *O. P. Tilgate's* variety, both having flowers beautifully spotted with purple; *O. triumphans aureum* (A. H. Smee, Esq.).

One of the handsomest of new plants, to which a First-class Certificate was awarded, was *Cymbidium Tracyanum* of Mr. H. A. Tracy, of Twickenham.

Of productions outside the British Isles, a very remarkable and handsome plant is that which Messrs. Pitcher & Manda, of Short Hills, New Jersey, U.S.A., obtained by crossing *Cypripedium superbiens* with *C. concolor*, and named *C. Arnoldianum* ×. L'Horticulture Internationale, Paris, Leopoldi, Fruss's had several novelties,

with which our readers will be tolerably familiar, by their being exhibited at the meetings of the Royal Horticultural Society, or described in these columns. The two best are *Cattleya Warocqueana* and *C. Rex*. About the beauties and good qualities of the first, enough has been said, and the second-named is likely to prove equally good and distinct. Other fine novelties of the Brussels firm were the scarlet *Odontoglossum Noezlianum*, the elegant and showy *Cirrhopetalum Mastersianum*, the ivory-white *Cattleya granulosa Buyssoniana*, *Lælia Schroderi delicata*; that most beautiful of *Catasetas*, *C. Rodigasianum*, *Maxillaria longisepala*, the curious and massive *Coryanthes Bungei*; *Oncidium Leopoldianum*, quite a new type of large-flowered *Oncidium*; *Zygopetalum Jorisanum*, the fine and fragrant rose-coloured *Aërides Augustianum*, &c.

The following novelties have been illustrated in the *Gardeners' Chronicle* in 1890:—

- Aërides Augustianum*, February, 22, p. 233.
- Cypripedium Aylingii* ×, June 28, p. 797.
- "*Arnoldianum* ×, November 29, p. 633.
- Masdevallia fulvescens*, September 20, p. 325.
- "*Lowii*, September 6, p. 268.
- Phaius Cooksonii* ×, March 29, p. 389.
- Cattleya Buyssoniana*, Nov. 22, p. 598.
- Disa tripetaloides*, June 21, p. 768.
- Lælia Gouldiana*, Feb. 8, p. 169.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × *CASTLEMANUM*, Rolfe, n. *hyb.**

THIS is a beautiful hybrid, one of the most brightly-coloured ones which has yet appeared. It was raised by Mr. Maynard in the collection of Messrs. F. Sander & Co., of St. Albans, from *C. hirsutissimum*, crossed with the pollen of *C. superbiens*. In many respects it recalls *C. × Fraseri*, though more brightly-coloured. It presents a somewhat curious combination of characters. The dorsal sepal, though intermediate in shape, is totally different in colour, and it is difficult to conceive how its brilliant colour originated. The petals are flat, not undulate, as in the mother plant, but the spots do not extend to the apex as in *C. superbiens*. The lip and staminode also closely resemble the last-named species, the former being a little more compressed. It is dedicated to Mr. Lewis Castle, of the *Journal of Horticulture*. R. A. Rolfe.

CYPRIPEDIUM × *ORPHEUS*, Rolfe, n. *hyb.*†

This is the first hybrid from *Cypripedium callosum*

* *Cypripedium* × *Castlemanum*, n. *hyb.*—Leaves light glaucous-green, with darker reticulated veins, 6 to 8 inches long, by 1½ inches broad. Dorsal sepal ovate, obtuse, 1½ inches long by 1½ inches wide, light maroon-purple, with a white margin, and a few minute black dots on base of nerves. Lateral united sepals ovate, 1 inch long, pale green, with two purple stripes near the middle. Petals widely spreading, 2½ inches long, ligulate, ciliate, light green at base, passing into maroon-purple towards apex, with numerous small black dots on basal half, then becoming very few, and finally disappearing near apex. Lip a little compressed at sides, nearly 2 inches long, dull maroon-purple in front, paler behind, the infolded side-lobes with many small maroon spots on a pale ground. Staminode with broad rounded base, and three short blunt teeth at apex, palest green, with slightly darker reticulated nerves, purplish on basal half. Derived from *C. hirsutissimum* ♀ and *C. superbiens* ♂.

† *Cypripedium* × *Orpheus*, n. *hyb.*—Leaves pale grey-green, tessellated with darker green blotches, about 6 inches long by 1½ to 1¾ inches wide. Dorsal sepal suborbicular, with acute apex, 1½ inches long by 1½ inches wide, whitish-green, with twenty-three green nerves; lower united sepals ovate, acute, 1 inch long, similar to dorsal one, but with only 6 nerves; petals ligulate, subdeflexed, slightly falcate near apex, ciliate, basal half whitish-green, with eight green nerves, passing into light rosy-purple in apical half, and with four black warts near the middle of the outer margin; lip sub-compressed, 1½ inches long, dull deep maroon in front, paler behind, infolded side-lobes with a few light maroon wart-like spots on a pale ground. Staminode broadly hypopharyngeal, apex tricuspidate, pale green with olive-green reticulated veins in centre. Derived from *C. venustum* ♀ and *C. callosum* ♂.

which has yet appeared, *C. venustum* being the seed parent. It was raised in the establishment of Messrs. F. Sander & Co., of St. Albans, by Mr. Maynard. It has the general shape of *C. callosum*, but the dorsal sepal is smaller, more acute, and without the purple veins of that species. The petals have fewer warts on the margin, and more purple on the apical half; in this respect approaching *C. venustum*, but there are no spots as in that species. The lip is nearly as in *C. callosum*, a little modified in shape, and with scarcely a trace of the veining so characteristic of the mother plant. The staminode also approaches that of *C. callosum*. It is a pretty little hybrid, and may yet improve. R. H. Measures, Esq., of The Woodlands, Streatham, now possesses the plant. R. A. Rolfe.

CYPRIPEDIUM × *ALCIDES*, Rolfe, n. *hyb.**

Cypripedium hirsutissimum has been crossed with *C. villosum*, yielding *C. × Germinyanum*, with *C. Boxallii*, yielding *C. × Godseffianum*, and now with their nearest ally, *C. insigne*. The result of this last cross is a large and delicately-coloured flower, closely approaching *C. hirsutissimum* in shape; certainly a distinct and very pretty hybrid. It was raised by Mr. Maynard, in the establishment of Messrs. F. Sander & Co., of St. Albans, *C. insigne* being the seed-parent. Although intermediate in most respects, the influence of the pollen-parent preponderates in the shape of the dorsal sepal, the petals, and the lip. The staminode rather more closely resembles that of *C. insigne*. The colours are fairly intermediate, but more delicate than would be expected from the character of the parents. The prevailing colour is a very pale yellowish-green, faintly suffused with pale purplish on the dorsal sepal, more decidedly with rosy-purple on the petals, and with pale purple-brown on the lip. The apex and margin of the dorsal sepal are white, and there are a few purple spots at the base, as also at the base of the petals. The plant is now in the collection of R. H. Measures, Esq., of The Woodlands, Streatham. R. A. Rolfe.

CHANNEL ISLAND POTATOS.

In answer to the inquiries of "A. O. W.," in a recent issue, respecting the cultivation of early Potatoes in the Channel Islands, I beg to state the following particulars:—

1. *Preparation of the Land.*—The selection of the land is the first consideration. If the soil be what is termed of a warm nature, and with a gentle declivity southwards, so much the better. After ploughing deeply and well, the land is harrowed, the general custom being to spread well-made farmyard manure or seaweed on the surface, which is then ploughed in with the sets.

2. *Nature of the Manure Used.*—From 25 to 30 tons of farmyard manure or seaweed are applied per acre, with from 8 to 12 cwt. of artificial manure, containing about 8 per cent. of ammonia, and 20 per cent. of soluble phosphate. Including rent, the total expenditure for the crop is often as much as £45 per acre, and sometimes even more; but almost always a second crop of some kind is taken the same year, after the removal of the Potatoes. The earliest crops, which command very high prices, average about 6 tons per acre.

3. *Variety of Potatoes chiefly Grown.*—The kidney varieties commonly planted are the Ashleaf, the Prolific, and the Early Fluke. The round varieties most esteemed are the Cherbourg, the Dalmayhoj, and the Early Regents.

* *Cypripedium* × *Alcides*, n. *hyb.*—Leaves long and narrow, light green, 9 to 13 inches long, $\frac{3}{4}$ to 1 inch wide. Dorsal sepal elliptical-ovate, a little undulate, $2\frac{1}{2}$ inches long, by $1\frac{1}{2}$ inch broad, pale delicate yellowish-green, a little suffused with pale purplish on the disc, a white apex, and small purple-brown spots on the basal part. Lower sepal smaller, and without spots. Petals nearly horizontal, ligulate-oblong, beautifully undulate on upper margin, $2\frac{1}{2}$ inches long, pale rosy-purple, greener near base, where are a few small purple-brown spots. Lip about intermediate in shape, pale green, suffused with pale purple-brown in front, and with a few small purple spots near the margin. Staminode obovate, truncate, pale green, with a small blunt yellow tubercle.

4. *Treatment of Sets.*—The kidney varieties, as a rule, are planted whole, and the round varieties are planted in strong sets, with eyes from the crown of the tuber, from 12 to 15 cwt. being planted per acre. Potatoes intended for early seed are generally dug before the haulm is entirely dried up; when dug, they are allowed to harden by exposure to the air and sun, occasionally turning them. Then, at the fall of the year, they are stowed away in layers on wooden floors, to retard too early a vegetation. By a little attention in this way, the tuber is checked in its habit of early growth, and when the moment arrives for planting, it can, if required, be forced; but it is not often that any forcing is required; the eyes will break out into vigorous shoots, and when they are fully developed—say, about half an inch in length, the tubers are planted, taking care to place the shoots uppermost. In this manner, one month, at least, is gained in bringing the Potato out of the ground. The preparation of the sets must be viewed as of primary importance, taking care always to select plants of good and of early habit; this forms, with suitable manure, the only secret in the culture of the early Potato.

5. *Planting.*—The planting commences in January, and is usually all finished by the end of February. The next operation is the forking-up, or loosening of the ground between the rows; this is performed when the plants are fairly out of ground, either with the prong, or with a small implement in the form of a horse-hoe. The soil, being thus well opened, if not checked by frosts, which unfortunately is sometimes the case, the plants will grow quickly, so that by the middle of April, they are all hoed-up. In the early sheltered places some are much more forward, while in the later ground others are less.

The first lot of any importance is usually sent up to the London markets about the end of April. There is no season throughout the year in which the farmer is so busy as during the sale of his early Potatoes. A day is frequently of the greatest importance in the market value of the goods, and, therefore, no sooner do they approach maturity than all hands are fork in hand at the work. J. J. Willis, Harpenden.

GARDENING IN IRELAND.

A RETROSPECT, 1890.

(FROM OUR SPECIAL CORRESPONDENT.)

THE past year in Ireland has been most remarkable for its sunless summer, and for its constantly dripping skies. The total rainfall was not above the usual average, perhaps, but most perplexing to gardeners and farmers by its gentle and persistent continuance. It is not only the amount of a year's rainfall that influences land culture, but a great deal also depends upon the way in which it falls. Ireland does not receive a greater rainfall than do some parts of England, but having less sunshine, it follows that less surface water is evaporated, and so, of course, more remains in the soil. That water does not readily find its way to the sea in many parts of Ireland is proven by the relatively large area of her bogs, or mosses. Somebody long ago called Ireland a "Cabbage garden," and that she is essentially a leaf rather than a fruit-producing country is conveyed in the *sobriquet* which describes her as the "Emerald Isle." Even the so-called floral emblem of Erin is a leaf and not a flower.

As a country for vegetative growth, Ireland is indeed, pre-eminent, but as a fruit-producing country I fear she will never be able to compete with more sunny lands in Britain, Europe or America, her mean temperature being lower as above indicated. Of course I know on dry selected soils, and in particular localities, very fine fruit and grain, crops can be grown in Ireland, but the best of English fruit is as far before the best of Irish fruit, as the best of English fruit is behind the best produce of France, the Channel Islands, or of America. In a word, other things being equal, the best climate of course gives the best results. The winter climate near the south and south-west coasts is so mild and

genial, that many crops such as Lettuce, Potatoes, early Rhubarb, Seakale, Asparagus, Cauliflowers and Broccoli, Narcissai, Tulips, &c., could probably be grown there on carefully selected and sheltered land quite as well, and as early, or nearly so, as is the case in Cornwall or the Scilly Isles. The difficulty is to make a start, as railway charges in Ireland are at present prohibitive, and the sea passage to London is too long for perishable goods.

It is very unfortunate that for similar reasons the land products of Ireland and of England so rarely appear side by side on the exhibition table. I am not quite sure whether Messrs. Dickson & Sons, of Newtownards, or Messrs. McGreedy & Co., do so; now and then invade the Scottish shore with their magnificent blooms of Roses as grown in the north of Ireland. But at any rate, I believe I am correct in saying that no English Rose-growers have hitherto beaten them on their own ground. I know well what can be done with Roses on English soils. I have seen the glorious Queen's tournaments, in which such champions as the Pauls, Turners, Pochins, Holes, Cants, and half a hundred other heroes have tilted in the Regent's Park, or in the Palace at Sydenham, but I believe that the Rose blooms grown in Ireland by the best growers have never been surpassed in form and substance, freshness and colour, by those of any other country whatever. The Daffodil and the Narcissus, again, are other flowers that luxuriate in Ireland, and come to a perfection in the open air quite unattainable in England, except it be in the extreme south, as at Scilly. So also in the case of the Primrose, single and double, and the hybrid Oxlips, or Polyanthus, of our gardens, which luxuriate in moisture and oft-clouded skies; while Anemones, Christmas Roses, and summer-blooming herbaceous plants generally grow here into a state of beauty, unattainable under a blazing sun. Those who have been to Paris in the spring, are struck by the scarcity of spring flowers in the parks, albeit delighted by the forced Pinks and Carnations, Lilacs, Roses, and Pæonies of the shops; but Ireland, in March and April, is a garden of spring flowers, beautiful, bold, and luxuriant, as compared with those then in bloom near London, or probably anywhere in England, except perhaps in Devon and Cornwall.

As to indoor fruits, I do not think there is any difference between those of the two countries. The Grapes of Charleville, or of the Chief-Secretary's Lodge in the Phoenix Park, or of Shelton Abbey, are as fine as the best ever staged at a London or Edinburgh show. So also of Peaches, and forced or hot-house fruits generally. As above indicated, I believe hardy orchard fruits do better, or are grown better in England than here. One celebrated amateur near Dublin cultivates bush-trained Apples and Pears of the best, equal to the finest of English fruit, but he makes a special study of his subject, and is a very notable exception. I have often seen his fruit staged on the same table with selected samples from Sawbridgeworth, and have felt grateful to know that under the best of local conditions as to soil, aspect, &c., we could approach, and even in some cases beat, our neighbour's produce in quality now and then.

Small fruits do particularly well in Ireland. There is at Gormanstown a prosperous little colony of fruit growers, having on an average about three acres of land well stocked with Gooseberry, Currant, Strawberry, Raspberry, and other fruit trees. Their produce is regularly shipped direct to Liverpool, I believe, and, as Mr. Bullock-Hall said, in a letter he addressed to the *Times* a year or two ago, "These people are thrifty, and prosper by fruit culture on their little plots of three acres, even without the cow!"

Plums, &c., do fairly well in some parts of Ireland, but not so well as in Worcestershire, or in the best of the market gardens near London. The Cherry, again, although common enough wild in hedges and woods, and now and then very fertile as cultivated in gardens and orchards, does not luxuriate here, as in England. We never find the orchard Cherries



FIG. 13.—COLLETIA: TWO FORMS OF BRANCH ON THE SAME STEM. (SEE P. 42.)

so fertile anywhere in Ireland as they are in southern England, and proverbially in Kent.

During the past autumn, representatives of the British Fruit Growers' Association spent their vacation in this country, and it is likely that their earnest and disinterested labours may tend to increase and improve fruit culture generally in Ireland. A Conference on Fruit is to be held at Dublin in August next by this Association, under the auspices and in conjunction with, the Royal Horticultural Society of Ireland, and this, it is to be hoped, will lead to a diffusion of knowledge on this fruit-growing question.

1. To speak of Irish land-culture, and neglect to mention the Potato will never do, of course, and especially just now, when its partial failure in cold and wet soils has caused some little excitement in the political arena. Active steps are now being taken by the Government to supply fresh and sound seed for next planting season, but such a step is only partial after all, unless means are devised to induce the planters to adopt ordinary precautions to ensure success, such as draining, good cultivation, planting the sets wider apart, so as to afford more food to the roots, and admit more light and sun-heat to the leaves; to check the fungoid disease with sulphate of copper and lime solutions, or by adding sulphate of iron to the soil at planting time; and lastly to burn up every scrap of haulm, diseased or not, instead of letting it rot on the plots, as is at present the rule.

In the face of possible starvation resulting from the Potato disease, I really think plenary powers should be granted to the Land Commissioners to deal with diseased Potatoes as with diseased cattle [hear, hear. Ed.] If a cow gets an infectious disease, she is either isolated or slaughtered; but if a Potato patch is diseased, nothing is done, Paddy lets them rot in the ground, so as to diffuse the disease the following season in all directions, and so make things worse than ever.

My own impression is, that both the soil and climate of Ireland are better suited to the profitable cultivation of small fruits, and the best of vegetables and flowers, rather than to the growth of orchard fruits, such as Apples, Plums, Cherries, and Pears. Of course a few of these may be grown to advantage on dry warm soils in sheltered localities, but small fruits and vegetables will pay better in the long run, besides giving more immediate returns.

2. It is scarcely too much to say that the peasantry in Ireland often manage to cultivate the Potato disease better than they do the Potato itself [A similar remark is true in a measure here. Ed.]

3. In many places wet land can be readily drained, and the surface charred or burned before Potatoes are planted, or they could be dressed with lime, which is of especial advantage on boggy or peaty soils. The burned parings of ditches and hedge plashings, &c., would yield the dressing of potash, which so many Potato soils need, and finally nitrate of soda, 1 cwt. to the acre at planting time, would be a profitable addition to the farmyard manure usually given alone.

I must not forget to say a word about the Chrysanthemum, which has within the past ten or twelve years become quite as favourite a flower in Ireland as it is in England and in the United States. It is a singular fact that ten years ago or less, the autumn or winter show of the Royal Horticultural Society of Ireland consisted of an odd Chrysanthemum plant or two in pots, and perhaps a board or two of poor blooms, to which but few people came, even although no charge was then made for admission. Now, however, and for several years past, the case is altered. Both specimen plants, groups for effect, and cut blooms are fully as fine as one could see at a London show, the fruit and vegetables are finer and more abundant every year, and this once-neglected winter exhibition is now far better attended and so more profitable, than are the summer shows. The show held in November last was remarkable for splendid groups arranged for effect, while the cut flowers in the Japanese section were splendid examples of good culture and skilful arrangement. The last year or

two there has been a falling off in the incurved blooms, but it is to be hoped that Mr. Clibran, and other of the Clonmel growers of splendid incurved blooms, will again compete at the Dublin Show, as their flowers are quite as wonderful as any I have seen either in Liverpool, or at the great London exhibitions.

As will be gathered from what is above stated, the produce of the best private gardens in Ireland is practically equal to those of England, but on the other hand there are fewer of them, and what is more unfortunate they are becoming still fewer, and of those that remain many are restricted in capital and labour power. A large proportion of the best public and private gardens in this country are managed by Englishmen or Scotchmen. As in England, even, if not more so, the produce of many once famous private gardens in Ireland now finds its way to the markets or the shops of the nearest town; against this one can say nothing, since there is no good reason why gardens should be treated on less strict commercial principles than those which regulate the woods, or the home farm, or the stable.

Various attempts have been made from time to time to diffuse a knowledge and taste for gardening in Ireland, and one of the best organised aids in this direction has quite recently been established by Miss White, the Lady Principal of the Alexandra (Ladies) College, Dublin. During the last term, lectures and demonstrations on the principles and practice of gardening were delivered weekly, and at the end of the third term, a £10 scholarship is to be awarded by the examiners to the most proficient pupil in the gardening or horticultural class.

As a means of instructing the upper and middle classes, this scheme is all that could be desired, but to diffuse a knowledge of gardening generally amongst the peasantry, together with sound practical instructions on the utilisation of garden produce, every parish school should possess a garden to be cultivated by the pupils under the supervision of the master and mistress, who should also instruct the pupils in the economical preparation of all the food products of the soil, especially those vegetables that would best supplement the Potato supply, which is ever likely to fail in bad seasons.

It is a very singular fact, that fond as the Irish peasantry are of their homes and of land culture, they are as a class averse to gardening. Now and then you come upon a flowery cottage garden, with a Rose, or Fuchsia, or a Clematis-covered porch, but it is a pleasant exception, which goes to prove what is a most depressing rule. The peasant does not take ideas from his superiors, as is the custom in England, and even in the case of well-to-do farmers, the house front often stands unprotected in the open field, and the cows, and the pigs, and the poultry, can walk up to the windows, and now and then actually into the open door. Abroad, the Irishman—at Fulham, and in other market-gardening districts near London—is, as you know, in great request as a labourer, but here in Ireland a well managed market-garden is a rarity; and I scarcely expect to be believed, but there are actually not half-a-dozen good nurseries in the vicinity of Dublin, which contains something like 250,000 inhabitants, and is called the capital of the country. But there is a bright spot here and there, such as the noble Phoenix Park, of 1753 acres, and in which, during the month of May, the groves of Hawthorn trees are a sight to see, and such a sight as can nowhere else be seen. Here also are the "people's gardens," in which the "squire's gardener" produces every year a charming floral display. Then, again, there is St. Stephen's Green Park in the city itself—a plot of many acres.

Last, but by no means least, comes the Royal Botanical Gardens at Glasnevin, in which are collections of Orchids, Palms, Ferns, aquatic, alpine, and rock plants, &c., second only to those at the Royal Gardens at Kew. From a landscape point of view, the Glasnevin Garden is certainly one of the most picturesque in Europe, and its general management is a credit to all concerned. F. W. B.

BUD-VARIATIONS OR SPORTS.*

WHAT THEY ARE AND WHAT THEY ARE NOT.

It is highly desirable that we should attach a definite signification to this word. Among gardeners it may mean many things, whilst, among botanists, it is restricted to cases of bud-variation as distinguished from variation from seed and from dimorphism.

In this note we shall use the word in its botanical sense, as applying to a special illustration of that tendency to vary which is common to all living beings. We shall, however, gain a clearer idea of what true sports are by the elimination of certain things which are not sports, though often called so. In the first place they are not seedling variations. Out of a hundred seeds of Lawson's Cypress that are sown, it is possible, I suppose, to get ten more or less distinct varieties, besides others which are more or less indistinct. The great variability of this species is now well known, and the seedlings of *Abies subalpina*, Engelmann (*A. lasiocarpa* of Hooker), furnish another illustration of the same tendency. These seedlings may be the result of cross-fertilisation between varieties, or they may be reversions to an earlier condition; at any rate, of whatever nature they are, they are not "sports" in the sense here intended.

Next, sports are not mere stages of growth, or simple instances of dimorphism. Most plants put on a different appearance at various periods or stages of their growth, and sometimes these changes are very remarkable. *Osmanthus Aquifolium* furnishes one example (see fig. 16, p. 47). The *Retinosporas* of our gardens also furnish excellent illustrations. *Retinospora* (or, more strictly, *Thuia*) *pisifera* exhibits during its growth very different appearances in its foliage. There is the squarrose form, and the plumose form, the golden form, the silver form, the pendulous form, the thread-like form, the upright form, and perhaps others. All these, however, are not separate entities; they may all occur on the same bush. If cuttings, or if grafts be taken, they may be reproduced almost indefinitely. Many illustrations of *Retinospora* were given in our volume for 1876, Feb. 19, which we need not reproduce; a less known but equally characteristic case of the kind is offered by *Veronica cupressoides* (fig. 11, p. 38), and by *Tillandsia* (fig. 12, p. 39).

Barring the mere colour variation, these forms are but stages in the growth of the plant, occurring with more or less regularity, and in greater or less degree of prominence, in all the individuals of the species, as may be inferred from watching the growth of seedlings in a seed-bed. *Colletia cruciata* or *bictonensis* is now known to be only a form of *C. spinosa*, as shown by our illustration (fig. 13, p. 41). Other instances of like nature are shown in *Acacia elongata* (fig. 14, p. 43) and in *Leptospermum laevigatum* (fig. 15, p. 45), but these instances may have been the result of insect puncture or other injury.

Other illustrations of variations arising during growth, are afforded by the differences often observable in the foliage according to the conditions of growth; *Ficus repens* against a wall has small, thin leaves, as shown in fig. 19; grown as a standard, the leaves assume the appearance shown in fig. 20. Similar diversities are noticeable on the flowering branches as contrasted with that on those branches which bear no flowers. The common Ivy furnishes an illustration. The short contracted shoots of the *Lyburnum*, or the Apple, known as "fruit-spurs," constitute other examples.

SEXUAL FORMS.

Another form of variation in flowers is that con-

* In consequence of the interest lately expressed on the subject, as evidenced in our columns, the following notes are reprinted. They formed originally the substance of an unwritten address given to a Society of gardeners. Those who desire to look into the literature of the subject should consult the writings of Meehan, Morren, Naudin, and others, and will find excellent summaries in *Carrière's Production et Fertilisation des Variétés*, and in Darwin's *Variation of Animals and Plants*.

nected with difference of sex. A "pin-eyed" *Primrose* does not greatly differ in appearance from a "thrum-eyed" one, yet the difference between them is precisely of the same character as that between the variously formed flowers of some species of *Catase-tum* and *Mormodes*. So utterly different are the male and female flowers of some of these species, that they were at first placed by very competent botanists in different genera. It was only when the protean plants produced all the forms of flowers on one and the same spike, that it was seen that, so far from belonging to different genera, they did not even belong to different species. It was left to Darwin, and recently to Rolfe, to show what this paradoxical variation really means; and now, when we meet with a case of the kind, we say, "Ah, yes; only a sexual form," just as if we had known all about it from our earliest years, and very possibly, in our haste, not discriminating cases of a different nature. But this is not what we propose to discuss just now; we simply say that these cases, though often so designated, are not sports—at least, in our acceptance of the term.

BUD VARIATIONS, OR SPORTS PROPER.

What, then, are sports? We have already characterised them as "bud-variations," but we must give some further indication of their peculiarities: First, as to the suddenness of their production. A tree or a shrub, all on a sudden, and without any cause—that is, apparent to the eye—will put forth a bud, which, as it lengthens into a shoot, displays leaves of a different character to any that the plant has hitherto produced, which have no definite relation to any particular stage of growth, and which are quite different from any that under ordinary circumstances the plant in question has produced, or is likely to produce, in future. In short, the occurrence is sudden and unforeseen. Gardeners, of course, avail themselves of these variations. They remove them, bud them, graft them, strike them from cuttings, or, in some way or another, endeavour to perpetuate the variety, and thus have originated our cut-leaved *Beeches*, *Maples*, *Limes*, and curled-leaved *Willows* and *Banksias* (see fig. 17, p. 47). Thus, too, may have originated some of our weeping trees, and some of our pyramidal shrubs, though for the most part, these have, as I believe, originated as seedling variations.

Not only do these variations occur suddenly, but they are very local in their manifestation. One particular shoot "sports," while all the rest remain in their normal condition. It is very different in the case of seedling varieties, where the whole system of branches and leaves is more or less affected.

Another and a most remarkable feature about these sports is, that they sometimes occur simultaneously in widely different localities; thus the same sport of a *Chrysanthemum* "turns up" about the same time, not only in different nurseries in this country, but also on the Continent. This may be because all the plants in question have originated from one and the same stock.

There are several circumstances connected with sports which call for notice, and which may eventually lead to a clearer apprehension of the causes of their production. For instance, their relative frequency or the reverse in particular categories of plants. Thus, so far as we remember, there is no case on record of a sport other than a mere colour variation having appeared in an annual plant. Seedling variations and absolute malformations are of course common in annual plants, but we do not recall a single instance of true bud-variation among annuals. We have looked for them among the annuals grown every year in the trial grounds at Chiswick and elsewhere but in vain. Mere colour variations, such as occur in the Corn cockle (*Centaurea cyanus*), wherein on the same plant we may find flower heads of three or four colours, are not uncommon.

Now, in an annual plant there is more or less continual growth from the start to the finish. The machine once set going, proceeds without inter-

ruption or change of direction to the end, at least relatively so. But in a perennial of whatever degree, growth is intermittent; there are periods of relaxation of growth, winter buds are formed, and growth ceases. But while growth is dormant it does not follow that the laboratory work carried on in the tissues of the plant is at a standstill; indeed, we know it is not so. Obviously, this intermittent energy, dependent as it must be upon wide variations of external conditions, is more favourable to the occurrence of variation than is the more or less continuous growth of annuals during the persistence of conditions sufficiently equable not to materially check or divert the current of growth.

These, then, are the special characteristics of a sport. Illustrations could be given by the hundred; but neither time nor space permit, nor, indeed, for our present purpose, is it requisite to do so.

(To be continued.)

GIVING AIR IN WINTER.

Air and light are essential to the healthy development of ordinary vegetable life. In the absence of these indispensable elements, the tissues of plants are wanting in solidity more or less proportionate to the deficiency that happens to exist, the stems, branches, and leaves alike, being wanting in substance. The plants we cultivate under glass when growing where Nature placed them, are under the full influence of the air, with light in such volume as the positions they happen to occupy admit of reaching them. The amount of air and light required by plants when they are in a state of active growth is much more than will suffice in the season of rest, as it is during the time that the formation of young wood and leaves is going on that the influence of the elements in question is most required, for if the solidifying process is not going on so as to keep pace with the extension of growth, no amount of exposure afterwards will make good the deficiency. Of this no further evidence is required than may be seen in the numberless instances where plants, through being closely crowded together during the time that growth is going on, make thin weak wood, and leaves deficient in substance, which no after exposure to air and light can make good.

The wide difference in the conditions and requirements of plants during the time they are growing as compared with those that exist when they are at rest, is shown by the difference in treatment that they will bear during the latter period, as there are many plants that suffer little if kept for a considerable time in total darkness in the winter, such, for instance, as the Azaleas and Camellias, which some of the continental growers keep in cellars where no light can reach them through the long and severe winters to which they are subject. But it is only plants in which a complete cessation of growth for a time occurs that will bear keeping in darkness. Where any shoot extension is going on, however slow the development may be, an absence of light is injurious. Air differs from light, inasmuch that it is so subtle that even if the intention existed of keeping it out of any place where plants are located, it would not be an easy matter to do so.

In plant-houses, even where the construction is of the best, the laps of the glass, the doorways, the movable side lights or shutters, or the roof ventilators, admit of the external air making its way in to replace that which is ever escaping, so that in the case of plants that require to be kept cool, even when the weather is such that it is better not to admit more than comes in at the places named, still they do not suffer for want of enough air reaching them. The want of this being sufficiently realised is often the cause of much injury being done by an undue admission of cold air to plant houses at times when it would be much better excluded. Even when the object is to dry up damp, mistakes in this way are often made, as it frequently happens that the external air when admitted in large volumes, with this intention, is so saturated with moisture that the evil

which it is intended to correct is increased rather than lessened. Where the summer's growth was made under conditions favourable to the requisite solidity in the leaves, the ripening process in autumn attended to, and the plants are not unduly crowded, few things are likely to suffer through damp; and where the conditions named have not been secured, the admission of currents of cold moisture-laden air in winter will not remedy the defect.

On the other hand, the observant cultivator will not miss a chance of allowing plenty of fresh air to reach the plants on all days when the weather is such as to make its free admission advantageous, always avoiding anything in the shape of cold draughts,

admission of air proportionate to the growth that was going on was needful to give it the requisite solidity; but it is scarcely necessary to do more than point to the difference existing between the state of the air in a house where the day temperature, with an absence of sun, is over 70°, and considerably more when it shines, and that out-of-doors, even when there is no frost, to show that its admission, except in very small quantity, chills and stagnates the tender growth to an extent that admits of the plants making little progress. In recent times there has been a marked change in the ideas of plant growers in the matter of giving air in winter to the occupants of heated houses. To those who took the trouble to observe, it has always been apparent that light, where present in sufficient volume, acts as a compensating influence on growth made under conditions of a comparative absence of fresh air. And experience proves that where stove plants are grown in a house that admits the full complement of light, and are kept well up to the glass, they require no air in winter, except such as enters at the interstices of the doors, ventilators, and laps of the glass. Where the house is of the right construction, and situated so as to be under no darkening influence from the proximity of buildings or trees, the growth made will be in no way wanting in strength and substance. In houses that do not give enough light, or where the plants cannot be stood so as to have their heads near the glass, it obviously follows that the temperature must be such as will favour less growth until the amount of light, consequent on the increased length of the days, is greater. Long as glass structures have been in use for the cultivation of plants too tender to thrive in the open air, it is evident that only in recent times have cultivators begun to fully realise the influence that light exerts on plants located in such houses. T. B.



FIG. 14.—ACACIA ELONGATA: TWO FORMS OF LEAVES ON THE SAME STEM. (SEE P. 42.)

against which the hardest plants rebel. Even the Heaths, which may be set down as the greatest air-loving plants in cultivation, are often injured by being subjected to volumes of cold air, admitted under the impression that they must have it, no matter what the state of the weather may be. Even far on in spring, when the sun is bright and warm, these plants frequently have their foliage permanently injured by cold currents being allowed to come in direct contact with them.

In stoves, especially where a growing temperature is kept up early in the year, so as to get the plants moving with a view to lengthening the time of their flowering, it would at first sight appear that the

A PEEP AT ALGERIA.

By the kindness of my employer, I had the pleasure of making a visit to Algiers, and a short account of my trip, and what I saw, may interest some of your readers.

I left England in February, and passed through France. I think it worth notice, and it may prove of some interest to most of us who have to do with cultivation of the land, to know that instead of allowing the manure to decay before putting it upon the land, the French farmers cart it to the fields in a fresh state; no doubt there is thus less loss of its fertilizing properties, and this practice may doubtless be practised at home, in many cases upon heavy clay land, with advantage, and without the loss of that which we are too often much in need.

After a pleasant voyage across the Mediterranean I arrived at Algiers; the first plants that drew my attention was a quantity of Palms—*Latania borbonica*, and *Phoenix dactylifera*; these, with *Bambusa arundinacea*, about 40 feet high, formed an agreeable shade to visitors to the Hotel de la Regence. About 200 yards to the east of this, and overlooking the beautiful bay, is a square planted with numerous Palms, *Ficus*, and flowering shrubs. This is a pleasant retreat from the burning sun, where the Palms form an agreeable shade. There are two small fountains here, which give the place an appearance of coolness with the beautiful sweet-scented Cape Pond-weed floating in the basins.

On leaving the town and going eastward, the roadsides were planted with *Grevillea robusta*, small-leaved *Ficus*, *Schinus Molle*, *Carob*, and *Casuarinas*. At every turn the beautiful *Bougainvillea spectabilis* met my eye; here it was climbing amongst the branches of some deciduous tree, there, trying to reach the chimney-top of some high houses, and wherever it was to be found, it was covered with its rich deep-coloured bracts almost hiding every leaf. These were in flower at Christmas, and at the time of my visit there were numerous bracts to open. The soil in which these are growing is red, and I was told there was a quantity of iron in it; it gets so hard when dry that it is impossible to work it. To give a better

description of the soil, I may say, that with a very little lime and sand mixed with it, it makes mortar of a red colour, and is what is used for all building purposes. I think the secret of its doing so well is not so much in the soil, as in being roasted and dry for three months. As soon as the autumn rains commence, the plants spring into new life and beauty.

On reaching Mustapha Supérieur, which is about 3 miles from Algiers, and about 400 feet above the sea-level, the hill-sides are dotted with residences, chiefly of the Arab style, and occupied by British and American families, who go there to escape the inclemency of our winters. Around these houses have been collected plants suitable to the climate; Orange, Lemon, Fig, Banana, Apricot, and Grape, are the principal fruits. Opuntias, Cacti of kinds, Agaves, Aloes, and Mesembryanthemums are here quite at home. At the time of my visit, Tea Roses and Pelargoniums were in a mass of flower. Growing wild around the grounds at Djinnah-el-Mufti, the seat of my employer, was an abundance of wild Mignonette *R. alba*, 4 feet high, and with this thousands of plants of the bright yellow *Chrysanthemum frutescens*, and many of the flowers were four inches across; these with the Mignonette are now mown down and used as mulching for Bamboos, Bananas, and other plants, to economise the water, which is hard to get, having to be pumped from deep wells, and the supply often becoming short. The hill-sides, where not cultivated, are covered with *Coronilla pentaphylla*, *Myrtus communis*, and several species of *Phillyrea*, *Asphodelus ramosus*, *Orchis laxifolia*, *Coriophora longicoma*, *C. undulatifolia*, and others. *Ophrys tenthredinifera*, *O. scolopax*, *O. tabanifera*, *O. fuscata*, *O. ciliata*, and *O. lutea*, these are all very pretty growing amongst the scrub, and where little shade and moisture was to be found. The banks were covered with *Acanthus mollis*, with its bright green leaves; *Pinus halepensis* and *Tauja articulata* are the principal native trees. Also growing on the hill-side were numerous species of New Holland Acacias, which have been planted; these plants flower most profusely, and the colour is much brighter than in our country.

For four or five miles east of Algiers, the double and single yellow *Oxalis* have become naturalised and spread in all directions, and form a great pest to garden crops from the difficulty of keeping them down. At the time of my visit, the whole countryside was a sheet of golden colour with them. These plants on the west side of Algiers, and near the sea, are replaced by *Senecio humilis*, which grows about 5 inches high, and has a bright yellow flower.

Mr. Durando, an Italian botanist, who has lived in Algiers for many years, teaches botany in the schools, and every week he gets up an excursion for rural botany, and publicly invites all who are able to pay the hire of a conveyance for a few miles. I had the pleasure to accompany him on several times, and found that he has a good knowledge of the flora of Algiers, and takes great pleasure in imparting all the information he can to those who accompany him. Our first excursion was to a place six miles from Algiers, where all (about one hundred) alighted, and gathering around our leader, we made our way through thickets of *Pistacia Lentiscus*, a shrub that is carted into Algiers in large quantities, and used by the bakers for heating their ovens; *Quercus Ilex coccifera* is another low shrub that grows here on the hill-sides, but quite stunted; *Asparagus alba*, with white stems; *Arundo*, a species of *Orchis Robertiana*, with long spike of pink flower; *Alium album*; *Scilla*, with very large bulbs, but not then in flower, were amongst those noticed. We also found numerous *Ophrys*, which are very pretty. Turning towards Algiers, we passed several well cultivated fields, with fences of the Indian Fig, *Opuntia*, with the pretty *Clematis cirrhosa* hanging from its branches. Other fences were of Agaves, which, with their strong pointed leaves, make an almost impassable barrier.

Every few yards in these fences was a tall old flower stem, 10 or 12 feet high, which at the time

of flowering must have added to the beauty of the whole.

Nearer Algiers we visited the gardens of Mr. Ramel. Here were numerous *Eucalyptus resinifera*, *E. colosseae*, *E. citriodora*, and numerous others. Convenient to Mr. Ramel's is Mr. Trottier's place. This was the first place at which the *Eucalyptus* were planted in Algeria, and where some hundreds of species have been tested, but the Red Gum is considered best suited for the climate, and makes the best timber. After thanking Mr. Durando for his kind instruction and entertainment, we parted, much pleased with our day's outing.

Our next botanical trip was to Mataga Plain, situated about twelve miles east of Algiers, on purpose to visit Mr. Cordier, who owns a large track of land in that quarter, which seemed to be very fertile, and was indeed well cultivated. There are here belts and clumps of *Eucalyptus* planted, doubtless with the object of attracting moisture and of forming wind-breaks.

Of the 120 species grown, *E. globulus* grows the fastest; some planted in 1863 are over 100 feet high. Mr. Cordier prefers the Red Gum (*E. resinifera*) for building and farm purposes. Numerous *Casuarinas* were also planted, the timber of which is very hard, and is used by him for constructing carts, and other purposes where both lightness and strength are demanded.

The underwood of the *Eucalyptus* plantations consists of *Acacia leptophylla* chiefly, and at the time of my visit these plants were in flower, and looked like a sheet of gold. The banks and sides of the roads were here covered with *Chamærops humilis*, and the most healthy that I saw in Algiers. After walking over the estate, Mr. Cordier courteously entertained us with fruits and wine, the produce of his farm, and a kind of tobacco made from the leaves of *Eucalyptus* folded in paper made from the bark. It contains no narcotic properties, but all thought the smoke had an agreeable smell, and would make a good disinfectant. *W. O. Fota.*

(To be continued.)

FORESTRY.

PLANTING WILD UNFERTILE LAND.

PRACTICAL experience and observation tell us that some species of plants and trees are capable of accommodating themselves to a greater variety of soils and situations than others. As for example, we find the common Birch, Aspen, Poplar, Mountain Ash, and the Goat Willow, all growing in company in the boggy tarns of the hill, where few other trees could grow from the excess of moisture at the roots. These trees, however, are so hardy that they reproduce themselves in such places, and when they once become established, they pump up the stagnant water from below, and dispense it in vapour in the circumbient air, by which means they promote decomposition in the ground, and render it active and fertile as food for the roots; and last, though not least, they improve the climate of the locality.

These trees may be said to be the pioneers of the forest, as we again find them growing and reproducing themselves among the fragments of decaying rock on wind-swept hillsides at the highest point of arborescent vegetation in this country. When once their seeds find a lodgment in the chinks and fissures of rocks, the plants from these make their appearance above ground in due time, and such is the enormous force exerted by their roots in their progress, that they often split the rocks into fragments, by which means air, rain-water, frost, and heat are more freely admitted, all of which have a powerful influence in pulverising the abraded particles of rock, and improving their condition as food for the roots. But although trees grow and flourish on hard inorganic matter, yet it is manifest that they derive a great deal of nutrition from the air, as shown by the ash, which has only about 3 per cent. of mineral matter; consequently, the organic or combustible

matter must have been derived from the atmosphere. This in a great measure explains the reason that trees thrive so badly when planted in situations where the air is contaminated with smoke and other noxious vapours.

A great deal has been said and written of late regarding the utility of a school of forestry in this country, and were such an institution established, it might do a great deal of good; but the fact is, we have Nature's school of forestry open before our eyes in every-day life if we would only open them, and read the grand lessons recorded in Nature's field-book, each page of which is replete with information of no mean order as a safe guide for the planter. The hardy trees referred to show the necessity of draining bog, as well as that of breaking up the hard inorganic crust of the earth, in order to render the dormant particles of the rock and soil active and fertile as food for the roots. No better tree can be used for planting bare rocky places and peat-bog than the Birch. In addition to its hardiness, the whole tree can be turned to good account at all stages of its growth; the branches and twigs can be sold for the making of besoms; all shapes and sizes of the wood, from half an inch in diameter, I have sold to the turner, at an average price of of 12s. 6d. per ton; the bark generally sells at from £5 to £6 per ton. The long pliable roots are used for making hampers and baskets; and the roots of larger size, and the stumps, are split up for fire-wood—so that nothing is lost. *J. B. Webster.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM MARSHALLIANUM

is very slow in growth, a peculiar trait in all the hybrids belonging to the concolor group, that is, having this species for one of their parents. *C. concolor* is widely distributed, and appears always in the limestone formation, so that this should be taken into consideration both with it and any of its hybrids. We advise the drainage to be composed of small nodules of limestone, also some should be mixed with the soil in potting. Want of this material has probably been the cause of the slow growth of its hybrid *C. Marshallianum*. For soil, use peat fibre and sphagnum moss in about equal proportions, pressing the whole down firmly, and raising the plant above the rim of the pot but slightly. Water must be freely given, and therefore the drainage must be exceptionally good, in order to carry off any surplus quickly, thus preventing stagnation in any form. It is a plant that enjoys a warm moist atmosphere, and should therefore be treated to a liberal amount of light, heat and moisture, and we are under the impression that it delights in a humid atmosphere the entire season. *Orchid Album*, vol. ix., part 105.

DENDROBIUM CHRYSOTIS

is a very free-growing plant, and why it has never become popular is marvellous, as its flowers are produced abundantly on pendent spikes, six to nine being borne on each raceme, the flowers measuring nearly 4 inches across, and these vary in colour from rich golden yellow to a beautiful Apricot-yellow, the lip in addition having two large velvety dark purple spots at its base, and a very deep mossy fringe on the edge. This plant has been seen with considerably over two hundred flowers, and in such a state must be extremely ornamental. There is little or no difficulty in growing this plant into a good specimen, heat and moisture during the growing season being the two essentials. From its stature it naturally thrives best under pot culture, and the pots require to be well and thoroughly drained, because, although the plant likes a copious supply of water to its roots during the growing season, this must be conveyed away quickly; indeed, we know of no plant with such an apparently robust constitution that is so easily affected by stagnation of the water and old and sour soil; therefore, drain well, and let everything

be sweet and clean about it. For soil, use peat fibre and sphagnum moss in about the proportion of two parts of the former to one of the latter, with a fair admixture of small nodules of charcoal, the whole to be pressed down firmly and built into a cone-like mound above the rim of the pot. In the winter it may be kept cool, that is to say, a temperature of between 55° and 60° will suit it well, but in the summer months it enjoys plenty of heat and moisture. *Orchid Album*, vol. ix., part 105.

LÆLIA FROM HIGHBURY, BIRMINGHAM.

From the collection of the Right Hon. J. Chamberlain, Highbury, Mr. Burberry sends some fine examples of *Lælia anceps* varieties, and a spray of *Lælia Gouldiana*, with the remark, that it is not only a finer flower and of a richer colour than *Lælia autumnalis*, but it also lasts much longer in bloom than that species. The variety from Mr. Chamberlain is a fine one, resembling that so well illustrated in the *Gardeners' Chronicle*, February 8, 1890, p. 169. Of the varieties of *L. anceps*, *L. a. grandiflora*, is a noble flower, with a lip of great breadth, and of rich crimson colour; *Lælia anceps Protheroeana* is almost wholly of a glowing crimson tint; and *L. a. blanda* is a very delicately-tinted flower; it is pure white, suffused with rose on the tips of the segments, and there is a large white area in the middle of the lip, extending unusually far towards the tip of the front lobe, which is rich rosy-crimson. Another variety, of the same class as the last-named, is also sent; it appears to be near what is known as *L. a. Percevaliana pulcherrima*, but has not so much yellow in the lip. The whole of the flowers indicate a very high state of cultivation.

ORNITHOLOGY IN RELATION TO AGRICULTURE AND HORTI- CULTURE.

(Continued from p. 11.)

STARLINGS are not, as a rule, double brooded, but cases may be noticed every season of two broods being reared by one pair of birds. I have often noticed on the approach of spring, fierce combats between the parent birds and the young ones of the previous season for the possession of the nesting hole, the old birds naturally want the old place, and the young ones evidently think they have a right to it also; the battle generally results in a victory for the older inhabitants. Sparrows also often try to obtain possession, but they are soon evicted, being generally hauled out by the tail, very often the tail feathers and Mr. Sparrow parting company during the struggle; the quantity of tailless sparrows to be seen about during the spring may, to a great extent, be put down to this cause.

The fact of the old birds visiting the nesting place regularly during the winter naturally leads one to infer that these birds pair for life, and for my own part I am confident that in the majority of cases they do. They are greatly attached to their nesting holes, and if by any chance they should be blocked up or done away with, the birds show their distress in a very marked manner. A week or two ago I watched a few pairs of starlings, who regularly build their nests in some holes at the top of some tall Poplar trees in Harrogate, for an hour or so during a miserable November morning. The morning was dull, but the starlings were as usual perched on the branches just outside the holes, warbling and chirping as if their little throats would burst. Soon the rain came, nasty, clinging, damp, drizzly rain, making everything look very miserable; nevertheless, the birds kept up their song for a considerable time, but at last the cold and wet silenced them, and though dragged and to all appearance wretchedly miserable, they did not desert their home, and when after about an hour the rain cleared off, they were soon pouring out their peculiar warble as if their very life depended upon it.

They are excellent mimics, and it is very interesting to note the various calls they may be heard

to imitate. I have known them give perfect imitations of the cries of the following birds:—sparrow, lapwing, golden plover, chaffinch, blackbird, yellow-hammer, thrush, jackdaw, swallow, and very many others. A year or two ago, a shepherd told me that starlings were a regular nuisance to him; they imitated his whistle so closely that even the dogs were deceived. While he was relating this, we heard them at work, and the representation of the human whistle, as given by them, was perfect. They may be taught, when kept in captivity, to say many words and sentences. Who is there who has not heard of Sterne's famous starling, with his plaintive cry of "I can't get out! I can't get out!"? Poor creatures, it seems a pity to cage them, for they are very easily domesticated, and may be allowed full liberty to roam about the premises without ever evincing a desire to fly away; at least, the ones I have had never did. If, however, anyone wishes to teach



FIG. 15.—LEPTOSPERMUM LEVIGATUM: TWO FORMS OF LEAVES ON THE SAME STEM. (SEE P. 42.)

them to talk, I trust they will not commit the barbarous act of cutting their tongues. It is of no use whatever to perform such a cruel act. The bird will talk without it if anyone has only patience to teach it.

Though gregarious in their habits they are rather quarrelsome birds, as may easily be noticed by anyone who will take the trouble to watch a company of them when feeding. They will be amused to notice how the latest arrival, who comes in with a rush, and drops down among those assembled with a curious abrupt, topsy-turvy motion, first of all makes a rush at the nearest bird and gives it a dig with its long beak, and nearly all the time they are squeaking and quarrelling one with another in a very unfriendly fashion. This, however, seems chiefly to occur when on the ground, as it cannot be noticed to the same extent when perched in the trees or on the house tops,

At the end of the nesting season they congregate in large flocks, and keep together more or less throughout the winter, dispersing for their nesting places early in spring. During the autumn they are often found accompanying flocks of rooks and jackdaws, with whom they seem to live on terms of perfect amity. I have on several occasions found starlings' nests among the stacks of sticks, &c., which form the nests of rooks. In the centre of these stacks the starling finds a very comfortable home.

It is a beautiful and interesting sight to watch a flock of starlings feeding, to note how well they search almost every inch of the field. As a rule, they work in a straight line, and when the ground has been sufficiently looked over, the rear ranks take a short flight just beyond the front ranks, and then alight and commence work again, the front rank, of course, being left in the rear; but they in a short time take up a similar position and become the front rank, and so on continually until they are satisfied, or until the field has been thoroughly worked. At night the main body flies off to beds of Reeds or osiers, where they roost. Often flocks from all parts of the surrounding country resort to one common roosting-place, and what a row—screaming and quarrelling one with another—they keep up for a considerable time before they settle to rest. One of the most beautiful sights possible to imagine for a lover of birds is to watch the magnificent aerial evolutions performed by a flock of these birds an hour or so before going to roost. The late Dr. Stanley, Bishop of Norwich, so well describes these evolutions that I cannot do better than quote him. "At first," he says, "they might be seen advancing high in the air like a dark cloud, which, in an instant, as if by magic, became almost invisible, the whole body, by some mysterious watchword or signal, changing their course, and presenting their wings to view edgewise, instead of exposing, as before, their full expanded spread. Again, in another moment, the cloud might be seen descending in a graceful sweep, so as almost to brush the earth as they glanced along. Then once more they were seen spiraling in wide circles on high, till at length, with one simultaneous rush, down they glide, with a roaring noise of wing, till at length the vast mass buried itself unseen, but not unheard, amidst a bed of Reeds, projecting from the bank adjacent to the wood; for no sooner were they perched, than every throat seemed to open itself, forming one incessant confusion of tongues. If nothing disturbed them, there they would most likely remain; but if a stone was thrown, a shout raised, or, more especially, if a gun was fired, up again would rise the mass, with one unbroken rushing sound, as if the whole body was possessed but of one wing to bear them on their upward flight."

During the autumn and winter months, the numbers of our native birds are increased very considerably by large flocks which come from further north, and from the Continent of Europe. I remember once, two years ago, seeing a large immigration arrive on the east coast. It was on a misty morning in October, and the birds kept dropping in by parties numbering from twenty or thirty to two or three hundreds. As they arrived they alighted in some hedges and trees near the coast. When they had all arrived, at the very lowest estimate I am confident there must have been ten thousand perched in the trees and hedges. Directly they alighted, they commenced singing and flapping their wings as if performing a hymn of thankfulness for their safe arrival. The noise made by them was tremendous, and when heard a short distance off, it resembled the noise made by a rushing waterfall.

If anyone cares to have these interesting birds about, they can easily establish them near their houses by fixing small nesting-boxes on the walls. If they do this the birds are almost sure to take possession of them, and I can guarantee they will be fully repaid by having the pleasure of hearing the starling's song, and watching their habits day by day.

Many amusing anecdotes are told relating to these birds when kept in a domesticated state, but the space allowed for this paper will not, I regret, admit of me relating any. *Riley Fortune, F.Z.S.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

THE EARLY PEACH HOUSE.—The trees in this house, if they were started about the end of the month of November, will now have buds swelling, but in the case of trees which have been started at an early period in previous years, they will be in full blossom, and standing in need of fertilisation by the aid of a camel's-hair brush on alternate days, this operation being required at this sunless time of year. I would advise the damping of the stems of the trees daily, as at times the air of the house will get dry, and the blooms be deprived of the moisture necessary for them to set. Some growers are averse to this kind of treatment, but much will depend on the amount of ventilation afforded, and how far the trees stand from the pipes; for when firing has to be done in severe weather, the trees benefit if the old wood be damped early in the day. The temperature of the house when the trees are in bloom should be 50° at night and 55° by day, allowing a rise of 10° with sunshine; and when the thermometer indicates 60°, air should be admitted at the top ventilators in small amount, increasing the amount as the sun gains power. Trees in succession-houses should have been pruned, and the wood well cleaned of scale. A good wash is made with warm water, soft soap, tobacco-water, and flowers-of-sulphur. The trees should be syringed with this mixture, so that it finds its way into all cracks and hiding places. The borders should be examined, and if these are dry, a heavy watering should be afforded them, late houses being similarly treated. The trees should then be regulated as regards the branches, tying these to the trellis. Some of the soil should be removed, but not disturbing the smaller roots that lay near the surface, and put in its place loam and rotten manure. Keep these houses cool by admitting air, day and night. In frosty weather, the hot-water pipes should be warmed if not emptied of water. All trees that make too much wood should be lifted, replanted, watered, and mulched.

PINES.—Fruiting plants will now need much attention as regards watering, too much water causing lack of flavour. If the bottom-heat is supplied by fermenting materials, as leaves, tan, &c., less moisture will be required by the plants than when hot water is employed. I prefer the planting-out system for successions, and if these are well attended to, the results are good. A few of the best Queens should be selected for early fruiting, placing them in a slightly warmer division; and before plunging the pots, some new material should be added if fermenting materials only are used; but for early work hot-water pipes under the bed are best for fruiters. Afford these plants a warmth at the root of 80° to 85°, a night warmth of 65°, and by day 75°. Afford air when the thermometer approaches 80°, and shut up when it begins to decline. In damping down, do not syringe the plants. Towards the end of the month a good watering with clear soot-water and some Le Fruitier will increase the size of the fruits, and for Pines in pots I have found Le Fruitier invaluable. Succession plants should be kept in a temperature of 55° to 60°, and a bottom-heat of 75°. When affording water, it should be of the same temperature as the bottom-heat in all cases, much mischief being caused by using water cooler than the soil. Loam and other materials may be got under cover for top-dressing and potting purposes at a later date. In gardens near London, the glass will require constant attention in the matter of clearing the panes of sooty deposits. To economise fuel, all Pine pits should be covered at night.

VINES.—The Vines started in November now showing bloom must be kept drier, the use of the syringe on the foliage being discontinued. The temperature should range from 65° to 70°, and ventilation must be carefully done, so as to avoid currents of cold air. The night temperature should range from 60° to 65°, according to the weather. For early Grapes, we use Vines in pots, as these may be pushed hard, if so required; or strong canes may be planted out in a narrow border, and a new lot planted each year, destroying those that are exhausted by hard forcing. It is best not to attempt to finish too many bunches, disbudding being ruthlessly carried

out, or loss of vigour will follow. In all cases, early pot Vines should have bottom-heat, then they may be forced for fruit in April; and when manure or leaves are used for the purpose, it is not safe to allow the warmth to decline, but fresh materials should be added as the old stuff subsides. The former is best kept in heaps mixed ready for use. Hot-water pipes are best, and where there is this convenience, forcing is carried on with less trouble. A house should now be started for June Grapes, giving a day temperature of 50° to 55°, night 45° to 50°, syringing daily. We usually close ours for this purpose the first week in the year, so that time should not be lost in doing this. We use Black Hamburgs, Foster's Seedling, and Buckland Sweetwater for cutting in June; but if Muscats are required, they will want a longer time to finish, so that where practicable a house should be devoted to them. Where this cannot be done, the warmer end of theinery should be selected for them, and it should not be near a door. Madresfield Court, a most useful Grape, will do well in the same position as a Muscat; it is a variety that crops freely, and the thinning of the bunches must be thoroughly carried out. The aptness to crack can be got over by careful attention to moisture, and leaving the laterals to grow. The late houses should now be pruned and cleaned; and any bunches that remain may be bottled. I do not cut Lady Downes till January is advanced, but it is best for the Vines to remove them shortly, and give the Vines a long rest. Every opportunity should now be taken to cleanse the houses and remove loose bark from the Vines, but not scraping them into the live wood as is sometimes done by inexperienced persons, causing the Vines when started to bleed from the injured parts. Painting and lime-washing the walls should be done. The hot-water-pipes should also be blacked with a mixture of lamp-black and boiled linseed oil. The surface soil should be carefully taken away and replaced with good loam, burnt wood ashes, crushed bones, and bone-dust, following this with a mulch of fresh cow-manure, as soon as the berries are thinned. Any additions to the size of the borders may be done if they are inside, the outside being deferred for two or three months; care must be taken to use the well thawed material kept in a suitable condition as to moisture. The propagation of Vines may now be proceeded with, employing eyes from thoroughly ripened wood, placing them singly in small 60's in a bottom-heat of 70° to 80°, with 20° lower top temperature, a high top temperature at starting being provocative of growth without roots to support it. *G. Wythes, Syon House, Brentford.*

THE ORCHID HOUSES.

THE EAST INDIAN-HOUSE.—The weather is most unpropitious to the opening of flowers, especially those of *Phalænopsis*; and fog and hoar frost have effectually ruined for this year the chance of a good show of *P. grandiflora* and *P. amabilis*, the few flowers that have opened being very meagre, and hardly recognisable. The extraordinary degree of cold will no doubt have done some amount of good, in teaching us to what extent the temperature may be allowed to fall with safety, when the compost in the pots and the air of the house are in a moderate degree of dryness, and I am becoming convinced of the error of keeping high temperatures in winter by means of fire-heat. Not only do the fog and want of light affect *Phalænopsis*, but species of *Dendrobium* in or coming into flower, have had their blooms cut off wholesale, if the plants were small and comparatively weak. This may not be an unmixed evil, as better bloom and growth may be looked for another year. The best *Dendrobium* with me to withstand cold and fog is *D. Goldieanum*, which has been in flower for six weeks past; and the first flowers that opened seem now to be as fresh as at first, showing what a valuable plant it is. If the temperature does not fall below 52° in the East Indian-house, no harm will be likely to accrue, other matters being attended to as advised. *A. G. Catt, Parkfield, Hallow, Worcester.*

PLANTS UNDER GLASS.

THE TREATMENT OF ALLAMANDAS.—Now is a good time to prune the plants that may have been at rest during the winter, and should any require re-potting, it will be advisable to defer that operation until the plants have commenced to make fresh growth. The Allamanda succeeds in good sound loam, with a sufficient quantity of sharp silver sand

to keep the soil open. Any plants growing in beds or large tubs will be greatly benefited by having all the loose soil taken off and a top dressing of good loam put on, having previously added a few $\frac{1}{2}$ -inch bones or other fertiliser. At the same time examine the old soil, and should it be dry, afford a sufficient quantity of tepid water to thoroughly moisten the ball. Make certain that the drainage is in perfect condition.

It is always advisable to propagate a few plants each year, to replace any which are getting too large for their allotted space. After the plants have made new growth, take the required number of young shoots, insert them singly in small pots, and put them in the propagating box or on a hot bed. After they are rooted, which will take place in some five or six weeks, shift them into 6-inch pots, keeping them close for a few days, that is, till they have taken to the fresh soil. Before bringing them into the open house in about six weeks, they will be ready for another shift, and this time into 10-inch pots, using this time the same kind of soil as before, and keeping them well exposed to the sun, and with a night temperature of 70° to 80°, and with plenty of moisture.

LAPAGERIAS.—Any plants requiring to be re-potted, or replanted in borders, should have early attention, before the plants commence to make fresh growth. If left till the spring, the plants have then started, and there is always great risk of damaging the young shoots and roots then on the move. The most suitable soil for these plants is fibrous peat of good quality, to which is added a sufficient quantity of sharp silver sand to keep the same open. Be very cautious in having the drainage perfect, both in pots and borders, for unless this be so, the soil soon becomes sour, and the plants in consequence get into an unhealthy state, the cause of so many failures to flower them well.

Should the plants be affected with mealy bug, white scale, or thrips, thoroughly clean them with an insecticide, and clean the sashes, trellis-work, walls, &c., before putting the plants into their places. Thrip is one of the greatest enemies of the Lapageria, but if thorough syringing with clean water be persisted in, there is no difficulty in keeping the plants free from it. Great care should be taken in regulating the young growths, as if these are allowed to ramble wildly, great trouble will be required in separating them. *R. Milner, Penrice Castle, Swansea.*

THE KITCHEN GARDEN.

FORCING.—As early vegetables of certain sorts are usually in particular request during the spring and early summer, the present season should be utilised to make all the necessary preparations so as to have them in perfection. This work of forwarding and aiding vegetation is done by means of hotbeds of various degrees of warmth to suit the various crops, and by early sowing in the open or under partial protection. Gardeners will soon find that their work increases, and must try to make the most of the present time, no opportunity being neglected. I advise planting and sowing a little at a time until March or April. Early planters and sowers certainly run risks of having some of their first crops checked, if not quite ruined, but this does not always occur, and it is better to lose some of the earliest than not to make any attempt to secure them.

HOTBEDS.—Supposing that the materials for these have been properly turned over and sweetened, the beds may now be made up firmly, and, if possible, in sheltered sunny positions facing due south. In making them, let the materials project 1 foot or more beyond the sides of the frames that will be placed upon them.

CARROTS.—The present is a good time to sow Early Horn and Early Nantes on hotbeds, for use in April. After filling up the frame to within 12 inches of the glass with warm leaves, made firm and level, put into it sufficient good light sandy loam, mixed with about one-sixth of finely-sifted leaf-soil or spent Mushroom manure, with a small quantity of soot and sand, to cover the bottom to a depth of 10 inches, all being well mixed together before being put in. Before sowing the seeds, the soil should be allowed to become warmed. The seeds are best when sown in drills 7 inches apart, and rather more than half an inch in depth. Do not waste seed and labour by thick sowing. Seeds of some early kind of Radish may be sown between the rows of Carrots. As soon as the plants appear, the frame must be

carefully aired by tilting the lights at the back. If the soil be in a proper moist condition at the time of sowing, little or no water will be required till after the plants are up, when they may be syringed with tepid water at closing time.

ASPARAGUS IN HOT-BEDS AND HOT-WATER PITS.—Maintain in the forcing-frames or pits a bottom and top-heat of from 60° to 70°, and should the warmth of the bed be likely to fall below these figures, the linings should receive additional fermenting materials, a large heap of which should be kept ready for this and other purposes, as a check to growth is certain to injure the production of shoots, and the quality of the same. Ventilate the pits or frames more or less, in accordance with the weather, and cover up at night with litter and mats, and keep the glass very clean. Where the forcing of Asparagus is performed in hot-water pits, with hot-water pipes for bottom-heat, the labour will be less, but great caution is necessary in the regulation of the bottom-heat, and the plunging thermometer must be constantly consulted. As the roots become exhausted they must be replaced with fresh ones, if the heat of hot-bed can be kept up by linings. In setting apart a hot-water pit for Asparagus forcing, one should be chosen that will hold three or four relays of roots, and then there is no difficulty experienced in keeping up a succession of heads. *C. J. Waite, Glenhurst, Esher.*

HARDY FRUIT GARDEN.

ORCHARD TREES.—Young standard Apples and Pears, when being pruned, need some care in selecting the right shoots wherewith to lay the foundation for the future crown. Choose, whenever it is possible, four or five shoots of nearly equal strength, and standing at equal distances apart, which should be shortened back more or less as they are weak or strong, and always cutting the shoot to a bud pointing outwards. If the shoots are strong, from 12 to 15 inches will be long enough to leave them, and as the heads increase in size, others resulting from these shoots may be again cut back in like manner. The heads of Apple and Pear trees always get crowded, and pruning should be done every year to obviate this; a little timely attention is all that is needed. Under this kind of treatment, the main branches will bear numerous, fine fruit-buds. It should be seen to, that any trees which came to hand before the frost, and were not planted, be well protected about the roots with litter or soil. In pruning bearing trees of larger size, some varieties, notably Cornish Gilliflower, need carefully doing, these usually producing fruit towards the points, and I have found it to be a good plan to cut back to a few inches of the principal branches several of the one and two-year-old shoots, these usually breaking again into small fruiting wood, which give fine fruits.

DAMSONS.—As a rule, in planting these, they should be planted on the outside lines of orchards, and on the north, east, or west sides, where they form capital protection to more tender kinds of fruits.

Although much has been said at different times in favour of pruning and keeping old trees in good bearing, yet little attention has been hitherto afforded them; the trees are too often thickets of shoots which rarely produce fine fruit. Weather permitting, a workman with a small pruning saw should be set to work to cut away the too-crowded branches; and, when the thinning has been completed, all moss and lichen should be scraped off with a hoe or a piece of hoop-iron, painting the stems and branches with lime-wash, and dusting the heads with fresh-powdered lime in calm weather. This remedy against moss and caterpillar, although others have been recommended, is still considered in Kent to be one of the best. This is a good time to get manure into orchards, also the drainings from stables, &c. On light soils, top-dressings of cow-dung and loam—first turning back the soil lying over the tree-roots, will be of much benefit. Some of our best and largest fruit plantations have become almost fruitless for want of proper manure, of pruning and of cleaning the trees. *H. Markham, Mereworth Castle, Maidstone.*

THE FLOWER GARDEN.

ROSEBEDS.—When the thaw comes, the planting of deciduous trees, shrubs, and Roses should have the earliest attention. The preliminary work in the case of Roses is to deeply dig, and heavily manure the beds and stations. An open sunny situation is best for them; but in order to prolong the season

of blooming, some other aspects than one due south should be chosen. Teas do best in a sheltered position, and grow best in light and a somewhat dry soil, as when not favoured in this way the shoots are sappy, and the plants suffer severely in

beyond this and a trimming back of the strongest roots, the less mutilation the better, as they always break more readily when they have fair-sized heads.

ROSES trained on trees and stakes, of which there is now no lack of good climbing varieties wherewith to embellish the flower garden and pleasure-ground, should be attended to. Where Roses are allowed to grow into the tops of sparsely-branched trees, and left to themselves, there is a natural look about them that is very attractive in the summer months. To give these climbers a good start, the ground at a little distance from the tree should be removed, and new soil and rotten manure afforded in place of it, and this should be done with no niggardly hand. The new soil should be made very firm, and mulched with short stable-dung after the plants have been put in. The best varieties of climbing Roses are Gloire de Dijon, Madame Berard, Chesnut Hybrid, Reine Marie Henriette, Reine Olga de Wurtemberg, L'Idéal, Baltimore Belle, William Allan Richardson, Celine Forestier, Belle Lyonnaise, Monsieur Desir, and Waltham Climber. Just lately a climbing Niphotos has been sent out, and if it prove vigorous and hardy, it will be an acquisition where rampant growing varieties would be unsuitable.

OTHER CLIMBING PLANTS.—Besides Roses, there are many other plants which may be employed in like manner, and some of the most telling of these are the common Virginian Creeper, and Veitch's variety, and others. The Clematis, of all species and varieties, and the Honeysuckles, never look so much at home and so well as when rambling at will; in wilder parts of the ground the Traveller's Joy is a fine object, especially when in fruit, with its long feathery awns, which are of such great use for decorative purposes when cut from the plant.

THE SHRUBBERY.—This, like other parts of the garden, is icebound, and fortunate are they who have abandoned, or not yet carried out, the old-fashioned practice of digging the ground amongst the shrubs, as by so doing much harm is done, even in ordinary years, by the injury it causes to the roots; and the breaking up of the soil would have been doubly harmful this winter, as it would have removed protection in the way of fallen leaves, and so have let the frost reach the under part—the collar of the plants. This being so, it is better to let all the leaves lay, and where the snow does not prevent it being done, push them close up around each shrub, especially those of doubtful hardiness, as Laurustinus, Euonymus, Arbutus, New Zealand Veronicas, &c. In March the leaves may be removed, or buried under a little new soil. The front, or part of the ground immediately in sight should be made neat and tidy, and have patches of Crocus, Squills, Snowdrops, Daffodils, Primroses, Polyanthus, and anything else that will make a good show in the spring. Tulips and Hyacinths are rather out of place in the immediate front of these borders, but they cannot well be too largely used [in the parterre proper, where, in conjunction with small shrubs, either in or out of pots, much may be done to make the beds gay till the summer plants require the beds.

WALKS AND LAWNS.—The frost has had its usual effect in the upheaval of gravel walks and lawns, both of which will require heavy rolling after a thorough thaw. In cases where either are faulty, the one from being badly made, and the other unlevel or mossy, it is now a good time to put matters right, and how that should be done will be shown in the next issue. *J. Sheppard, Woolverstone Park, Ipswich.*

THE APIARY.

If hives stand near a path, it is advisable, if it can be so arranged, to plant a dwarf fruit tree between each, as this would afford shade in summer, and no doubt act as a landmark to the bees, more particularly where hives are all the same pattern, and interchangeable as they should be. Aspect is not of vital importance, although east or south-east is preferable.

The tits are great enemies to the bees at the present time, and for several months to come, the great tit (*Parus major*) being the worst delinquent. A bone containing marrow, or a piece of suet hung up near by, will divert his attention while it lasts. Mice, snails, and slugs, are very apt to get into hives unless the entrances have been made too small to admit them. A piece of perforated zinc, in which an opening has been cut about three-quarters of an inch long, by three-eighths deep, along the lower edge, can easily be fixed, and makes an efficient protection. *Expert.*



FIG. 16.—OSMANTHUS, SHOWING DIFFERENCE IN FORM OF LEAF, ACCORDING TO STAGE OF GROWTH. (SEE P. 42.)



FIG. 17.—BANKSIA MARGINATA, SHOWING VARIATION IN LEAF. (SEE P. 42.)

hard winters. It is much to be feared that all sorts have been injured this winter, and therefore, every plant should be looked carefully over before planting, and have all discoloured shoots cut away; but

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be written on one side only of the paper, and sent as early in the week as possible.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY,	JAN. 13	Royal Horticultural Society: Committees and Lecture on Cyclamens.
THURSDAY,	JAN. 15	Gardeners' Royal Benevolent Institution: Annual Meeting and Election, at Simpson's, Linnean Society.

SALES.

MONDAY,	JAN. 12	Dutch Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	JAN. 14	Roses, Dutch Bulbs, Border Plants, Hardy Shrubs, Lilies, &c., at Stevens' Rooms. Lilies, at Protheroe & Morris' Rooms. Orchids at East Dulwich, by Protheroe & Morris.
FRIDAY,	JAN. 16	Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	JAN. 17	Roses, Dutch Bulbs, Border Plants, Hardy Shrubs, Lilies, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—36°.8.

A CORRESPONDENT sends us the following advertisement, which, as it raises questions of the greatest importance to importers, raisers, and purchasers, we think it desirable to reprint:—

"GREEN MOUNTAIN GRAPE."

"This Grape is very early; colour greenish-white; pulp tender, sweet and delicious. Ranks first both in early maturity and quality. Our copyright name, 'Green Mountain,' gives us the exclusive right for its propagation for sale. Each Vine sold will be sealed with our trade mark. Send for Circular giving further information. Address, Stephen Hoyt's Sons, New Canaan, Ct."

"(1.) The first question is, whether the 'copyright name' of a particular variety really gives in this country, as it is alleged to do in the United States, the exclusive right for the propagation of the variety for sale?"

"(2.) Next, how far would this protection extend? Would it apply to new plants introduced by an importer—say, a new Orchid—as well as to selected seedling varieties, or bud-variations (sports)?"

"(3.) Suppose that a plant had previously been introduced, and that it had been described by a botanist, and scientifically named by him, could an importer be compelled to employ that name?"

"(4.) Suppose a collector introduced a previously unknown plant, and which was subsequently determined and described from an examination of the specimens collected and introduced by him, could he prevent any subsequent importer from calling his importations of the same plant by the same registered name?"

"(5.) Would such a practice be profitable in the long run to the public, the trade, and the registrar himself? The Chrysanthemum case seems to point in the other direction."

We must own that some of the questions here raised are not such as we can answer. They turn upon nice points of law and casuistry, upon which only a very "learned judge" could decide,

but we are not the less precluded from offering some comments on them.

As to the first question, we should, under certain limitations, answer it in the affirmative, but it is one upon which we should be glad to hear the opinion of others, especially of firms like Messrs. CARTER, or Messrs. SUTTON, who make much use of such names. This appears to us to be a purely commercial matter, and one which would, in this country, be governed by the acts relating to trade marks. We are here dealing not with plants *ferè nature*, but with varieties which might have had no existence save for the skill and industry of the raiser. As a matter of justice, the raiser or the person to whom he assigns his rights has as just claim to his reward as a painter has for his picture, or an author for his books, and all should be accorded a reasonable amount of protection, and for a reasonable time, against pirates and imitators.

But what about "sports;" in the production of which man has no conscious or direct part, but which are, as we say loosely but not correctly, accidental formations? They may arise in A.'s establishment, or in B.'s; in China or in Peru. Is it just in such a case that A., who is first in the field, should be able to restrain B. and C., who have by no dishonest means obtained the same sport, from availing themselves of their good fortune? We think not. The sport is another instance *ferè nature*, free to all as the breath of heaven is, or, remembering what the state of affairs in London has been lately, we must add, should be.

The second matter is more far-reaching, dealing, as it does, not only with matters of commerce, but with matters of science, and if that view be correct, we should in the most emphatic way protest against science being fettered in any way by fiscal restrictions, on the ground that such restrictions are injurious, not to this or that person only, but to the whole world. Because A. has introduced a new plant, that fact should not be considered ground for preventing B. from doing the same thing, and turning it to account, so far as he can. A. would have had the first chance, and if he has not the means or the enterprise to turn it to account, it would not be just to prevent B. trying his fortune.

The answer to the third question would, we apprehend, be in the negative. Even among botanists there is, and can be, no compulsion to adopt this or that name. It is a pure matter of convention adopted for the general convenience. The botanist who, from negligence, for no adequate reason, or from *mala fides*, supposing that to be possible in such a case, refuses to conform to the convention, is voted a nuisance, and his names are disregarded by his successors—that is all.

Question number four seems to us to mix the commercial with the scientific aspects of the case, which should, however, be kept rigidly apart. Looked at from a scientific point of view, no importer could, under the circumstances named, prevent any other importer of the same plant from giving it the same name. Obviously, if he were aware of the fact, it would be his duty to do so, and it would be distinctly wrong if he did not. But that applies to the scientific name only. If the name be of the nature of a commercial trade mark, the case might be different, but this is a point for the lawyers.

What we should contend for is, that no name devised and applied in the manner prevalent among descriptive naturalists should have any title whatever to "legal" protection, or be sub-

jected to any restriction further than the law of priority and other regulations usually obeyed by naturalists.

ANEMONE FULGENS VAR. GRÆCA.—No flowers are more brilliant in colour, and few more elegant in foliage than the Anemones. The Riviera Olive-grounds are ablaze with them at this season, and large quantities of cut flowers find their way here. Nevertheless, they are easily grown here, requiring a shady locality, deep rich, moist, but well-drained soil. The plant is exceedingly variable, and some of the varieties have received separate names. The variety grown, for an illustration of which (fig. 18) we are indebted to Messrs. BACKHOUSE, is an unusually fine variety, which may be the same as BOISSIER's var. *purpureo-violacea*, and which is, in some sense, intermediate between A. coronaria and A. stellata. This variety of A. fulgens differs from A. stellata in its larger flowers and less numerous petals.

GARDENERS' ORPHAN FUND.—On Tuesday, an illuminated skating carnival was given on the lake at Hanger Hill House, Ealing, by the kindness of E. M. NELSON, Esq., on behalf of the Gardeners' Orphan Fund. A small charge was made for admission, and the attendance was large. This is a timely innovation of Mr. NELSON's, which might with advantage be followed in other quarters—provided the frost lasts.—Mrs. CHARLOTTE BUDD, Kingston Road, Ewell, wishes to return her thanks to the executive committee, Messrs. H. VEITCH and SHERWOOD, and all the other kind friends, who so liberally subscribed to the fund to enable the committee to place her son, ALFRED HENRY, on the list of recipients of the Gardeners' Orphan Fund.

GARDENERS' ROYAL BENEVOLENT.—We may remind our readers that the annual meeting takes place on January 15, at Simpson's, 101, Strand, at 3 P.M., when the votes for the candidates for election will be recorded on this occasion. Mr. E. R. CUTLER will be proposed as Secretary for the fiftieth time.

LINNEAN SOCIETY.—An evening meeting will be held on January 15, 1891, at 8 P.M., when the following papers will be read:—1, "On Certain Points in the Morphology of the Cystidea," by Dr. P. H. CARPENTER, F.L.S.; 2, "A Botanical Visit to the Auckland Isles," by THOMAS KIRK, F.L.S. At the meeting of the above on Dec. 18, Prof. STEWART, President, in the chair, Prof. T. JOHNSON exhibited, and made remarks on the male and female plants of *Stenogramme interrupta*. Mr. CLEMENT REID exhibited specimens of *Helix obvolvata* from new localities in Sussex, and by aid of a specially prepared map, traced the present very local distribution of this mollusk in England. Mr. E. M. HOLMES exhibited some example of galls found on *Styrax benzoin* by an aphid *Ætægopteris styracophila*. A paper was then read by Professor R. J. HARVEY GIBSON on the structure and development of the cystocarps in *Catantella opuntia*, and critical remarks were offered by Messrs. D. H. SCOTT, E. M. HOLMES, and others. Mr. G. F. SCOTT ELLIOT then read an interesting paper on the effect of exposure on the relative length and breadth of leaves, upon which a discussion followed.

OUR ALMANAC.—A correspondent writes, "serviceable as is the *Gardeners' Chronicle* almanac posted up in offices or in places where it can readily be consulted, especially for its valuable information as to exhibitions and other horticultural engagements, I have found a yet more useful purpose for it, and that is, converting it into a pocket companion. From some quack medicine agency comes yearly a neat little memorandum book, which slips readily into the coat pockets and occupies little space. Each leaf has one blank side suited for the making of passing memoranda; now I have cut out the monthly calendar of the Almanac, and gummed them into the leaves of this little book opposite to the blank pages, and although, in so doing, I obliterated the tale of the marvellous benefits arising from the use of the



FIG. 18.—ANEMONE FULGENS VAR. GRÆCA; COLOUR PURPLISH-CRIMSON.

patent medicine, yet I find far more advantage in having the impromptu almanac in my pocket, for constant reference and use. Those who have frequent horticultural engagements, and especially in relation to metropolitan societies, would find this an admirable example to follow. There is no other almanac which gives us the same particular and valuable information as to exhibition societies as the *Gardeners' Chronicle* almanac does, and for that reason it is so useful and so worthy an adjunct to one's pocket. The blank leaf opposite to each of the monthly calendars admirably serves to note engagements of an horticultural kind which may be entered into."

FIRE AT HURSTBOURNE PARK.—Lord LYMINGTON's residence at Hurstborne Park, Micheldever (Hants), was completely destroyed by fire on Thursday, the 1st inst. The cause of the mischief is at present unknown. The difficulty of procuring fire-engines was great; the roads being almost impassable on account of the snow, while the scarcity of water was an even greater hindrance to work.

"THE FIELD CLUB" is a magazine which is well described as being suitable for both scientific and unscientific readers. The January number, which has been sent to us, contains several instructive papers and numerous curious and interesting anecdotes.

"ILLUSTRATIONS."—The Christmas and New Year Double Number of *Illustrations* is filled with appropriate letterpress and pictures. Humorous stories, sketches, and paragraphs are mixed with more serious articles, short biographies, &c.

WOODPECKERS, BEARS, AND TELEGRAPH POSTS.—The relation between these three does not at first seem apparent, but the following account, abridged from a recent issue of *Nature*, shows how completely at fault both birds and animals sometimes are, even in those things which most concern them. We read that in Java there are certain woodpeckers which, under the impression that the buzzing sound heard in telegraph posts and wires is caused by gnawing or boring insects, make large holes in the timber, on a hopeless chase after such. The wood thus perforated is Teak (*Tectona grandis*), of great hardness. And similar injuries have been reported from Norway. By mere chance, it was discovered that woodpeckers were also the cause of these hitherto mysterious holes. In Norway the heaps of large stones piled round the telegraph posts to steady them were found moved and scattered, apparently without reason. The causers of this were at last discovered to be bears, which, it is thought, mistook the buzzing noise for that made by a swarm of bees!

PUBLICATIONS RECEIVED.—*The Honey-bee: its Natural History, &c.* By T. W. COWAN. (London: HOULSTON & SONS).—*Journal of the Royal Agricultural Society of England*, 3rd Series, Vol. I., Part IV. (London: JOHN MURRAY, Albemarle Street).—*Catalogue of Ferns in the Herbarium of the Government of India at Saharanpur*. (Revenue and Agricultural Department, India.)

"THE JENNESS-MILLER MAGAZINE" seems steadily gaining favour. The December number is a very good one, and contains many hints. We cannot help wondering how many Englishmen will order their evening suits to be made in accordance with the first illustration, which represents what we are told is a "man's costume of dark-red cloth, with a cream-coloured vest braided in red and gold, and having soft lace at the neck and sleeves." This is rather a sudden reversion to such gay garments as our grandfathers wore. The magazine is well got up, and clearly printed on good paper.

"THE FLORA OF BRITISH INDIA."—Sir JOSEPH HOOKER has just published the seventeenth part of this very important publication. It contains the remainder of the Orchids of India, with some supplementary comments and corrections necessitated by

the receipt of additional specimens and drawings after the publication of the preceding part. Sir JOSEPH acknowledges the receipt of valuable information respecting the cultivated specimens from Mr. KENT. Of *Aërides*, fifteen species are enumerated, and as many of *Vanda*; *Saccolabium* comprises forty-three species, *Anæctochilus* seven, and *Habenaria* one hundred and six. Fifteen species of *Cypripedium* are described. *Apostasia* and *Neuwiedia* are referred to the same tribe as *Cypripedium*. Among the changes of nomenclature we note that *Dendrobium Dalhousieanum* must take the name of *D. pulchellum*, a change that will not be taken up in gardens for a long time to come, if at all. Following the Orchids, Mr. BAKER begins the enumeration of the Scitamineæ, with which are grouped the Marantas, Cannas, and Musas. The work is thus approaching its completion.

ANTWERP.—The Royal Horticultural Society of this town announces that an exhibition of flowers and plants will be held on April 5, and that a *Chrysanthemum* show will take place in November.

FRENCH HORTICULTURE.—In connection with the great French Exhibition of 1889, a series of lectures or "Conférences," was held. Among them was one on the progress of French gardening since 1789. This was entrusted to the highly competent hands of M. CHARLES BALTET, whose report is now before us. M. BALTET has evidently suffered from an *embarras de richesse*. The sixty pages he has occupied cover the general history of gardening in France during the century, the progress of horticultural societies, of instruction in gardening, of the horticultural press, the successes of raisers, and the introductions of the collectors. After thus treating of generalities, M. BALTET addresses himself to special departments, such as kitchen gardening, forcing, market gardening, tree culture, fruit culture, ornamental trees, Conifers, flower gardening, and the art of garden formation. It is obvious that the sixty pages allotted to the whole would not be too large a space wherein to deal with each subdivision. We can only regret that M. BALTET should have been so restricted, but at the same time, we must congratulate him on the successful condensation he has achieved.

PRUNUS PISSARDI (SYN. CERASIFERA PURPUREA) DIVERSIFOLIA TRICOLORIBUS MARGINATIS (sic?).—Such is the name bestowed by a nurseryman of Weener on an unoffending—nay, on a distinctly meritorious plant. According to the figure, the leaves are red, mottled with green. It may be had of Herr HERMANN A. HESSE, of Weener on the Ems, Hanover. The same gentleman announces as novelties *Juniperus virginiana aureo-spica*, *Thuia occidentalis Wareana lutescens*, *Sorbus aria chrysophylla*, *Cerasus virginiana pyramidalis sailicifolia*, *Acer platanoides foliis eleganter variegatis*. It is to be hoped that the merits of these plants are proportionate to the length of their names, and it is also to be wished that should any of these plants come before our Floral Committee, no Certificate be awarded till a less lengthy appellation is provided for them.

WANTED, A GARDENER.—We have received the following list of twenty-five questions put some time since to a gardener seeking a situation. We are assured they are perfectly authentic, and were sent by a gentleman of the legal profession in response to more than one advertisement, in the *Irish Times*, by gardeners seeking situations. *Questions*.—1. What is your age? 2. What is your wife's age? 3. How long are you married? 4. Have you any family? 5. Had you ever any family? 6. What is your religion? 7. What is your wife's religion? 8. What do you know about flowers? 9. Do you understand a greenhouse? 10. Do you understand hot-beds and Melons, &c.? 11. Do you understand tennis grounds? 12. Do you understand anything about a horse? 13. Does your wife cook? 14. Do you milk? 15. Do you understand cows? 16. Do you understand sheep? 17. Does your wife understand dairy? 18. Does your

wife understand fowls? 19. Do you understand bees? 20. Do you read and write? 21. Does your wife read and write? 22. Is your wife a laundress? 23. What wages do you expect? 24. If we come to terms, are you prepared to take entire charge of a place containing 8 acres of Grass and 2 of garden and pleasure grounds? 25. Is your wife also prepared to take charge of offices and keep them clean and regular, with fires lighted, &c., and take charge of gates and gate lodge?

THE GINSENG TRADE IN CANADA.—Ginseng, the root of *Panax quinquefolia*, var. *Selimseng*, is well known as a valuable medicinal product of China, Manchuria, and Corea. A kind of Ginseng, *P. quinquefolia* proper, is also grown in America, and the root exported thence to China, but this industry has of late years much declined. Under the title, however, of "The Revival of an Old Canadian Industry," our contemporary the *Chemist and Druggist* has the following:—"Ginseng, the *drug par excellence* of Chinese *Materia Medica*, was formerly extensively collected and dried in Canada. It was one of the first articles of commerce exported from Canada after the Peace of Utrecht, and for a time considered hardly less important than the fur trade. This plant was discovered growing near Lachine, by the Jesuit LAFITAN, in 1716. He had learned of its value as a medicine in China, and a company was formed for its export to China, Tartary, and Japan. When first introduced, the price at Quebec was from 30 to 40 dollars (or cents.) per lb., and anyone was permitted to sell the plant. But in 1751, the Company obtained a monopoly, and excluded all others from the trade. The price rose to 12 livres, and at one period even to 33 livres per lb. As the demand for the plant increased, the care with which it was obtained and prepared was relaxed. It was gathered out of season, and dried imperfectly before it was ripe. Under these circumstances Canadian Ginseng soon lost its reputation in China, but during the time when the drug realised high values, agriculture was neglected altogether in some localities, the entire attention of the inhabitants being given to the collection of Ginseng, with the result that in some parts of Canada the plant entirely disappeared. When the trade was at its maximum in 1752, the value exported was about 500,000 livres per annum, but two years later it had sunk to 33,000 livres. The Company then ceased to purchase the plant, and the trade entirely disappeared. All that remained of it was a proverb among the people, when speaking of some matter having failed, that it had come to nothing, as the Ginseng, *C'est tombé le Ginseng*. It is a strange fact, that the word Ginseng has the same meaning both in the Chinese and Iroquois languages. At present Ginseng gathering is again becoming a large industry in Canada, the root being collected for sale to the Chinese in the United States."

THE REIGATE AND DISTRICT CHRYSANTHEMUM SOCIETY.—The above Society held a dinner at the Public Hall, Reigate, on December 23, 1890, when upwards of forty guests were present. The chair was taken by Mr. A. HATTEY. In responding to the toast of the evening, "Success to the Reigate and District Chrysanthemum Society," the Hon. Secretary, Mr. J. BROWN, reviewed at some length the history of the Society, and the good work it has accomplished during the two years of its existence. He stated that the idea originated with the late Mr. RIDOUT in the spring of 1889, it being the Jubilee year of the Gardeners' Royal Benevolent Institution, of forming a Society, with the object of devoting, after expenses were paid, the rest of the proceeds to that Institution and the Gardeners' Orphan Fund. The result was that in that year £52 10s. was paid to the former, and £50 to the latter. Our correspondent, Mr. BAILEY, The Briars, Reigate, states that last year the committee decided to give 40 guineas in prizes, and 40 guineas to the Gardeners' Royal Benevolent Institution, and that amount has been paid

in, making a total sum of £144 10s. for the two Institutions in two years.

SAXIFRAGES.—In the current number of the *Annales des Sciences*, M. MAURICE THOUVENIN has a long paper on the anatomy of the Saxifragæ. This is a heterogeneous group, consisting of elements not very closely knit by superficial affinities, and not always clearly recognisable from the Rosaceæ. We turned, therefore, to M. THOUVENIN's paper, in the hope that the minute anatomical structure might furnish materials for discrimination and comparison which more obvious characters do not. In spite of M. THOUVENIN's careful and elaborate researches, we do not find any constant "character," or association of characters, by which to distinguish Saxifragæ. Nevertheless, the microscopical investigations afford no evidence against associations made by botanists from external characters. ENGLER, who has made a special study of Saxifragæ, treats of the order in the last issued part of the *Natürlichen Pflanzenfamilien*. Substantially, but with a few modifications, he adopts the grouping proposed by HOOKER in the *Genera Plantarum*, and is unable to rely upon anatomical characters for classificatory purposes. In truth, such characters are chiefly of physiological significance. Plants far apart genealogically, live, breathe, feed, and die in the same manner; hence it is no wonder that there is, in very many instances, *relatively* little difference in their anatomical structure. At the same time, it is most important that histologists should undertake the microscopical examination of plants species by species, genus by genus, and so on, as the morphologists have done. At present, their results are often comparatively valueless, because disconnected and not comparative; but when they pursue their investigations on the same plan as other botanists, their researches may be expected to be as serviceable for purposes of classification as they are now for physiological ends.

FRUIT CULTURE.—An interesting story of enterprise in fruit culture is that told in the *Daily News* of Mr. LAWRY, of St. Mellion, Saltash. When visiting London in the year of the Exhibition of 1862, he was struck with the prices commanded by Strawberries in Covent Garden, and he sent for some of the produce of his father's small garden in Cornwall. The fruit was ignorantly packed, and arrived in an unsaleable condition; but Mr. LAWRY, instead of being disheartened by this unfortunate experiment, set himself the task of surmounting difficulties, and soon had the satisfaction of having the earliest fruit and the highest prices in the markets of London, Manchester, Liverpool, Edinburgh, Cardiff, and other towns. Mr. LAWRY planted all the land he could get with Strawberries, and soon his great difficulty was to get enough "punnets," or little baskets, in which to pack his fruit. His requirements led to the adaptation of machinery in Plymouth for preparing the wood of which the punnets are made. Besides in this way starting a Plymouth trade in punnets, Mr. LAWRY has created a local industry in this species of basket-making at the village of Boetheric, near his farm. When portions of Mr. LAWRY's land get "sick of Strawberries," he changes the crop to Cherries, Plums, Apples, and other fruit trees. As many as 3000 punnets of Strawberries have been gathered and sent off from Mr. LAWRY's acres in a single day. He took the first of the small farm prizes in the Royal Agricultural Society's farm prize competition.

STOCKTON PARK.—The designs for laying-out the land presented by Major ROPNER, J.P., Preston Hall, as a park for the people of Stockton, are now on view in the Town Hall. A hundred and fifty-four persons from various parts of the country applied for conditions attaching to the bonuses of £50, £25, and £10, and fifteen plans for laying-out the 48 acres of land have been sent in. Some of the designs are of high artistic merit, but no individual plan comprises in itself all the requirements of the Park Committee; yet as the three best designs, the following have been selected, and to them will be

awarded the bonuses:—1st, £50, to Messrs. BACKHOUSE & Co., York, motto "Forward"; 2nd, £25, Mr. HENRY KERSHAW, Bradford, motto "Excelsior"; 3rd, £10, Mr. G. INNES ROSE, Manchester, motto "Eureka." The experts with whom the Park Committee conferred were:—Mr. GRIBBLE, head gardener to the Marquis of LONDONDERRY, Wynyard; Mr. J. MACINDOE, head gardener to Mr. J. W. PEASE, M.P., Hutton Hall; and Mr. G. LONSDALE, gardener to the Mayor of Stockton (Councillor R. H. APPLE-



[FIG. 19.—FICUS REPENS AGAINST A WALL. (SEE P. 42.)

TON), Woodside Hall. In consequence of no plan being altogether suitable, the committee have directed the borough surveyor (Mr. CAMPBELL) to prepare one, based upon the foregoing three to which the bonuses have been awarded.

AN ORANGE WITHIN AN ORANGE.—Mr. HARVEY GIBSON, of Liverpool, and Mr. THARPE, send us instances of one Orange growing within another, and ultimately protruding from it, both the inner and the

outer being furnished with a rind in the ordinary way. Such instances are not very infrequent, but they always excite surprise. The explanation we believe to be is, that a double row of carpels is produced. The main axis of the fruit, instead of ceasing to grow after it has given off the first row of carpels [quarters], is prolonged, and gives off a second row. Such cases would then be illustrations of the process known as proliferation, and increase in the number of whorls of carpels. In Dr. BONAVIA's recently published work on the *Cultivated Oranges and Lemons of India and Ceylon*, a work full of interesting details, the author hazards a theory that the rind of an Orange consists of an outer row of carpels, imperfectly developed, in so far as they produce no seed, and an inner row, or pulp-carpels, in which the seed is formed. This theory does not affect such cases as the present, which, as Dr. BONAVIA says, is a "doubling" of the fruit-whorls.

JAMAICA BOTANICAL DEPARTMENT.—The last issued *Bulletin* contains articles on Gambier, an astringent substance produced from *Uncaria Gambier* by boiling down the leaves. The cultivation of the plant is to be tried in Jamaica. A note on the cultivation of European vegetables on the hills shows that Sangster's No. 1 Pea was the earliest, but Dr. M'Lean and Best of All were the finest flavoured. The very best Cabbage is the Savoy, which produced heads which, although small, were simply perfect. A list of Palms cultivated in the garden is given; and a similar list of the Ferns of Jamaica, drawn up by Mr. JENMAN.

SAFFRON.—This drug still holds a place in popular estimation, for some, we believe apocryphal, medicinal virtue, and it has real virtue as a dye. It consists, as our readers are aware, of the stigmas of the *Crocus*. Now if the stigmas can be increased in size or number, so much the better for the Saffron grower. M. CHAPPELLIER, many years ago, showed at the Paris Horticultural Society, flowers in which the stamens and the petals bore stigmatic appendages. He has recently shown before the same Society, a flower with nine well-formed stigmas. M. CHAPPELLIER proposes to attempt to develop and fix the malformation.

CERCLE HORTICOLE VAN HOUTTE.—A great exhibition will be held at Ledeborg, near Ghent, from August 23 to 30 next ensuing. There are 146 classes in the schedule; in addition to sundry others, for the best methods of packing plants for a long railway or steamboat journey, or in such a manner as not to be injured by frost. M. DELARUYE is the Secretary.

"VINTON'S AGRICULTURAL ALMANAC" (VINTON & Co., Ludgate Circus), is an unusually good sixpennyworth for the farmer. The articles on the crops of the season are generally excellent.

"THE FARMING WORLD YEAR-BOOK" opens with directions for the cultivation of the kitchen garden throughout the year, and comprises a great variety of matters useful for the farmer. In dealing with the remedial measures recommended for the Potato disease, the author says, that no certain prevention or absolute remedy has been discovered, and this is true, but he might have added what is equally true, that while no general effort of any kind has ever been made to combat the disease, the arrangements for propagating it are carried to so high a stage of perfection, that it is from no fault of the cultivator that the disease is not ten times more virulent than it is.

JAMES BACKHOUSE.—The current volume of the *Garden* is dedicated to the memory of this keen botanist and most able gardener. It was a misfortune for horticulture that this gentleman was prohibited by the state of his health from taking that active part in public horticulture that might otherwise have been expected of so gifted a man.

"XENIA ORCHIDACEA."—We have already spoken of this Reichenbachian publication, which is

to be continued by Dr. KRÄNZLIN. The plants figured in the fourth part of the third volume just issued at Leipzig by BROCKHAUS are *Cypripedium Spicerianum*, t. 231; *Oncidium festivum*, t. 232; *Epidendrum selligerum*, t. 233; *Trichocentrum Hoegi*, t. 234; *Cœlogyne chloroptera*, t. 235; *C. sparsa*, t. 235; *Gymnadenia macrantha*, t. 236 and t. 237 partly; *Polystachya rigidula*, t. 237; *Angræcum hyaloides*, t. 238, 1—12; *Luisia occidentalis*, t. 238, 13—16; *Angræcum Reichenbachianum*, t. 239, 1—3; *A. Scottianum*, t. 239, 4—8; *A. Rohlfianum*, t. 240. The descriptions are in Latin, the comments in German.

WEIGHTS AND MEASURES.—Traders of all descriptions, who sell anything by weight, should remember that the Weights and Measures Act, 1889, which came into force nominally in January, 1890, took effect on January 1. The Act was passed for the purpose of amending the Act of 1878, which provided that all weights and measures used by tradesmen in the course of their business should be stamped. The new Act, however, goes much further, and provides that "every weighing instrument used for trade shall be verified and stamped by an inspector." The words "weighing instrument" will include "scales," with the weights belonging thereto, scale-beams, balances, spring-balances, steel-yards, weighing-machines, and other instruments for weighing." It is clear, therefore, that there is scarcely a farmer or trader in the country who sells anything by weight who will not be liable to a penalty, unless his "weighing instrument," and the weights to be used with it, have been examined and stamped by an inspector on or before January 1, 1891. Every tradesman is careful enough to see that his scales and weights are periodically verified and stamped, but it is not every farmer who does so. The duty will now be enforced upon him, if he is to escape the somewhat heavy penalties imposed by the new Act. The farmer sells his butter, his cheese, his wool, his hay, and his roots, and he ought to sell his cattle, and sheep, and grain, by weight, and every weighing instrument, and its weights, will have to undergo inspection. The Act is so imperative to every person who sells anything by weight, that we give the penalty clause *in extenso*:—"Every person who, after the expiration of twelve months from the commencement of this Act," says the section, "uses, or has in his possession for use, for trade, any weighing instrument not stamped as required by this Act, shall be liable to a fine not exceeding £2, or, in the case of a second offence £5." Another section states that if, in the opinion of the Court, the defendant has committed the offence with which he is charged with an intent to defraud, he shall be liable, in addition to the fine, or instead of it, to imprisonment for two months, and the Court has also the power to order the conviction to be published. The Act further requires the local authority to make regulations for the carrying out of the Act—for the inspection of all weights and measures and instruments.

MR. THOMAS ROCHFORD'S EMPLOYÉS.—The members of "The Turnford Hall Nurseries Sick Fund" held their annual dinner at the Globe Hotel, Wormley, on New-year's eve. The Treasurer, Mr. ROCHFORD, Broxbourne, Hertfordshire, being unable to attend, the chair was taken by Mr. SAGGERS, and a pleasant evening was enjoyed.

PLANT PORTRAITS.

CHRYSANTHEMUM RUCHE TOULOUSAIN.—An Anemone-flowered variety with large rosy-pink flowers. *Revue Horticole*, December 16.

CYPRIPEDIUM MARSHALLIANUM ×, *Orchid Album*, t. 418.

CYPRIPEDIUM GENANTHUM VAR. **SUPERBUM**, *Orchid Album*, t. 420.

DENDROBIUM CHRYSOTIS, *Orchid Album*, t. 419.

EUCALYPTUS CALOPHYLLA.—A West Australian species with very large fruits. It proves quite hardy on the Riviera. *Revue Horticole*, 1890, p. 553.

LILIUM SUPERBUM, *Gardens*, November 29.

NYMPHEA ODORATA VAR. **SULPHUREA**, *Revue Horticole*, December 1, p. 540. Described as a hybrid between species not otherwise named. Raiser, Mr. Latour-Marliac.

ODONTOGLOSSUM URO-SKINNERI, *Orchid Album*, t. 417.

PHAIUS HUMBLIOTI, *Revue de l'Horticulture Belge*, December.

STANHOPEA SPINDLERIANA ×, *Gartenflora*, December 1, t. 1335.

BOOK NOTICE.

THE GENUS MASDEVALLIA. Issued by the Marquess of Lothian, K.T., chiefly from plants in his collection of Orchids at Newbattle Abbey. The plates and descriptions by Miss Florence H. Woolward, with vignette engravings from photographs, and additional notes by Consul F. C. Lehmann (German Consul in the Republic of Colombia). Folio, price £1 10s. Part I., containing plates and descriptions of ten species. Grantham, 1890.

In 1832, the date of the third part of the *Genera and Species of Orchidaceous Plants*, Lindley knew only of three species of *Masdevallia*—*M. uniflora*, the original one, on which Ruiz and Pavon founded the genus in 1794, and two others. Reichenbach, nearly thirty years later (1861), in Walper's *Annales Botanices Systematicæ*, vol. vi., enumerates thirty-six, while the *Genera Plantarum*, vol. iii., published in 1883, says "species editæ ultra 100." According to Mr. Veitch's Manual of the genus, which appeared in 1889, "the number 125 cannot be regarded as an exaggerated estimate at the present time," and during the past year we have noticed descriptions of several new species in the columns of the *Gardeners' Chronicle*. If, therefore, this rapid increase of material is a factor of "the increasing interest taken in the genus," which is given as one reason for the appearance of the present work, the Marquess of Lothian and Miss Woolward are fully justified in their undertaking. They have chosen a most interesting genus. The plants are alpine, and limited to the mountainous regions of Tropical, South, and Central America. The genus is not overwhelmingly large, and the species, though sometimes running each other very close, fall into several well defined sections. Miss Woolward has sketched and worked from the living plants, and Consul Lehmann who has studied them in their native homes, contributes valuable notes on the habitat and the temperature and elevation of the locality of those he has himself collected. Under such favourable conditions, we may look for something more than pretty pictures or a dry systematic description, and when the work is complete, may hope to be able to record an advance in our knowledge of the relation of plants, not only to each other, but to their surrounding conditions.

The present number contains the following six species:—*M. amabilis*, *M. bella*, *M. Chestertonii*, *M. ehippium*, *M. macrura*, *M. Peristeria*, *M. rosea*, *M. simulæ*, *M. torta*, and *M. Veitchiana*, arranged in alphabetical order, and having no necessary connection with each other. Presumably they are merely those which were ready first, though they certainly form a very good illustration of the genus as a whole. *M. Peristeria* represents the section *Coriaceæ*, *M. macrura*, *Cucullatæ*; *M. ehippium*, *Polyanthæ*; and *M. amabilis*, *M. rosea*, and *M. Veitchiana*, *Coccineæ*. These comprise four out of six of the sections of the division *Eu-Masdevallia* adopted in Mr. Veitch's handbook, while *M. bella* and *M. Chestertonii* represent the second very distinct but smaller division, *Saccolabiata*, characterised by the exceptional and striking development of the lip. For each of these species there is a hand-coloured lithograph, the natural size of the plant, and in every case the bud, as well as the fully-developed flower, is shown. There are also clear dissections

which are accurately drawn and coloured, and the column and lip from various points of view are carefully shown, as these, though very small, afford the best characters for separation of the species. It is interesting to note from the preface that Professor Reichenbach cordially approved of the plates, and at his suggestion the apex of the column and the apex and section of each leaf are figured. A vignette engraving from a photograph is given at the head of each description, showing the plant as it grows under cultivation.

The descriptions are clear and full, but concise, measurements of the parts being given in all cases. Then follows an interesting note, giving a full account of the discovery and introduction of the species. The distribution and habitat are also described, the relation of the varietal forms to the type are discussed, and where they occur, hybrids are enumerated. In this latter part Consul Lehmann's notes and experience are of great service, throwing light on doubtful points and extending our knowledge of the plant in relation to its environment.

It is good evidence of the thoroughness of the work, that Miss Woolward has found and figured nectaries at the base of the column in three out of the ten species. I believe this is the first notice of the occurrence of nectaries in the genus. In Mr. Veitch's *Manual*, p. 15, we read, "We have never detected any such secretion (*i.e.*, honey), in any of the species cultivated by us," and no mention of it is made in previous descriptions.

The earlier numbers of the book will deal with species in the Marquis of Lothian's own collection, the later ones will be compiled with the aid of specimens contributed by others interested in the genus, Mr. F. W. Moore, of the Glasnevin Gardens, supplying many rare ones, while drawings by Consul Lehmann of species hitherto quite unknown in the country will also be published.

The work will be completed by a chapter on the geographical distribution, with a map, and a synopsis showing the sections into which the genus is divisible, and indicating the order of arrangement of the entire book. A good monograph is always welcome, especially in an order-like *Orchidaceæ*, where owing to the great number of species described during the last thirty years, recent revisions of the genera are badly wanted. We are very grateful to Lord Lothian for the present one, and wish it a speedy and successful issue. *A. B. Rendle*.

FLOWERS AT CASSIOBRIDGE.

In the gardens of Edward Moon, Esq., near Watford, a good display of bloom is to be found all the year round, both indoors or out. In summer the large beds of *Alstroemerias* are a beautiful sight, worth going a long distance to behold. At present there are in the Orchid-houses some exceptionally good things in bloom, and notably the superb form of *Cattleya Percivaliana*, formerly mentioned in the *Gardeners' Chronicle*. It is, perhaps, in regard to colour and size, the best example of the species to be found in the country. There are also some good white *Cattleya chocoensis*, and a grand form of *C. Trianae alba*, some large plants of *Lælia anceps*, *Cypripedium microchilum* ×, *C. Leeatum* *superbum* ×, *C. insigne violaceo-punctatum*, *C. bellatulum*, and other *Cypripediums*, some *Phalænopsis* and *Angræcums*, *Cattleya Dormaniana*, *C. maxima*, and *Odontoglossum blandum*, and other *Odontoglossums* and *Oncidium*s.

One large span-roof house is filled with well-grown plants of *Pelargoniums*, thickly set with their large trusses of white, pink, scarlet, or crimson flowers of all shades, and making a great show. On the side stages, set up with Ferns and foliage plants, was a fine lot of *Primula sinensis*—Sutton's Pearl, Reading Scarlet, Reading Blue, and Red, being the only kinds grown. The flowers of all these are of perfect shape, good substance, and clear colour, and are, indeed, all that could be desired. In this house *Tacsonia mollissima* is blooming profusely on the

roof. In a warmer house, which has *Aristolochia elegans* and other climbers in bloom, there are some well-flowered plants of *Tydas* and *Gesnerias*, *Pentas carnea*, *Daphne indica*, *Begonia semperflorens*, *B. Saundersi*, *B. nitida*, &c., and a plentiful supply of good pots of *Freesia refracta alba*, splendidly grown, some of the pots having a dozen and a half spikes rising about a foot high.

and does not give good results in 48-pots. It is true it may be pinched into shape, and made to assume a nice tidy appearance, but that is not the kind of plant which will show the true character of the genus. It is from those sucker-like, stout shoots, which grow a yard or more high, that the plant assumes its best character. To get those shoots, liberal cultivation must be afforded, and this cannot

rich loamy soil, and growing them on in a cool pit, which could be closed early in the afternoons, after syringing the plants whilst the sun is still on them. Under such management they make robust growth, with every branchlet showing its clusters of flower-buds. In the autumn, as soon as the temperature at night begins to fall to 50° in the frame or pits, the plants should be removed to warmer quarters, other-



FIG. 20.—*FICUS REPENS*, GROWN AS A STANDARD. (SEE P. 42.)

CENTROPOGON LUCYANUS.

This would seem to be the only member of the genus in general cultivation, and, under certain conditions, it is a useful, showy winter-flowering plant. Some growers appear to have discarded it, because, trying to grow it as a greenhouse plant, it has failed to be satisfactory. This treatment may suit the plant in summer, but being properly a stove plant, it requires a temperature in winter of 55° to 60°. Another point is, that it is a gross-growing subject,

easily be done in small pots; moreover, there is no continuance of flowering in them; whereas, by a more liberal treatment, the plant will flower more than half the year, where it can be planted out in an intermediate-house. It would give very little trouble, with the best results; so treated, I have seen it flower for nine months. Where that plan is impracticable, cuttings (almost any piece of it will root easily) should be struck early in the season, and grown on into bushy plants as soon as possible, and then receive in the late spring a large shift, using

wise the foliage is apt to drop, which weakens and disfigures them. It will be remembered that its pretty, rosy-carmine coloured, tubular, and somewhat curved flowers, are borne in bunches at the ends of the shoots. If the plants are grown as advised they will be large, and many handfuls of flowering branchlets may be cut from one plant in a season. To amateurs, where early propagation is inconvenient, it is better to keep over a few old plants; these should be cut back and repotted early in summer. *F. R.*

HOME CORRESPONDENCE.

COBBLER'S HEAL.—It may interest some of your readers to know that a specimen of Cobbler's Heal (*sic*) was brought to me several weeks ago to identify. It was stated to be a valuable remedy for gravel, and to possess diuretic properties. It had been recommended to, and found effective by, a nobleman, whose name I forget, and he was interested to determine its botanical name. It proved to be *Chenopodium urticum*; it had been gathered at Rhyll. As the plant is rare (indeed, I had never before seen a fresh specimen), I examined it with some degree of interest, and observed that the rooting portion was of the nature of a rhizome or root-stock, the upper portion for at least 2 inches beneath the soil having numerous leaf-buds on it, after the fashion of *Atropa belladonna*. The root was oblique, but not creeping, and nearly half an inch thick at the upper part. I observe that Babington describes it as an annual, but I imagine it must be a herbaceous perennial, the annual stems dying down, the root-buds forming the stem of the succeeding year. I begged a root, and placed it in my garden just before the frost commenced, so that it is doubtful if it will survive the winter. I should, however, be glad to learn through your columns any particulars concerning the habit of growth of this plant. *E. M. Holme.*

RATS AND CHRYSANTHEMUMS.—In your issue of January 3, a correspondent writes that a rat had eaten his Chrysanthemum flowers. I can tell him that he is not alone in the destruction of the Chrysanthemum by rats. A short time ago, upon watering the plants one morning, I found the young growth to be disappearing, and by the next morning the stems of the plants was being barked, as if by rabbits. In another house, where Broccoli and Red Cabbages were laid in the soil before the bad weather set in, were also eaten by rats of the barn or granary class; however, the depredations have a stop put to them by the aid of small pieces of phosphorus-paste laid in the gratings of the conservatory. I enclose a stem showing how the barking is done. *P. F. A.*

ROSCOEA PURPUREA.—Up till recently this has been grown as a stove plant, but it needs no such coddling (see *Gardeners' Chronicle*, 1890, pp. 190, 221, and 278; but see also *Gardeners' Chronicle*, vol. i., 1841, for its growth as a hardy perennial at Edinburgh). History repeats itself, and so do historians. [Sometimes, somewhat!] *Remembrancer.*

THE WEATHER IN BERKS.—Here, in the Thames Valley, during the month of December, we registered 339° of frost on twenty-six days, our lowest readings being on the 22nd and 23rd, namely, 29° on the former, and 30° on the latter. Our thermometer stands in the open at 3 feet 6 inches above the ground. *J. W. Street, Cannon Hill, Maidenhead.*

UNFAIR PRAISE.—Which is the firm that is decoying and victimising gardeners, and damaging the reputation of seedsmen generally, and the horticultural press, by premeditated deception? The following unpleasant announcement on the above subject appeared as an editorial note in the issue of the *Journal of Horticulture*, December 25, 1890, headed: "Praising Peas.—We have received letters from three gardeners in different districts, not only praising the same Pea, but praising it in identical terms. Under the circumstances, we are bound to express our regret that gardeners in good positions should be the mediums of distributing matter of this nature; such a practice could not be otherwise than most objectionable to their employers, if made known, and compromising to the firm in whose interest the paragraph is written and distributed." We, as seedsmen and nurserymen, protest against all such and similar practices, and ask one and all to give such information as will tend to stop such methods of deluding the public, and bringing discredit on the trade and gardeners alike. *H. Cannell & Sons, Swanley.*

FUMIGATING INSECTICIDES.—I am grateful to "H. F." for his kindness in calling my attention to Campbell's fumigating insecticide, but I fail to see that it is as economical as McDougall's patent tobacco-sheets; for, as stated in my last communication, I effectually fumigated 2600 cubic feet with two 1s. sheets of the latter; whereas according to

Campbell's circular (which I enclose), the former would have entailed an expense of 3s. 11d., thus:—

1 No. 4 roll sufficient for 2000 cubic feet	...	...	3 s. d.
1 No. 2 " " 500 "	...	...	2 3
1 No. 1 " " 100 "	...	...	1 0
			0 8
2600 cubic feet	...	...	3 11

Comment is unnecessary. With regard to "H. G. W.," I think it would have saved your valuable space if he had carefully read my remarks before he ventured to criticise them; for they did not refer to Campbell's fumigator, but to Nicotiana paste, and I merely quoted "R. D." when I said "red-hot cinders" were necessary to ensure fumigation. *J. C. W.*

—In making a trial of this material, I certainly made use of two or three red-hot cinders, in order to ignite the material, but the results of a subsequent experiment demonstrates this is not necessary. It can be as easily set burning with the assistance of a piece of paper, or a bit of shaving. It soon ignites, and it burns, and puts forth a dense volume of smoke without bursting into a flame; at any rate, this has not happened in the cases of the three or four experiments I have made with the nicotiana. I think Mr. G. Wythes, of Syon House Gardens, will bear the same testimony in reference to these particulars. My fear as to the price charged for the nicotiana being prohibitive of its use, is now met by the fact that it is sold at the same price as tobacco-paper, and three-quarters of a pound of nicotiana will, it is said, do the work of one pound of tobacco-paper. Mr. George, of Putney, appears to be doing all he can to make the nicotiana as perfect as possible. *R. D.*

THE CHINESE SACRED LILY.—We obtained some of these beautiful Lilies, and treated them in the same way as some that I had last year (see *Gardeners' Chronicle*, January 4, 1890), but this year I flowered them in twenty-five days, and they carry as many as eight spikes to a bulb. *W. L. Bath, Newbridge House, Bath, January 5, 1891.*

PRIMULA OBCONICA.—This charming little *Primula* is such a useful plant that it seems strange that one seldom meets with it in private gardens. There are many persons who maintain that it has not sustained its early promise; but I hold the contrary opinion, as its only drawback seems to me to be that as a border plant its fragile flowers do not withstand bad weather as might be wished. It is as a pot-plant that its greatest merit lies, for when cultivated carefully it will bloom for six months out of the twelve with the greatest profusion. A notable fact with regard to the flowering of my plants is, that the early blooms are tinted with lilac, and as time goes on, they become white; while at Mr. Cooper's nursery as Hadleigh the flowers at first are white, and at the later stage of their flowering period they become a decided lilac shade. These vagaries in colour I attribute to the soil, and I intend trying an experiment this year, with a view to ascertain if different soils will produce various effects on their colouring. *Primula obconica* is of easy culture. The method I adopt is, to rest them for two or three months in spring, afterwards pot them in good loam with a fair proportion of sand and charred vegetable refuse, grow them on in a cold frame, shading them for a few hours at mid-day. From these frames they go to the greenhouse or conservatory, where for the next six months they will bloom in the most astonishing manner. If seed be sown early, and the young plants grown on either in pots or on a warm border, they will make nice stuff by the end of the summer, and bloom freely the following spring. *G. B. Claydon, Holbecks Park.*

THE JUBILEE OF THE "GARDENERS' CHRONICLE."—As a reader of the *Gardeners' Chronicle* from the date of its appearance, and a contributor to its pages from 1846 until the present time, I may be permitted to indulge in a few reminiscences relating to its first editor and some of his professional coadjutors, and to the character of the paper generally. Few journals have greater reason to boast of a more consistent observance of the programme announced by its originators than the *Gardeners' Chronicle*. There has been no bias in favour of any particular part or branch of the subject in whose interest it was established. Horticultural practice in its every aspect has been fairly discussed, and the editorial eye has been quick to detect errors of reasoning, and to add a wise correction. Garden

botany, as might be supposed, in a paper directed by a man so eminent as Dr. Lindley, was from the first judiciously and instructively introduced; writers on natural history were encouraged to record the results of their observations, the importance of forestry was duly recognised, and the early and interesting results of horticultural experiments were recorded. No one could approach the "Doctor," as we reverently called him, without being impressed with a sense of his intellectual power. Knowledge gave him the power he wielded, he was the Jupiter of the horticultural press, and for any one to have passed muster under his searching eye was a distinction coveted and valued by all aspirants to horticultural fame. His untiring energy raised the Horticultural Society to honourable distinction; all fashionable London flocked to its great meetings, and much stimulus was given to the cultivation of hot-house plants and Orchids, to greenhouse plants, and to fruit. The *Gardeners' Chronicle* reported with appreciative comments the horticultural achievements of the exhibitor, and thus the whole body of horticulture was quickened throughout the kingdom. There were many matters of interest to gardeners which, in the first years of the *Gardeners' Chronicle*, evoked discussion in its pages; hot-water heating was being gradually introduced and understood; Pine growing was a subject that provoked frequent argument; and the subject of Grape growing then, as now, was often brought forward, so that the early copies of the paper form interesting land marks, and deserve comment, which I hope to have an opportunity of making. *W. I., Belvoir.*

—As the gardener who succeeded Robert Errington at Oulton Park, Cheshire, in the autumn of 1860, I may be pardoned for adding a few words in substantiation of Mr. Fish's remarks. Robert Errington died at Oulton Park in the early part of the year 1860, and I believe I am correct in stating that more than 500 applications were received by the late Sir Philip de Malpas Grey Egerton for the vacant situation. At that time I was employed in the gardens of the Royal Horticultural Society, at Kensington, then being formed. Indeed, I was the first gardener engaged there, at the munificent wage of 18s. per week; but in consequence of the extremely wet autumn, the amount of wages I actually received seldom amounted to more than from 10s. to 15s. per week. I had seen an advertisement in the *Gardeners' Chronicle*, that a gardener was required at Oulton Park, but I read it with a sigh, feeling sure that it would be absurd for me to apply for such a position in the gardening world, as the only thing I had done up to that time to make my name known consisted of some articles I had written on the raising of new *Verbenas* and *Petunias*, their propagation and cultivation in the pages of the *Cottage Gardener*. I, therefore, decided not to apply for the situation. Shortly after this decision, I received a letter from Dr. Lindley requesting me to wait on him at Turnham Green at 10 o'clock the following morning, and, wondering what the interview might portend, I punctually kept the appointment. The shrewd Doctor met me in a very affable manner, looked me up and down through his spectacles, and said, "Well, Wills, what do you know about practical gardening, the cultivation of Orchids, and the management of a general collection of stove and greenhouse plants, Pine, Grape, and general fruit culture, as well as the management of a large kitchen garden?" I shyly replied that I had never had a collection of Orchids under my care, but that I had worked hard all my life, understood the rudiments of practical gardening, and had always found that a judicious application of common sense had carried me through all difficulties. The Doctor said, "Well, Wills, you are the man I have taken you to be, and I have recommended you to Sir Philip Egerton as head gardener to control the extensive gardens at Oulton Park in succession to the late Robert Errington. Remember, Sir Philip is one of the best scholars in Europe, that he has a thorough knowledge of plants and of horticulture generally. If he engages you, never deceive him; if he puts a question to you which you do not understand, tell him plainly you cannot answer him." I left Dr. Lindley with a heart full of hope, and returned to my poor dwelling in Bute Street, close to my present establishment, and had scarcely finished unfolding my hopes of a brighter future to my wife, when there was a knock at the door, which I answered myself, wondering what was coming next, though something seemed to whisper to me that it had some connection with my visit to Dr. Lindley; and, sure enough it had. When I opened the door, I was

addressed by a bright, though weakly-looking lad, who, handing me a letter, told me that his father, Mr. James Veitch, wished to see me immediately. That lad was the late Mr. Arthur Veitch. Of course, I lost no time, but went to Chelsea immediately, when the late Mr. James Veitch told me, much to my surprise, that he had strongly recommended me to Sir Philip Egerton to succeed Mr. Errington. He also told me that he had sixty gardeners in his nursery waiting for situations, but not one of them suitable for this particular place, but that he saw something in me which told him I was the man to fill the post. A few days afterwards I received a letter from Sir Philip Egerton, stating that as I had been so strongly recommended by Dr. Lindley and Mr. Veitch, that he had no hesitation in engaging me, if I was willing to take the situation. I went to Oulton Park in 1860. It was at Oulton Park, that from old Vines which had been planted nearly one hundred years, I gained 1st prizes, and from an old Peach-house, the trees in which had been planted many years, I gathered a dish of Royal George Peaches which were exhibited at the opening of the Alexandra Palace, Muswell Hill, and one of which weighed over 18 ounces. At Oulton Park, in 1862, the mantle of Robert Errington seemed to have descended upon me, for in that year I was appointed by Dr. Hogg on the staff of the *Journal of Horticulture*, and wrote from twenty to thirty pages of foolscap a week (!). From Oulton Park I sent out, through E. G. Henderson's firm, many new hybrid Verbenas and Tropæolums; and it was there I originated the first bronze and gold Pelargonium, and the first hybrid between the Ivy-leaf and zonal Pelargonium. Here, also, I introduced *Viola cornuta* as a bedding plant, Pelargonium Robert Fish (still grown by the mile, and selected by the late Robert Fish out of many thousands of seedlings, to bear his name), Little Golden Christine, Little Golden Harvey Hiover. The career I have pursued since I ceased to be a gentleman's gardener is pretty well known to gardeners. *John Willis*, 16, Onslow Crescent, South Kensington, January 3, 1891. [The remainder of the letter is taken up with complimentary remarks and good wishes for the *Gardeners' Chronicle*, for which we express our obligations, but which it is not necessary to print. Ed.]

PEACHES.—I regret to see that Mr. Bishop (p. 756, December 27) characterises my remarks on Peaches and Nectarines in a previous issue as "misleading," and assure him I have not the slightest wish to mislead anyone, but I find he estimates the qualities of a Peach on a different principle to that in general use; he says he would "class flavour before all other considerations." I consider flavour a very strong point indeed, but not by any means all that is required; we want size, fine colour, heavy cropping qualities, and good constitution. Besides the above points, a large number of growers have to consider what will sell the best in the markets. Mr. Bishop would find Alexandra noblesse very far behind in some of these requirements; and for exhibition, I have never seen it approach anywhere near Crimson Galande for colour and size. I expressly stated on p. 656 that I took "all points into consideration" in my estimate of the various varieties. He contradicts himself when he says that Alexandra noblesse is equal to Crimson Galande, and in the next sentence puts six other varieties between them. I am glad to hear Sea Eagle colours well with him when forced early, and would be pleased to see a dish of it exhibited at some of our early shows—say at Regent's Park, on June 17 next; as, although we are very successful in colouring other varieties up to exhibition point, I am not ashamed to confess that I fail with Sea Eagle at that time of year, and I find many other growers fail in the same way. As to Early Beatrice being small, I may be excused for repeating that this is the fault of the stock it is worked on, and not the fault of the variety, as I can prove to anyone if they will call here in May. In speaking of Waterloo and Alexandra, I suppose he means Alexander (a mistake in nomenclature which many people fall into, and one that causes confusion). I have them growing side by side, and have therefore been able to compare them carefully. There is no appreciable difference in the time of ripening; if Mr. Bishop finds a difference of ten days between them, he has not got the so-called varieties true to name. *W. H. Divers*, *Ketton Hall Gardens, Stamford*.

EXHAUSTING PROPERTIES OF VEGETABLES.—The powers of vegetables to exhaust the soil of the principles necessary to their growth, is remarkably

exemplified in certain fungi. Mushrooms are said never to rise in two successive seasons on the same spot; and the production of the phenomena called "fairy-rings" has been ascribed by various authorities to the power of the peculiar fungus which forms it, to exhaust the soil of the nutriment necessary for the growth of the species. The consequence is, that the ring annually extends; for no seeds or spores will grow where their parents grew before them, and the interior part of the circle has been exhausted by preceding crops. But where the fungus has died, and been left on the ground, nourishment is supplied for grass which usually rises on the circle, coarse in quality, and of a dark green colour. This produce being cut or eaten off, the soil becomes the more exhausted the more luxuriant has been the growth. Accordingly, the vegetation within the "fairy-ring" is generally less luxuriant than that outside or on it. From the results of several investigations made at Rothamsted, it has been found that the percentage of nitrogen was the highest in the soil outside the fairy-ring, and the lowest in that within the ring. It was also in each case in an intermediate amount in the soil on the ring. The amount of carbon was also found to be very much higher outside than within the ring. From these interesting results, the conclusion may be drawn that the growth of the fairy-ring fungi and the subsequent increased growth and removal of the associated herbage is accompanied by a considerable reduction in the amount of the organic nitrogen and carbon in the soil. It may be further stated that the mean results of the Rothamsted investigations would represent a loss by the surface-soil of several hundred pounds of nitrogen, and of several thousand pounds of carbon per acre by the action of the fungi, and the subsequent luxuriant growth and removal of the grasses. The ash of fungi has been found to be extremely rich in both potash and phosphoric acid, but especially the former. Hence the value of farmyard manure, especially that which is richest in animal urine, and more particularly horse-urine, for the growth of Mushrooms. *J. J. Willis*, *Harpenden*.

SOILS FOR POTTING.—Your correspondent on p. 658, vol. viii., speaking of soils for potting purposes, says, that in his opinion "there are more evils attributable to soil than to any other cause, and that in nine cases out of ten the mischief may be traced to the soil; and the reason why mixing of soils should be avoided as much as possible, is its tendency to excite fermentation." Is he speaking of soils that have been mixed, say, three months or more, or soil that is only mixed when using it? I imagine no one would think of using soils that had not been mixed for some long time and well turned about, and if this is done, I cannot see how fermentation can be excited to the extent of from 15° to 20° beyond the temperature in the house, and especially in such small quantities of soil as would be required to give even the largest specimens the greatest shift that could with safety be given them. I quite agree that if fresh cow-dung is used, it would be likely to ferment, and that good loam and charred vegetable matter is a capital compost; but what very many have to use as good loam, and have to put up with, would, if not used with a mixture of other soils, very soon rot and change into a pasty kind of stuff. I have repeatedly noticed plants looking sickly for a time, and losing their leaves after potting, but have always thought it to be from some slight check that they received at the root when shifting. It is very noticeable in Chrysanthemums, and, I think, in most plants, more or less. In the case of stove plants, it may be that the soil used may be colder than the temperature of the house in which they are growing. *C. Cundy*.

CHRYSANTHEMUM MRS. ALPHEUS HARDY.—We notice in your valuable paper, also in other European horticultural papers, that a great number of people do not succeed in growing Mrs. Alpheus Hardy Chrysanthemum to perfection. This variety requires somewhat different treatment from others. It is a strict greenhouse plant. It should be grown under glass all the year round, and requires less water and manure than other Chrysanthemums, and should not be pinched back except once or twice in the early season. Since the culture of this variety has been understood, it has been grown in great profusion in this country with splendid blooms. Mr. T. D. Hatfield, gardener to Walter Hunnewell, Esq., Wellesley, Mass., exhibited a plant at the Massachusetts Horticultural Society Show with over 200

perfect blooms, which shows that this variety can not only be grown for specimen blooms, but also for specimen plants. We were fortunate in raising this year several seedlings from Mrs. Alpheus Hardy, with different characteristics, and especially one which is more vigorous, has a stout stiff stem, and the flowers are even more perfect and finer than the original. *W. A. Manda*, of *Pitcher & Manda*.

HORTICULTURAL HALL FOR LONDON.—I was pleased to read Mr. Thiselton Dyer's timely reminder in last week's issue of the *Gardeners' Chronicle*, in which he showed the advantages likely to accrue to horticulture generally from the erection of such a hall. If the large body of traders whose income is derived from horticulture, and the general public who so highly appreciate gardening and garden products, would enter into some reciprocal arrangement, a hall for the general purposes of horticulture might become an accomplished fact. Baron Schroeder's handsome offer of support, backed, as it has been by the Rothschild family, ought to be a sufficient guarantee to the public against loss. As one of the workers in the hive, and as one who has energetically supported horticulture for upwards of twenty-five years, I am willing to become security for 100 guineas in furtherance of this most desirable object, providing the whole amount necessary can be provided. There is now a vacant site at the top of the Vauxhall Bridge Road, just outside Victoria Station, which appears to me the very best site possible, as it is very central, many of the lines by which exhibitors travel converging on Victoria Station, whilst the District line connects the whole of the railways of the metropolis. The details of the scheme of a horticultural hall having been so thoroughly and exhaustively placed before the horticultural public, need no further explanation, so that I heartily wish that the scheme may be carried into effect as speedily as possible. *John Willis*, 16, Onslow Crescent, South Kensington, January 3, 1891.

ROSE-HOUSE.—"L. B." p. 703 of the last volume, can construct an inexpensive and useful Rose-house on the following lines: The situation should be sheltered from the north and east, but far enough from buildings or trees that might obstruct the light, especially from the south and west. A span-roofed house would be the best—say 12 feet in width, the length as may be desired; but if much more than 30 feet, I would suggest a division in the centre, with valves on the hot-water pipes, to shut off the heat from the end furthest away from the heating apparatus. The ends of the house should run north and south. Commence by marking out the width, along each side build piers of brick, say 2 feet deep from the surface of the soil, and 3 feet 6 inches apart, and 9 inches by 14 inches in width and breadth, the 14-inch part to run into the house; these piers to be carried up to the ground level. On the top of them place a lintel of stone 9 inches by 2 inches, and sufficient in length to meet on the centres of each pier; on the top of this build up, say, five courses of bricks, making the side wall, about 15 inches above ground level. Place a pan of good seasoned deal on the top of each wall, say 4½ inches by 3, and bevelled outwards to the same pitch as roof, hereafter explained. Next dig out the soil 3 feet in depth and about 3 feet 6 inches in width, up the centre of enclosed space for a pathway. A 4½-inch wall along each side should be built up to same level as side piers, thus leaving a space for the path 2 feet 6 inches in width. The ridge-piece should now be put up, which may be a 7 by 2-inch batten of deal, edge way up. To support the ridge, and give rigidity to the structure, some 1 inch stout iron tubing should be procured; this may be turned into an elongated semicircle (if I may use this term), fastening it at top with a stout iron staple on to under-side of ridge-piece, each end of the support being let in a piece of stone or concrete on top of path walls. These supports may be about 10 feet apart. As the ridge, when fixed, will govern the angle of the roof, I ought to have said before that it should be about 4 feet above the level of top of path-wall. This will give a fair pitch. Rafters will be required to run from pan to ridge-piece about 3 feet 9 inches apart. These are to carry the movable sashes, which should, in my opinion, always be used for a Rose-house, such as, imagine, "L. B." requires. On the upper side of the rafters, about half-way up, stout iron buttons should be screwed on, so as to prevent damage to the lights by being lifted in stormy weather. If a groove is run in rafters under edge of each sash, no

capping-boards will be required to prevent drip. The sashes may be purchased ready made and glazed at a comparatively cheap rate from any horticultural builder. I have hitherto said nothing of ventilation. In my opinion, for a house of this description, no side ventilation is required, consequently in instructions for side walls no provision is made for it, seeing that "L. B." wishes to put up a reasonably cheap house. I would suggest for top ventilation, that a 7 inches wide by 1 inch thick board be hung on each side of ridge-piece. These should be grooved on the under-side, where they fit down on to tops of roof-sashes. They may be in 10 feet lengths. On their under-sides small iron levers must be fixed in the centre of each length, the levers to have small holes punched in them 2 inches apart; by fixing a small iron pin to head of each light opposite the lever, ventilation, more or less, according to the weather, can easily and quickly be given from the inside of the pit. If these levers are hung on a swivel, they can be put up out of the way of the workers and others who may be in the house, when no air is on. A capping-board 2 inches wider than the ridge-piece, grooved on each side, and slightly bevelled, would be required on top to prevent drip. For heating purposes, I would suggest that a 4-inch flow-pipe be run along the outer side of the house, to rest on the tops of 14-inch piers first mentioned. The returns to be brought along each side of the path, say about 9 inches below top of retaining walls of ditto. This would give sufficient fall to cause a good circulation of the water, and not take up too much of the bed space; some stout iron holdfasts would support the return pipes if driven into the walls. I have been rather diffuse in my sketch of the proposed building, but am assuming that "L. B.," or any other reader who may wish to use these notes, would prefer to put up a house under their own instructions, instead of employing a proper horticultural builder. I am vain enough to think that any handy bricklayer or joiner could do so by reading over this note. As to culture of Roses, I would suggest that a light wire trellis be fixed to one side of the roof, about 14 inches therefrom, and a selection of suitable kinds planted and trained up the trellis. If cut Roses alone are wished for, I would wire and plant both sides of the house this way. When planting, I would do so close to the side-walls, putting one opposite the centre of each of the openings left between the piers that carry the front wall. This was my object in forming these openings. Be careful to place the roots so that they will mainly go into the outside borders, which I am assuming "L. B." will have had made previously. To my mind, this outside rooting has much to do with the continued success, or otherwise, of Roses grown under glass, whether Hybrid Perpetuals, Teas, or Bourbon varieties, are grown. Should "L. B." prefer it, he might have one side of the house filled with a mixture of planted-out bushes, and some in pots. In this case, the bushes planted would have to be put in the bed, irrespective of their roots going into the outside borders. Rose-houses, or pits, such as here described, are always better with removable sashes. They can be taken off late in June, or early in July, when Roses are plentiful outdoors, and replaced in the end of September, or later, according to the season, when a supply of buds, of Teas especially, will be procured all through the autumn and winter months, with an average temperature of, say, 45° at night, and 55° in the daytime, varying it a few degrees according to the outside weather, whether mild and warm, or keen and frosty. I omitted to say that, when digging out the soil for the path, sufficient should be dug out at one end for the necessary steps to get down to the entrance-door. For a 30-feet house, one door will be sufficient; if much longer, one at each end will be required. Some light iron spouting will be necessary to eaves, the water from which can be conducted into tubs at each end of house inside. *H. J. C. Grimston, Tadcaster.*

FRUIT CURING IN ENGLAND.

[We extract from the *Kew Bulletin* the following extracts from a communication by Mr. Colchester-Wemyss.]

1. That we have no Plum at present cultivated in the Severn district that at all resembles the "Prune d'ente." See *ante*, p. 13.
2. That though I think we have plenty of suitable soil, I think it most probable that we should never successfully cultivate the "Prune d'ente," on account

of the lateness of our spring, and the comparatively small amount of really hot sun that we usually enjoy.

3. That some of our Plums can be made to yield lower grades of "Prunes" and "Pruneaux," but with such produce only, a factory could hardly be maintained. The loss of weight in the process of drying even with the best "Prunes d'ente," amounts to two-thirds of the original weight; with our Plums it would probably be about three-quarters. In other words, a pot of our Plums would probably yield about 25 lb. of dried fruit.

If a factory were established, I should propose to adopt a class of kiln which I have in use for burning terra-cotta at my brickworks. I should have a set of four of these kilns, each kept constantly at a regular temperature, but the heat in each one varying from that in the others. Such a set, in a suitable chamber, and with the requisite heating arrangements, would probably cost about £200—not so much, if placed in an existing building; and the daily output would amount to the produce of from 30 pots of fresh fruit, all of which would pass through all four kilns. There could not be more than about six weeks of work, and the gross output would, therefore, be about 250 pots of dried fruit during that time.

It will be seen that during the greater part of the year the factory would be idle unless development in other directions were adopted. I could indicate one such direction as to which I have obtained a considerable amount of information, and which appears to offer very great probabilities of success. It would make this report too lengthy were I to enter fully into the details of this scheme; and I will only mention that it is the manufacture of brandy from Plums, adding that:—

1. There appears to be an unlimited demand for brandy.
2. That Plum brandy appears to possess distinctive and valuable qualities.
3. That recent legislation in Germany, where most of the cheap brandy is made, has rendered its manufacture in England more advantageous.
4. That such a manufacture would considerably extend the period during which the factory would be at work.
5. That the worst, soiled, and damaged fruit might be usefully employed.

Again, the manufacture of jam would enlarge the field of operations and extend the period of work; and not only of jam, but of fruit prepared in various ways.

I propose to try experiments in drying all the varieties of Plums grown in any quantity in the district, and we can then form an idea of the quality of the product, and can ascertain the probable quantity available of such varieties as show fairly good results.

In using the word jam above, I meant to include in the phrase the various products more or less included under the French term "*confitures*," and in mentioning 30 pots as output from suggested "*fours*," I should say this is purely guesswork, except that it would certainly be this amount, but it might be three or four times as much. I shall try the experiments, as soon as any Plums are ripe, with my kiln at the brickworks, and I can then form a reliable opinion.

I determined, on my return, to make the best attempt I could with our Westbury Plums. Unfortunately it was a most unfavourable season (1888) for the experiment, for the fruit in England never ripened properly, and the continued absence of warm sunshine reduced to very small proportions the amount of saccharine, an ingredient most vitally necessary; so that the experiment was made under avowedly unfavourable auspices.

I have at my brickworks at Mitcheldean a special kiln for burning pottery and terra-cotta. This kiln has some points of similarity with a French fruit "*étuve*," only much better. It is fired with a special gas produced on the spot; the flame circulates in a

hollow wall round the kiln, but never enters it. It can be cut off at any moment, and the temperature regulated at will. Of course, being made for terra-cotta, its shape and form is not convenient for drying Plums; but it afforded ample evidence that kilns built on this principle, but specially modified, would answer admirably for fruit-drying purposes. I tried several kinds of Plums, amongst others the Early Prolific, Blaisdon Red, Victoria, Black Apricot, and Black Diamond, but every Plum I tried was deficient in all the three characteristics of the Prune d'ente, toughness of skin, solidity of flesh, and abundance of saccharine. Some failed altogether, and even those which yielded a moderately fair result had to be treated with extraordinary care to avoid the bursting of the skin and consequent escape of juice.

They had to be put many times into the kiln, and the finishing temperature had to be arrived at very gradually, and even then I unfortunately spoilt, from a too high temperature, several "*claire*"-fuls of Plums which I was preparing in an ordinary bread-oven at Westbury. The Plum season was a short one this year, and unless picked quite green, so many rotted before they were really ripe, owing to the damp and rain, so that with the time and means at my disposal I was only able to produce a very limited number of Plums. Those giving the best results were the Blaisdon Red, the Black Diamond, and the Victoria.

Though none of our existing Plums will yield the best French Plums, we can produce "Pruneaux," which are not without merit. Whether it would be a lucrative operation is not an easy question to answer. We have to bear in mind that it will require nearly 4 lb. of our home varieties to make 1 lb. of "Pruneaux." In other words, assuming the value of the raw fruit to be 1*d.* per lb., it would take four penny-worth of fruit to make a pound of "Pruneaux;" and I think this would have to sell at 5*d.* per lb. to make the manufacture profitable.

A factory could not be started solely for the manufacture of "Pruneaux," because the busy time would only be so small a portion of the whole year, that it could hardly be rendered remunerative; moreover, the raw fruit would bear but little travelling, and so could not well be brought from any great distance. It has to be quite ripe, and yet must not be at all bruised, and the skin must not be the least broken. A factory might encourage the erection and maintenance of ovens and kilns in different localities, and, in fact, the earlier stages of manufacture might be carried out in such localities themselves, and the process be subsequently completed at the factory. Such a plan would also have advantage of extending the annual period of life at the factory. It might also be possible to store the raw fruit in cool chambers at the factory and dry it at leisure, but I doubt this. A factory, in fact, to be successful, must embrace other operations besides drying Plums. *M. W. Colchester-Wemyss.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

JANUARY 7 AND 8.—The midwinter show of this Society was held at the Royal Aquarium, and resulted in a small show of "decorative" blooms. For a collection of Chrysanthemums (no limits specified), the 1st prize was awarded to Mr. W. G. Gilbert, gr. to B. Le Neve Foster, Esq., Sennow Hall, Briest, who staged a lot of about forty varieties, some being represented by very fair blooms, as *Boule d'Or* and *Mrs. Beal*. Others of merit were *Ruche Toulousaine*, *Golden Gem*, *Perle des Beautés*, *Princess Blanche*, *Mrs. F. Jameson*, and *Putney George*. An extra prize was awarded to Mr. E. Vince, gr. to the London Cemetery Co., Highgate. The best twenty-four bunches were from Mrs. R. Debenham, St. Peter's, St. Albans, a bright and fresh lot.

In the class for twelve large-flowered blooms, Mr. W. G. Gilbert showed some capital blooms of *Mrs. Beal*, *Gloriosum*, *Duchess of Albany*, and Mr. G.

Davies—a really fine lot; 2nd, Mr. J. Brown (gr. to Mrs. Waterlow, Great Doods, Reigate), whose W. G. Drover, and Leon Frache were excellent in form and size.

For twenty-four bunches of Japanese, Mr. J. Brown was 1st, with an extensive collection of small flowers.

Mr. Owen, the Floral Nurseries, Maidenhead, received a Silver Medal for a collection of blooms, in which were some novelties, and a few good blooms, the best being Mrs. E. W. Clark, incurved, dark rose; and Beauty of Castle Hill, yellow incurved Japanese.

Mr. John May, Twickenham, had some good Cyclamens; and Messrs. H. Cannell & Sons, Swanley, showed a collection of well-grown Primulas.

Potatoes were sent by Mr. W. Cousins.

CULTURAL MEMORANDA.

SWEET PEAS.

EVERY one knows and likes Sweet Peas, which, if wanted very early in the season, may be sown in warm parts of the country in November; but the danger attendant on early sowing out-of-doors may be avoided by sowing seed at this season. Choose 60's, drain them with a piece of crock, and some rough soil, and fill them nearly full with nice medium rich soil, and press it firmly into the pots, then sow the seed of some good strain thickly on the surface, and cover. Fifty pots would give a good start. The pots should be put in warmth, and treated like edible Peas, planting them out in a warm part of the garden in April. However well hardened-off the plants may be, they will want some little protection if the weather prove cold. Two other sowings may be made outside during the spring, and I usually sow the seed for late bloom in manured trenches, our soil being rather light, and by doing so materially lengthen the flowering season. H. Markham.

VARIORUM.

FRUITS YIELDED BY INDIGENOUS PLANTS OF AFGHANISTAN AND PERSIA.—The nuts collected from the indigenous forests of *Pistacia vera* are, says Dr. Aitchison, in his *Notes on Products of Western Afghanistan and North-Eastern Persia*, of great commercial importance, both as an article of diet amongst the people, and also for exportation, being obtained in immense quantities from the forests in the Badghis, whence they are carried all over the country, besides being exported to Persia, Afghanistan Proper, and India. Barberries are considered rather in the light of a condiment; preserved as a pickle, they are greatly used in the diet of the better classes, and, for similar reasons, much exported to India. The fruits of the indigenous *Elaeagnus* and of the *Jujube* cannot be distinguished from the cultivated forms except by size; these are chiefly carried and eaten on journeys, hence one of the names for the fruit of the *Elaeagnus*, "Caravan Dates." The fruit of *Celtis caucasica* is much eaten and highly extolled, but it is chiefly used as a flour, to be made into bread with ordinary flour. The wild Fig is much smaller than the cultivated fruit, but I was told that it was excellent eating. I had not an opportunity of collecting it when it was actually ripe.

FRUIT REGISTER.

APPLE LORD SUFFIELD.

WHERE this variety succeeds, it is truly one of the finest early cooking Apples grown, but with us, and in the neighbourhood generally, the trees do not grow satisfactorily for any great length of time, the branches dying back. Our trees croppled well for a few years, but now they are miserable things, that I must regraft with another variety—Lord Grosvenor, a very fine Apple, and one that is similar as regards cooking qualities and earliness. This variety is a strong grower, a heavy cropper, and the fruits are of immense size. I may mention that these trees are planted within a short distance of the Suffield.

GASCOYNE'S SCARLET SEEDLING.

This is one of the finest-coloured Apples grown, and I think when it is better known it will find favour with most persons. Our trees are planted on the same ground as Lord Suffield, and they have made fine heads; it usually crops well, and the fruit may be used for cooking, and also for dessert, the flavour being a very pleasing one; a good dish is an ornament to the table. It will keep sound and fresh till February. H. Markham.

PEAR, SOUVENIR DESCHAMPS.

A newly introduced seedling raised in the School of Horticulture of Ghent, and described by M. Burvenich in the last number of the *Bulletin d'Arboriculture*. It is said to be productive, the fruit large, elongated, tapering to a short stalk, greenish-yellow marked with brown spots. Flesh yellowish, delicate, melting, juicy. In season in October. It does well on the Quince.

MARKETS.

COVENT GARDEN, January 8.

[We cannot accept any editorial responsibility for the subjoined reports, which are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the price on any particular day, but the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted must not be taken as indicating the prices at any particular date, still less can they be taken as anything more than guides to the prices in the coming week. Ed.]

The attendance at our market since Christmas has been very poor, owing to the long frost, making quotations difficult. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, $\frac{1}{2}$ -sieve	3 6-7 0	Lemons, per case	15 0 25 0
— Nova Scotia, brl. 15	0 25 0	Melons, each	0 6-2 0
Cobs, Kent, 100 lb.	55 0 60 0	Pine-apples, St. Michael, each	2 0 8 0
Grapes, lb.	0 9-3 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4-0 6	Lettuces, per dozen	2 6-...
Beans, French, lb.	1 0-...	Mushrooms, punnet	2 0-...
Beet, red, per dozen	2 0-3 0	Mustard and Cress, punnet	0 4-...
Brussels Sprouts, lb.	0 4-...	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Seakale, per basket	2 0-3 0
Cauliflowers, each	0 4-0 6	Shallots, per lb.	0 6-...
Celery, per bundle	1 6-2 6	Spinach, per bushel	7 0-...
Cucumbers, each	0 6-0 9	Tomatoes, per lb.	0 9-1 0
Endive, per dozen	2 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

POTATOS.—Frost continues to rule the supply, and prices, in most cases, continue very high, some even 10s. per ton above last week's quotations, although supplies have increased during the last three days.—J. B. Thomas.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Evergreens, in var., per dozen	6 0-24 0
Aspidistra, doz.	18 0 42 0	Ferns, in var., per dozen	4 0 18 0
— speci. plants, each	7 6-10 6	Ficus elastica, each	1 6-7 0
Bouvardias, p. doz.	9 0 18 0	Foliage plants, various, each	2 0-10 0
Chrsanthem., p. doz.	4 0 18 0	Hyacinths, per doz.	1 0-12 0
— specimen plants, each	2 6-5 0	— Roman, per doz.	9 0-12 0
Cyclamens, dozen	9 0 18 0	Marguerites, doz.	6 0-12 0
Cyperus, per dozen	4 0-12 0	Mignonette, per doz.	4 0-6 0
Dracena terminalis, per dozen	30 0 60 0	Palms in variety, each	2 6-21 0
— viridis, per doz.	12 0 24 0	Poinsettias, dozen	9 0-15 0
Euonymus, in var., per dozen	6 0-18 0	Solanums, per doz.	9 0-15 0
Ericas, various, doz.	8 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Bouvardias, per bun.	0 6-1 0	Mignonette, 12 bun.	2 0-4 0
Callaæthiopica, 12 bl.	8 0-12 0	Pelargoniums, scarlet, 12 spr.	1 0-2 0
Carnations, 12 blms.	1 0-3 0	Poinsettias, 12 blms.	4 0 12 0
Chrysanth., 12 bun.	12 0 18 0	Primulas, double, 12 sprays	0 6-1 0
— 12 blooms	2 0-6 0	Roses, Tea, per doz.	1 0-4 0
Cyclamens, per doz	0 3-0 6	— coloured, dozen	3 0-5 0
Eucharis, per dozen	4 0-6 0	— red, per dozen	3 0-6 0
Gardenias, 12 blooms	6 0-9 0	— Safrano, French, per box of 100	3 0 6 0
Heliotropes, 12 spr	0 8-1 0	— ditto, per dozen	1 0-3 0
Hyacinths, Rom., 12 sprays	2 0-1 6	Stephanotis, per 12 sprays	9 0-12 0
Lilium, var., 12 bl.	2 0-18 0	Tuberose, 12 blms.	1 0-2 0
Maiden Hair Fern, 12 bunches	4 0-9 0	Violets, 12 bun.	1 0-4 0
Marguerites, 12 bun.	3 0-6 0	— Parme, Fr., bun.	7 6-8 6
Narcissus (paper white), 12 sprays	1 0-2 0	— dark, Fr., bun	2 0-3 6
— French, 12 bun.	4 0-9 0		

ORCHID-BLOOM in variety.

SEEDS.

LONDON: Jan. 7.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that increased activity is now shown in the seed trade. Owing to the cold dry weather, home-grown red Clover seed has, during the last few days, come to market somewhat more freely. Choice Alsike continues scarce and dear. White and Trefoil both keep firm. Rye-grasses dull. In Hemp and Rape seed a further advance has been established. Fine Italian Haricot Beans are now obtainable at very tempting rates. Marrowfat Peas are steady; Prussians dearer. Spring Tares, being very cheap, attract attention. There is no change in Dari, Buckwheat, Millet, Mustard, or Linseed.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending January 3, and for the corresponding period in period 1890:—1891: Wheat, 32s. 7d.; Barley, 28s. 5d.; Oats, 17s. 9d. 1890: Wheat, 30s.; Barley, 30s. 5d.; Oats, 18s. 3d. Difference, Wheat, + 2s. 7d.; Barley, -2s.; Oats, -6d.

FRUIT AND VEGETABLES.

SPITALFIELDS: Jan. 7.—Supply of Potatos short, of vegetables moderate, of fruit good. Trade for Potatos good, for vegetables moderate, for fruit fair. Prices:—Vegetables: Seakale, 1s. to 1s. 6d. per punnet; Curly Kale, 2s. to 2s. 6d. per bushel; Cabbages, 2s. 6d. to 5s. per tally; Savoys, 2s. 6d. to 6s. do.; Greens, 1s. 6d. to 2s. 6d. per dozen bunches; Brussels Sprouts, 2s. to 3s. per half-sieve; Turnips, 3s. to 4s. per dozen bunches; Parsnips, 1s. to 1s. 9d. per score; Carrots, 3s. 6d. to 4s. per dozen bunches, 25s. to 60s. per ton; Endive, 1s. 6d. to 3s. per dozen bundles; Cabbage Lettuces, 2s. to 2s. 6d. per dozen; Mustard and Cress, 2s. per dozen baskets; Leeks, 3s. 6d. to 5s. per dozen; English Onions, 5s. 6d. to 6s. per cwt.; Bordeaux do., 6s. to 7s. per case; Belgian do., 3s. 9d. to 4s. 6d. per bag of 110 lb.; Dutch do., 4s. to 5s. do.; Spanish do., 7s. 6d. to 9s. per case; Celery, 6d. to 1s. per bundle; Parsley, 3s. to 6s. per dozen bunches; Horseradish, 1s. to 1s. 4d. per bundle; Beetroots, 4d. to 6d. per dozen; English Apples, 6s. to 10s. per bushel; American do., 20s. to 30s. per barrel; Pears, 3s. to 6s. per half-sieve; forced Rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles. Old Potatos: Magnums, 70s. to 105s. per ton.

STRATFORD: Jan. 6.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the under-mentioned quotations:—Savoys, 4s. 6d. to 6s. per tally; Greens, 1s. to 1s. 6d. per sieve; do., 3s. to 5s. per dozen; Turnips, 2s. to 3s. per dozen bunches; do., 70s. to 80s. per ton; Carrots, household, 40s. to 50s. do.; do., cattle-feeding, 28s. to 34s. do.; Parsnips, 1s. to 2s. per score; Mangels, 18s. to 21s. per ton; Swedes, 18s. to 22s. do.; Onions, English, 110s. to 120s. per ton; do. Dutch, 3s. to 4s. 6d. per bag; Apples, English, 3s. to 7s. per bushel; Celery 7d. to 1s. per roll; Watercress, 7d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: Jan. 6.—Quotations:—Hebrons, 70s. to 110s.; Magnums, 80s. to 115s.; Scotch, 95s. to 120s.; Imperators, 75s. to 100s. per ton.

SPITALFIELDS: Jan. 7.—Quotations:—Magnums, 70s. to 105s.; Regents, 80s. to 120s.; Champions, 60s. to 80s.; Imperators, 75s. to 100s.; Hebrons, 70s. to 85s. per ton.

STRATFORD: Jan. 6.—Quotations:—Magnums, 80s. to 90s.; Imperators, 77s. to 100s.; Scotch Magnums, 100s. to 110s.; Hebrons, 110s. to 120s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 102s. 6d.; inferior, do., 46s. to 75s.; hay, best, 60s. to 87s.; inferior, do., 26s. to 50s.; and straw, 24s. to 38s. per load.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending January 3, is furnished from the Meteorological Office:—

"The weather has remained cold and dull in all parts of the kingdom, but the frost has been less severe generally than during the preceding weeks. Slight snow has fallen at times in many parts of the kingdom, and occasional rain in the extreme west and north-west. Thick fog was again experienced over England on Friday, but especially in London, where it was unusually dense.

"The temperature has again been below the mean, the deficit having ranged from 2° or 3° in Scotland, to 5° or 6° over Ireland, and to 9° or 10° in most of the English districts. The highest of the maxima were registered, with few exceptions, on Jan. 3, and ranged from 50° in 'Ireland, S.' to 39° in 'England, E.' The daily maxima over England were, as a rule, higher than those recorded of late, but on Dec. 30, the thermometer at many of the inland stations did not exceed 26° all day. The lowest of the minima, which occurred on Dec. 31 over England, and on irregular dates in Ireland and Scotland, ranged from 12° in 'England, S.' and between 16° and 20° in most other parts of England, to 21° in 'Ireland, S.,' 27° in 'England, N.E.,' and 28° in 'Scotland, W.'

"The rainfall has been considerably less than the mean in all districts.

"Bright sunshine has continued unusually deficient, and at many stations has been altogether absent. The percentage of the possible duration varied from 25 in the 'Channel Islands,' and 22 in 'Scotland, N.,' to 12 in 'Ireland, N.,' 4 in 'Scotland, E.,' and 'England, E.,' to only 1 or less over 'England, N.E.,' and the midland counties."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.			BRIGHT SUN.		
	Above (+) or below (—) the Mean for the week ending Jan. 3.	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1890.
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1890.	Below 42° difference from Mean since Jan. 1, 1890.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Ins.					
1 2 —	0	35	+ 197	— 109	7	284	55.1	23	23	
2 2 —	0	51	+ 35	— 29	4	222	32.2	4	28	
3 4 —	0	53	+ 139	— 19	4	193	25.1	1	28	
4 10 —	0	96	+ 37	+ 202	4	184	23.1	4	35	
5 9 —	0	92	+ 11	+ 189	5	182	22.5	0	31	
6 10 —	0	83	+ 22	+ 151	5	180	25.6	8	33	
7 3 —	0	38	+ 80	— 81	8	224	53.6	5	29	
8 6 —	0	56	+ 119	+ 42	7	210	35.3	10	28	
9 9 —	0	62	— 94	+ 170	9	218	38.2	7	34	
10 5 —	0	39	+ 96	— 84	6	246	34.8	12	38	
11 6 —	0	40	+ 86	+ 4	6	229	41.4	11	31	
12 6 —	4	31	— 7	+ 86	7	216	33.0	25	41	

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

FOLIAGE USED IN ARCHITECTURE.—Can any reader of the *Gardeners' Chronicle* help me with instances of the use of known flowers or leaves in church architecture; instances of the employment of Oak, Ivy, Thorn, Lily, Rose, Vine, and Wheat are not needed. Answers, either privately sent or through these columns, will be welcome. A. E. P. R. Dowling, B.A., Oxon, 4, Hare Court, Inner Temple, E.C.

MASDEVALLIAS IN THE OPEN AIR.—Can any of our correspondents afford us information of experiments in Masdevallia culture in the open air in our south-western shires, Channel Islands, &c.

NOTICES TO CORRESPONDENTS.

CIDER MILL, &c.: C. I. Mr. Nutt, bookseller in the Strand, near St. Clement's Dane Church, publishes a small work on wine, cider, and beer-making. We cannot recommend traders, but any manufacturer of brewery utensils, or an ironmonger, in a large way of business, would give the needful information. The mill should be fitted with a rotary rasp, which would tear the cells of the Apples asunder.

GARDENING FOR A BEGINNER: J. Sadler. Get him into as many good gardens as you can, and always where some features of horticulture receive special attention. Let him begin at the beginning, and not be drafted at once into the glasshouses, for if he once takes a great liking for that part, he will rarely acquire a good knowledge of outdoor gardening. Let him pass some part of his tutelage in a nursery or in a botanic garden. To get the boy first placed, it would be best to advertise your want in these columns, and use due discretion in selecting the garden in which to place him.

GRASS SEEDS CHOKING AND OTHERWISE CAUSING THE DEATH OF SHEEP: C. A. M. C. Stipa Sparteia.

INSECT IN FERN POT: J. Crombie. Some species of weevil. The grubs feed on the roots, and must be picked out of the soil. The beetles may be caught at night.

MARKET GARDENING IN THE SCILLY AND CHANNEL ISLANDS AND CORNWALL: Viator. Numerous articles, original and reprint, have appeared in our pages in recent years: vol. ii, 1887, p. 442; vol. iv., 1888, p. 33; vol. viii., 1889, p. 349; Grape culture applicable to any place, pp. 592, 620.

MUSCAT VINES: J. Ross. Judging from the appearance of the wood sent to us, and your description of the state of the Vines generally, we should say that the most satisfactory solution of the difficulty would be to root them out, make a new border piecemeal, thus spreading the expense over six or eight years, and having, therefore, fresh soil for the roots to seize upon whenever the additions are made, and plant young Vines. Failing these radical measures, treat the Vines rather on the long-rod than the spur system of pruning, and you will obtain larger if looser bunches, better foliage, and consequently stronger shoots. If you can encourage the growth of roots on the surface, it would benefit the Vines. This may best be done by manurial top-dressing. Rust on the berries must be guarded against by careful ventilation, not smearing the hot-water pipes with much sulphur, nor permitting water to fall upon them whilst they are very warm, and by not keeping any strongly fermenting manure in the vinery after the canes have been broken.

NAMES OF FRUIT: Francis Moore. Pears: 1. Rollo; 2. Chaumontel; 3. Josephine de Malines. Apples: 1. Yorkshire Beauty; 2. King of the Pippins; 3. Brickley Seedling; 4. Hoary Morning; 5. Hambleton Deux Ans; 6. Old Nonpareil.—J. H. J. Apples: 1. Hawthornden; 2. King of the Pippins; 3. bruised beyond recognition; 4. Cox's Pomona; 5. Round Winter Nonsuch.—W. H. No numbers found. The large fruit is Hanwell Sourcing, the smaller Syke House Russett.

NAMES OF PLANTS.—Northerner. Bomarea Carderi.—W. James. 1 and 2, we cannot name foliage Begonias; 3, Ricinifolia manicata; 4, send flowers; 5, Begonia Weltoniensis; 6, Maranta Legrelliana. G. Foster. *Æschynanthus splendens*.—T. & J. R. Bulbophyllum Neigherrense.

NITROGEN, AND THE KNOTS ON THE ROOTS OF LEGUMINOUS PLANTS: Enquirer. You may take it as an ascertained fact, that the knots on the roots of Clover, Peas, and other leguminous plants, are due to the action of some parasitic germ, because if such plants are grown, as they can be, in a laboratory, in such a way as to prevent access of any germ, then no swellings are found on the roots. Again, a root without any such swellings speedily produces them after being inoculated with juice from one of the swellings. Of what nature the germ is, is doubtful; some say of Bacteria, others of a slime fungus (*Myxomycetes*); others, as Marshal Ward, of an *Ustilago*. Again, it is now ascertained that the soil and the plants become provided with nitrogen under the influence of microbes or germs, probably of the same kind as those which produce the tubercles on the roots of the Leguminosae. Why they should be confined to plants of that order is not known.

CATALOGUES RECEIVED.

C. W. COUSINS, 13, High Street, Wood Green, N.—Seeds and Sundries.
E. WILSON SERPEL, Pontey's Seed and Bulb Establishment, Plymouth—Seeds.
DOBBIE & Co., Rothesay, Scotland—General Seed List, Florist Flowers, and Guide.
BEN. REID & Co., Aberdeen, N.B.—Spring Seed List and Sundries.
JAMES DICKSON & SONS, 32, Hanover Street, Edinburgh, N.B.—Seeds.
E. P. DIXON & SONS, 57, Queen Street, Hull—Garden Seeds, &c.
M. CUTHBERTSON, Rothesay, N.B.—Florists' Flower Seeds, &c.
H. CANNELL & SONS, Eynsford, and Swanley, Kent—Seeds.
OTTO MANN, Leipzig, Saxony, Germany—Vegetable and Flower Seeds (Wholesale).
REID & BORNEMAN, Trewsbury Road, Sydenham, London, S.E.—Chrysanthemums.
H. & F. SHARPE, Wisbech, Cambs.—Seed Potatoes.
HENRY DEVERILL, Banbury—Seeds and Sundries.
IRELAND & THOMSON, 81, Princes Street, Edinburgh, N.B.—Vegetable and Flower Seeds, and Gladioli.
WM. PAUL & SON, Waltham Cross—Seeds and Sundries.
J. CHEAL & SONS, Crawley, Sussex—Seeds and Sundries.
PENNY PACKET SEED CO. (BIDDLES & Co.), Loughborough—Seeds and Bulbs.
JARDIN ALPIN D'ACCLIMATATION, Geneva—Mountain Plants and Seeds.
JOHN DOWNIE, 144, Princes Street, Edinburgh, N.B.—Seeds.
FISHER, SON, & SIBRAY, Handsworth, and Sheffield—Garden Seeds.
PARSONS, FLETCHER & Co., Gravel Lane, Southwark, S.E.—Letterpress and Lithographic Inks, &c.
CLARK BROS. & Co., 65, Scotch Street, Carlisle—Garden Seeds.
J. R. PEARSON & SONS, Chilwell, Notts—Chrysanthemums.
BARR & SON, 12, King Street, Covent Garden, W.C.—Flower Seeds, Gourds, Climbers, Bulbs, Plants, Tubers.
H. DEVERILL, Banbury—Garden Seeds, &c.
LITTLE & BALLANTYNE, Carlisle—Garden Seeds and Sundries.
J. CARTER & Co., 237 and 238, High Holborn, London—Garden Seeds, &c.

COMMUNICATIONS RECEIVED.—W. Maule.—Z.—H. A.—A. C. F. (2).—J. J. W.—D. C. P.—W. A. C.—A. E.—T. C.—W. K.—J. R.—H. W. W.—W. C.—W. Ingram.—J. H.—E. C.—J. T.—W. D.—G. W.—Visitor.—D. M.—J. S.—W. R. W.—W. C.—M. T.—A. D.—W. J. Sheppard (greatly in excess of our needs).—H. E.—W. S.—T. Kirk, New Zealand.—T. T.—A. B. M. D.—A. de Azambuja, Porto Alegre.—C. J. O.—R. A. R.—J. W.—W. J.—M. F.—U. D.—Berlin.—Dr. Klatt, Hamburg.—Dr. Göze, Greifswald.—M. Melbourne.—J. L.—J. W.—S. & Co.—J. E. N.—F. J.—J. R. J.—A. C. N., Melbourne.—B. F.—M. H. M.

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED.—T. K., N. Z.—T. T., South Brazil.—C. C.—A. T.

DIED.—We regret to have to announce the death, on the 3rd inst., of Mr. GEORGE HART, the chief of the composers who set up this journal, and who had been connected with it since 1866. Numberless correspondents have been more indebted to him than they are at all aware of.

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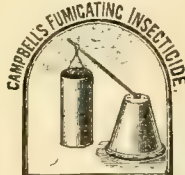
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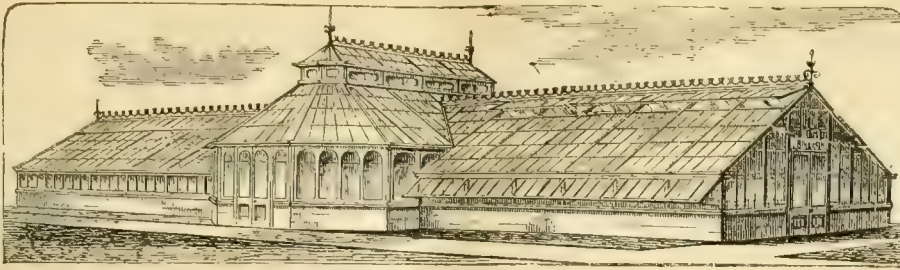
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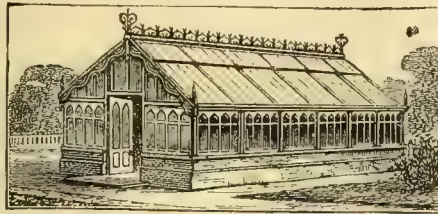
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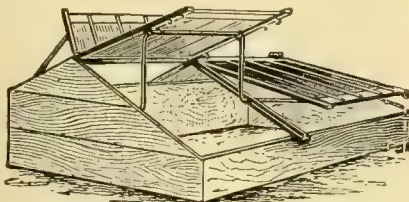
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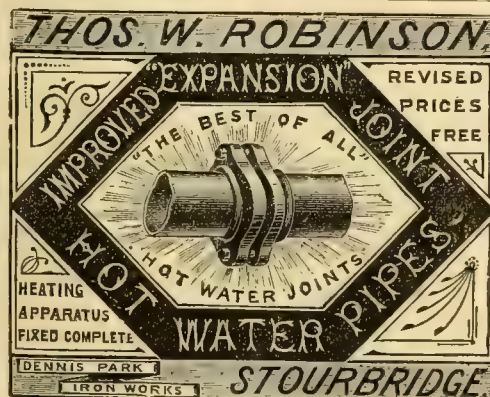
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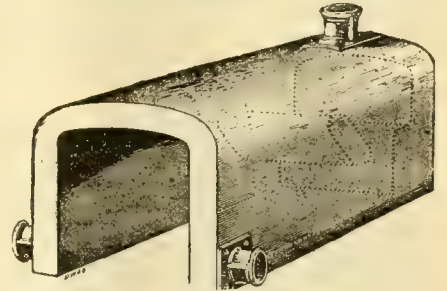
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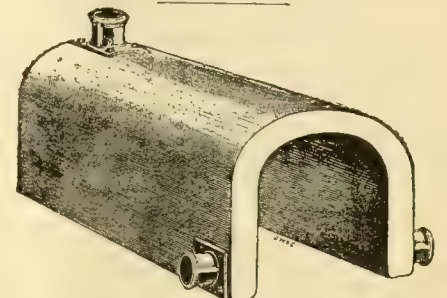
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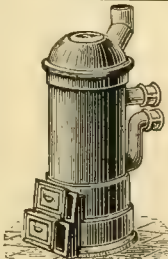


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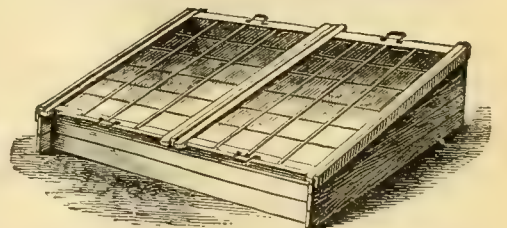
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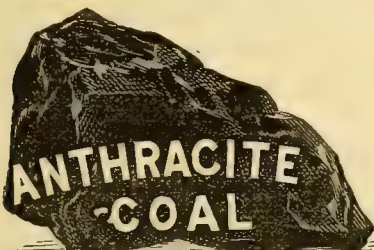
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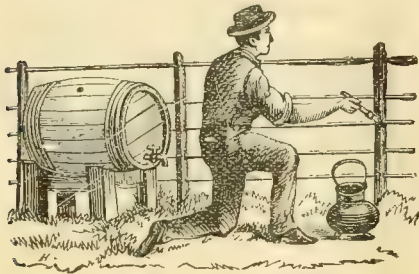
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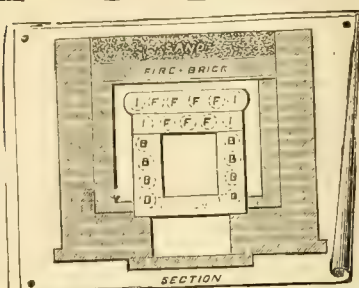
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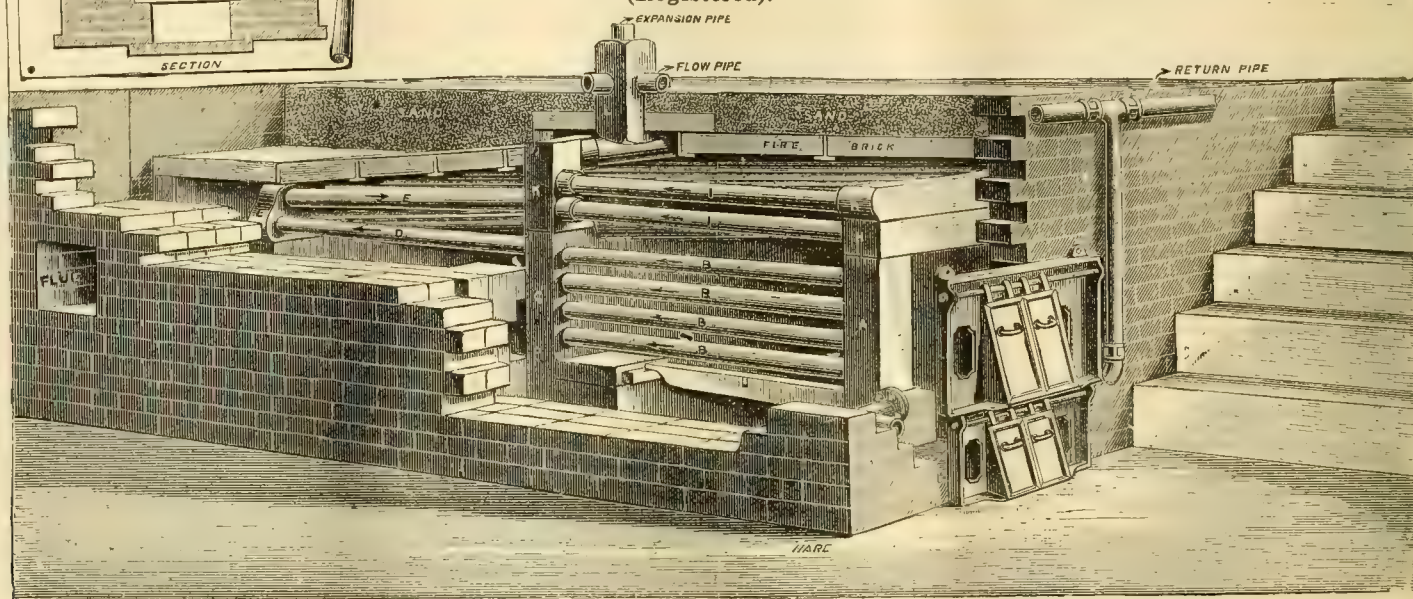
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SALES BY AUCTION.

Monday Next.

SPECIAL SALE OF 25,000 HARDY PLANTS, LILIES, and other BULBS.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 19, at half-past 12 o'clock, 25,000 HARDY PLANTS and BULBS, consisting of Carnations, Picotees, Paeonies, new French Cannas, and Dahlias; 10,000 Pancreatums, I-mones, Narcissus, Calceolites, Tritelias, Muscari, Montbretias, Wat-onias, Ixias, early-flowering Gladioli, Anemones, and many other beautiful varieties for outdoor planting. A magnificent collection of Iris, including all the best in cultivation, Germanica, Siberica, Pumila, Oibensis, Kiemperi, and a host of varieties too numerous to mention. Many thousands of Berlin Crowns, Lily of the Valley and Gladioli; 500 Cypripedium spectabile, and other varieties; 1000 home-grown Lilies, consisting of Giganteum, Brownii, Humboldtii, Washingtonianum, Parryi, Cordifolium, Hansoni, Kretzeri, tigrinum, speciosum, longiflorum superbum, Pardalium, Colchestreri canadensis, and many others. Also a collection of hardy Perennials, consisting of some of the best in cultivation, as Heuchera sanguinea, Senecio pulcher, Papaver orientale, Aquilegia, Chrysanthus, Anthericum, Hemerocallis, Campanulas, and many others.

On view morning of Sale, and Catalogues had.

Wednesday Next.—Lilies.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 21, at half-past 12 o'clock, 12,400 LILIIUM AURATUM, grand Bulbs; 2900 L. SPECIOSUM RUBRUM; 600 L. ALBUM KREIZERI, magnificent Bulbs, the finest importation this season; 2250 L. KRAMERI and 5000 L. LONGIFLORUM, all received from Japan. LILIIUM SZOVITZIANUM, a large assortment of English-grown and other LILIES; 1000 BEGONIA GRANDIFLORA, eight cases of SPIRÆAS, TUBEROSES, HARDY BULBS, HERBACEOUS PLANTS, and 50 lots of FERNS and GREENHOUSE PLANTS, from an English Nursery.

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MESSRS. PROTHEROE AND MORRIS are instructed by Mr. William Bagley, who is giving up the cultivation of Greenhouse Plants to sell by AUCTION, on the Premises, Mill-shot Farm, Crabtree Lane, Fulham, on THURSDAY NEXT, January 22, at 12 o'clock, the whole of the well-grown GREENHOUSE PLANTS, 300 Maidenhair Ferns, 2500 Tuberose, 900 Arm Lilies, 1100 Palms in pots, &c.; 3000 Roses of the test sorts, Heliconias, 200 Glazed lights, two ponies very quiet to ride and drive, and other effects.

On view the day prior to the Sale. Catalogues may be obtained on the premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

DENDROBIUM WARDIANUM.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 23, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a fine importation of DENDROBIUM WARDIANUM, the large variety, from Upper Burmah. The plants are in the best possible condition, and every plant received is offered.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander, to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 23, at half-past 12 o'clock, CATTLEYA LABIATA PERCIVALIANA, one of the finest importations ever made, and home only a few days, just received by mail steamer, in simply perfect condition. DENDROBIUM (from virgin forests). This very distinct lot of plants was collected in far outlying unsearched districts. Among the plants are many remarkably distinct pieces, and probably new kinds will be found. From descriptions given to our Collector by the coolies, we believe that the plants are geographical forms of D. densiflorum, with larger and more brilliantly coloured inflorescences, white, pink, and yellow. All the pieces have good dormant eyes, and many are well set with flower-buds, many of which will soon flower.

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EPIDENDRUM SPECIES (with leaves nearly 2 feet long).—Only a few plants of this distinct-looking species received.

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PHAIUS SPECIES (large bronze and white flowers).—Probably the beautiful new P. Mannii, which is unequalled as an exhibition plant.

CATTLEYA CHRYSOTOXA.—A few plants of this brilliant golden and crimson-flowering variety.

DENDROBIUM NOBILE.—Splendid masses, all ready for blooming. A fine importation to hand, in the very best condition.

The Sale will also contain fine BRAZILIAN ORCHIDS, such as Oncidium curtum, Utricularias, in variety; Lælia grandis, L. prestans, various Oncidiums, Lælias, and Cattleyas.

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Preliminary Notice.

100,000 KENTIA SEEDS.

MESSRS. PROTHEROE AND MORRIS are instructed to sell the above at an EARLY DATE, which will be ANNOUNCED in NEXT WEEK'S ADVERTISEMENT.

Wednesday and Saturday Next.

(Weather permitting.)

ROSES, FRUIT TREES, BORDER PLANTS, LILIES, DUTCH BULBS, &c.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, January 21 and 24, at half-past 12 o'clock precisely, 1000 Standard and Dwarf ROSES, Standard, Pyramid, and Dwarf-framed FRUIT TREES; CARNATIONS, PICOTEES, and other BORDER PLANTS; HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other DUTCH BULBS; importation of LILIES from Japan, comprising 10,000 Liliun auratum, L. speciosum album and rubrum, L. longiflorum, &c.; GLADIOLI, SPIRÆA JAPONICA, HARDY BULBS and ROOTS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

Fine Importations of ONCIDIUM MARSHALLIANUM, O. CONCOLOR, O. FORBESII, O. CURTUM, O. PRETEXTUM, LÆLIA DAYANA, L. CINNABARINA, ODONTOGLOSSUM CRISPUM, &c., all in the best possible health, from Messrs. Charlesworth, Shuttleworth & Co. Also a small collection of ESTABLISHED ORCHIDS, extensive consignments of LILIIUM AURATUM, L. SPECIOSUM RUBRUM, L. LONGIFLORUM, &c., from Japan; 10,000 fine PEARL TUBEROSES, just received from America, &c.

MR. J. C. STEVENS will sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 22, at half-past 12 o'clock precisely.

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PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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MEMORIAL

TO THE

LATE MR. SHIRLEY HIBBERD, F.R.H.S.

IN compliance with a requisition signed by influential representatives of all departments of Horticulture, a Public Meeting was held at the rooms of the Royal Horticultural Society, on December 9, 1890, Sir Trevor Lawrence, Bart., President, in the chair, when it was unanimously resolved to establish some Memorial of the life and work of the late Mr. SHIRLEY HIBBERD, and the following gentlemen were appointed as a Committee to carry the resolution into effect:—

- (1) As representing the Council of the Royal Horticultural Society—Rev. W. WILKS, M.A., Secretary; GEORGE PAUL, Esq., and JAMES DOUGLAS, Esq.
- (2) As representing the Fellows and Subscribers—W. H. COLLINGRIDGE, Esq., W. MARSHALL, Esq. (Chairman of the Floral Committee), R. DEAN, Esq. (Secretary of the National Chrysanthemum Society), and Dr. MAXWELL MASTERS (Vice-President of the National Rose Society), the latter gentleman being nominated as Chairman of the Committee.

On December 19 the Committee so appointed met to consider the various suggestions which had been made as to the form of the proposed Memorial, and also to take steps for carrying it into effect. At this Meeting, the following resolutions were unanimously carried:—

- (1) Proposed by Mr. MARSHALL, and seconded by Mr. W. H. COLLINGRIDGE: "That this Committee recommend that a portrait of the late Mr. SHIRLEY HIBBERD be painted, and that, after defraying the necessary expenses, the remainder of the fund subscribed be invested in the names of Trustees, to be hereafter appointed, for the benefit of the orphan daughter of the late Mr. HIBBERD."
- (2) Proposed by Mr. DOUGLAS, and seconded by Mr. DEAN: "That the portrait be entrusted to the care of the Trustees of the Lindley Library, on behalf of the Royal Horticultural Society."

The Committee have already received promises of financial support, chiefly from those present at the original meeting, to the amount of about £100, in sums varying from 2s. 6d. to £25, and they now earnestly solicit further assistance in carrying the above proposals into effect.

The gentlemen who signed the original requisition to the Council were:—The Very Rev. the DEAN OF ROCHESTER, President of the National Rose Society; Rev. H. D'OMBRAIN, Secretary of the National Rose Society; T. W. GIRDLESTON, Esq., National Dahlia Society; R. DEAN, Esq., Secretary National Chrysanthemum Society; W. MARSHALL, Esq., Chairman of the Floral Committee; R. D. BLACKMORE, Esq., Vice-Chairman of the Fruit Committee; Dr. ROBERT HOGG, Journal of Horticulture; HARRY J. VEITCH, Esq., Chairman of the Orchid Committee; W. ROBINSON, Esq., Gardener; Sir JOHN D. T. LEWELYN, Bart., National Aricula Society; Professor M. FOSTER, Secretary Royal Society; Dr. MAXWELL T. MASTERS, *Gardeners' Chronicle*.

Subscriptions may be sent to any Member of the Committee, or to Dr. MASTERS and the Rev. W. WILKS, at the Offices of the Royal Horticultural Society, 117, Victoria Street, Westminster.

MAXWELL T. MASTERS,

Chairman of the Committee.

WILLIAM WILKS,

Hon. Secretary of the Royal Horticultural Society, 117, Victoria Street, S.W.

Subscriptions have been promised by:—

Sir Trevor Lawrence, Bart., M.P., President R.H.S.	Dr. Maxwell Masters
Sir James Whitehead	C. M. Mitchell, Esq.
Rev. W. Wilks	Rev. H. H. D'Ombrain
George Paul, Esq.	George Gordon, Esq.
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(Proprietors of the <i>Gardeners' Magazine</i>)	D. T. Fish, Esq.
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12,400 LILIUM AURATUM,
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Also 5,000 LILIUM LONGIFLORUM and 2,250 L. KRAMERI.

MESSRS. PROTHEROE & MORRIS will include the above in their SALE on WEDNESDAY NEXT, January 21, at half-past 12 o'clock.

The Liliun auratum and speciosum rubrum and Krætzeri are exceptionally large and sound bulbs, and the whole have arrived in splendid condition. The Auctioneers will be pleased to execute commissions for those who cannot attend the Sale.

On view morning of Sale, and Catalogues had.

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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 17, 1891.

NOVELTIES OF 1890.

(Continued from p. 59.)

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WITH the above classes of plants, Messrs. James Veitch & Son, Chelsea, have furnished us with a remarkable selection of good novelties, which are mostly the results of their long-continued labours in the direction of improving showy garden flowers by judicious intercrossing.

Their strain of Amaryllis is now of world-wide renown, and the new ones flowered during 1890 will still more add to their high reputation as raisers of these flowers. The Champion, a flower over 8 inches in diameter, of a rich scarlet colour, with a white eye; and Grand Monarch, a flower of crimson-scarlet, with purplish-scarlet eye, are perhaps the two best ever raised, although Der Kaiser and Olivette are noble flowers. The collection of Nephentes, which Messrs. Veitch recently exhibited, consisting of forty-five distinct species and varieties, was augmented by two other showy and distinct varieties—N. Burkei excellens, very large, and richly coloured; and N. B. prolifica, smaller, but very profusely laden with pitchers.

Of their hybrid greenhouse Rhododendrons, two have been distinguished, but they have many more as good, which have not yet attained sufficient strength to show themselves advantageously. The best two of the year were The Queen, creamy-white, a thoroughly distinct and very attractive flower; and Ajax, a fine rosy-salmon flower, in large trusses, each flower being 2 inches across. In Phyllocactus Exquisite, bright rose-pink; P. Brilliant, bright scarlet, tinged with red; P. delicata, white, tipped and flaked with light satiny-pink, we have valuable additions to a well-known and useful class of flowering plants; and in the winter-flowering Begonia Winter Gem we got a good plant of the



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John Heal section, which commences to flower in December, a month or six weeks later than either Adonis or John Heal; the flowers are of a scarlet crimson hue, and the habit of the plant is dwarf.

Following up the crossing of *Streptocarpus*, so well begun by Mr. Watson, of the Royal Gardens, Kew, and working on his material, Messrs. Veitch have raised a most beautiful and varied series of these pretty and neat plants, with showy Gloxinia-like flowers, ranging in colour through white, lilac, red, crimson, purple, and many intermediate shades, each of the forms being showily marked in the throat with purplish-crimson lines. These should be everybody's flowers, procurable either as plants or seeds. Improvements in Gloxinias, too, have been well continued by the Chelsea firm, their Mrs. J. Donaldson and Nestor being especially fine flowers. Zinziber D'Arcyi is a prettily variegated Gingerwort, and *Hydrangea hortensis* flore-pleno a double form of that well-known plant.

Mr. Wm. Bull, King's Road, Chelsea, in his varieties of *Sonerila orientalis*, introduced a quite new race of plants, prettily coloured in foliage, and with handsome flowers, of easy propagation, and of much value to all who need large quantities of plants for indoor varied uses in decoration, as well as in the stove. They will also give a fine addition to the plants adaptable for growing in Phalænopsis and other warm Orchid-houses, after the manner practised by many. Crossed, too, with the varieties of *Sonerila* already in cultivation, there is an almost endless race of novelties to be got from them. *Sonerila orientalis* has already four distinct varieties, with leaves variously tinted, banded and dotted with white, red, and green; and rose-coloured flowers with yellow anthers.

In *Pteris ensiformis* *Victoriæ*, too, Mr. Bull has a charmingly variegated new Fern of a popular section, but entirely distinct from the *P. cretica* and *P. serrulata* varieties now so much grown. It has bright green fronds, with a clearly displayed white variegation along the mid-rib, not the greyish-white of *P. cretica* variegata and others, but a clear white. Once the plant gets into the hands of the market growers it will be grown in quantity, as it deserves to be. Mr. Bull also numbers among his novelties of the past year, *Anthurium Hero* × (*Veitchii* × *crystallinum*) a very fine foliage plant; *Alcassia reversa*, with bright green leaves, with the midrib and veins of a rich dark colour; *Lastrea corusca*, a pretty Japanese Fern; *Rhopalablaste hexandra*, a graceful Palm, and *Rhododendron Myra*, a pretty and floriferous white greenhouse variety.

Messrs. B. S. Williams & Son, Upper Holloway, have last year received Certificates for their pretty, dwarf, bluish-white flowered *Rhododendron Williamsii*, a cross between *Rhododendron arboreum* and *Azalea*, and several new Cliveas, which plants are with them a specialty. *C. Meteor* is a very large glowing crimson-tinted orange variety with white eye; *C. Surprise* is a distinct new departure in colour, and *C. cruenta*, orange heavily tinged with blood-red. Messrs. Williams in *Ixora armeniaca* have the nearest approach to a clear yellow-coloured *Ixora*, and in *I. salicifolia* variegata and *Bougainvillea speciosa* variegata, two handsome variegated forms of showy flowered species—also pretty new Bertolonias. They also announce five new varieties of Camellias from Japan, and they have in *Dracena* Miss Glendinning, introduced an elegant and useful variety with narrow bronzy-green leaves edged with rose.

Other new introductions of the year are the extraordinary and beautiful *Aristolochia longicaudata*, which R. A. Todd, Esq., of North Cray, Kent, succeeded in bringing alive from Demerara and flowering profusely; the fine yellow Calla Elliottiana of Mr. G. M. Knight, of Farnborough Park; *Bouvardia Purity*, of Mr. B. H. May, of Edmonton; *Blandfordia nobilis imperialis*, and *Eucharis Bakeriana* of Messrs. F. Sander & Co.; *Richardia æthiopica* Little Gem, from Mr. Elliott, of Jersey; *Clivea Stanstead Beauty*, from Messrs. J. Laing & Son.

FLORISTS FLOWERS.

Of these, Messrs. Sutton & Son, of Reading, have given evidence of great excellence in Gloxinias and Chinese Primulas; Messrs. Jas. Carter & Co. in Primulas, Petunias, and other showy flowers—their Petunia, Holborn Blue, producing flowers much like those of *Clematis Jackmanni*; Messrs. Cannell & Son and Messrs. J. Laing & Son have made great advances with Begonias, Primulas, Chrysanthemums, and some other subjects; and Mr. C. Turner, of Slough, achieved the now difficult feat of getting a First-class Certificate for a new double white Camellia La Vestale, a variety which well merited distinction. The Continental Carnation, Madame A. Warocqué, too, which Messrs. J. Laing & Son have sent out in this country, proves to be a fine addition to the Malmaison section—it has bright red flowers.

FERNS.

These favourite plants were well exploited last year at the Conference of the Royal Horticultural Society, but not much that was really novel was produced. On that occasion some fine varieties were exhibited by E. J. Lowe, Esq., Messrs. W. & J. Birkenhead, Sale; Messrs. J. Veitch & Sons, Chelsea; Mr. H. B. May, and others. The new *Nephrolepis caudata* compacta, *Todea pellucida* ferulacea and *Pteris serrulata cristata parvula* of Messrs. J. Veitch & Sons, are three elegant novelties. In *Pteris serrulata gloriosa* and *Nephrolepis exaltata plumosa*, Mr. H. B. May has two new Ferns of exactly the market style, and the *Lastrea f. m. cristata fimbriata* of Messrs. W. & J. Birkenhead is a wonderfully finely divided form.

FLOWERS FOR THE OPEN GARDEN.

Many of these are available for growing indoors, notably the fine Chinese Lily, *L. Henryi*, introduced and flowered in the Royal Gardens, Kew, where many other interesting plants unknown to gardens have, as in previous years, been proved.

Two good hardy plants of the year came from the gardens of the Rev. W. Wilks, Shirley Vicarage, Croydon, viz., *Narcissus* the Rev. W. Wilks, a fine variety of the Emperor class; and *Geranium Shirley Blue*, with large clear blue flowers with white eye—afterwards recognised as *Geranium Wallichianum* var. *Narcissus* George Engelheart has proved itself meritorious and distinct; and in the same class of flowers Messrs. Barr & Son, from out of their wonderful stores, announce several novelties which, if they should prove as beautiful as previous selections have been, cannot fail to be much admired.

G. F. Wilson, Esq., whose coloured Primroses from his garden at Oakwood, have been often noted, excels the richly coloured varieties that he formerly exhibited, with Primrose Oakwood Blue and Red Gauntlet; and Mr. R. Dean, who is a worker in the same field, had an attractive variety in *Polyanthus Terra Cotta*. Mr. Dean also had three very fine novelties in border Carnations,

and Mr. Charles Turner several others in summer and winter-flowering varieties.

The new and charmingly tinted forms of *Primula Sieboldii*, raised by Messrs. Ryder & Son, of Sale, Manchester, seem to increase in beauty with the years, and go far to prove what may be done by taking up the improvement of favourite species with earnestness. Their flowers in tints varied from white to bright crimson and blue; some had a plain edge, others laciniated, but all beautiful. Bruce Findlay is a large bright blue flower; Mrs. Ryder, bluish-white; alba magnifica, one of the best, pure white and fringed; Ruby Queen, rosy-purple; and Harry Leigh, purplish-peach colour. Messrs. Ryder showed likewise a new strain of fine Pansies. In Lilies, Mr. T. S. Ware exhibited the pretty claret-red coloured *L. Bolanderi*, and had several interesting new hybrid Lilies; and in hardy plants, he, with Messrs. Paul & Son, and Messrs. Barr & Son have exhibited good things extensively at the meetings of the Royal Horticultural Society. Messrs. Kelway & Son also deserve special mention for the extent of their exhibits on these occasions of *Gladioli*, *Delphiniums*, *Gaillardias*, *Pyrethrums*, &c., producing many novelties. In *Gladiolus Lemoinei*, M. Victor Lemoine, Nancy, treated us to a good show of these beautiful hardy flowers of his raising, at the meeting on September 9, at the Drill Hall. The seedling named Nuée bleue, although small, seemed, by its violet-blue tint, capable of originating a race with large flowers of a colour different to any at present known.

One must not pass from these plants without saying a word in praise of the wonderfully fine strain of Sweet Peas, which Mr. Eckford, of Wem, Salop, has so long worked—a strain that comes true from seed. Too much could not be said of these charming flowers, being, as they are, of equal interest to the cottager with his limited means, as to the possessors of the largest gardens.

The following novelties of 1890 have been illustrated in the *Gardeners' Chronicle* during the year:—

- Eucharis Bakeriana*, April 5, p. 417.
- Hæmanthus Lindeni*, October 18, p. 437.
- Lilium Henryi*, October 4, p. 380.
- Musa Seemannii*, August 16, p. 182.
- Narcissus Prodigy* (Veitch), May 3, p. 549.
- Aristolochia longicaudata*, November 1, p. 493.
- Richardia æthiopica* "Little Gem," December 27, p. 755. James O'Brien.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM INSIGNE LONGISEPALUM, n. var.

THIS is a distinct and very remarkable variety of the well-known *Cypripedium insigne*, which came home in a batch of the ordinary form, imported by Messrs. F. Sander & Co., of St. Albans. Its chief peculiarity consists in the long and narrow dorsal sepal, which measures 2½ inches in length, by only 1 inch in breadth; and by reason of the reflexed sides, looks narrower than it really is. In colour it is very pale green, a little suffused and veined with brown near the base, but quite without spots, and with the white apex reduced to the smallest dimensions. The united lateral sepals form a body 2½ inches long by 1 inch wide, thus partaking of the same peculiarity as the dorsal one. The petals, lip, and staminode are quite normal in shape. The petals are very pale green veined with light brown, and the front of the lip suffused with very light brown. The peculiar character of the sepals does not arise from any unhealthy condition of the plant.

It seems as vigorous and healthy as can be wished, and, moreover, is bearing several flowers, every one of which has the same shape, so that it may be regarded as a constant and well-marked variety. The plant is now in the collection of R. H. Measures, Esq., of The Woodlands, Streatham. R. A. Rolfe.

took some plants thither and introduced them into cultivation there. Mr. Brown described and named the plant as *Phrynium variegatum* in the *Illustration Horticole*, 1886, p. 125, perhaps referring it to the genus *Phrynium* on account of its having been obtained in the East Indies, without having seen the flowers.

plants I have only seen one or two in flower. Where the plant originally came from is not known, but it cannot be a native of the East Indies. It seems to keep its ornamental white marking very constantly and I have not seen any signs of reversion to the common cultivated form of the Arrowroot. It is to be regretted that many variegated forms of plants do not do the same. I recently found in one of our swampy forests a charming form of *Forrestia marginata*, with the leaves ornamented with a fine tessellation of silver. I carefully secured all the specimens I could see, and potted them; but, alas! the next pair of leaves, and all succeeding, have reverted to the ordinary plain green form. H. N. Ridley, *Botanic Gardens, Singapore*, December 13, 1890.

MAGNOLIA GRANDIFLORA.

In England this plant is grown against walls, in order to protect the young growths, and to assist the formation of flowering spurs. But in Belgium the recurrence of severe winters precludes us from growing the tree in the open air; however, M. Ch. van Geert, of Antwerp, has made a successful experiment which deserves notice. In 1874 he planted a specimen against a high wall with a southern aspect; this wall was contiguous to a baker's oven, it was thus constantly kept warm, and was almost always free from frost. The specimen, which was of respectable size, made vigorous growths, and in a short time covered the whole wall. A few years later the oven was removed, and the height of the wall consequently reduced, so that the upper portion of the plant was exposed, but was protected from north and east winds by neighbouring buildings some distance off. To the great astonishment of M. van Geert, the tree has continued to grow throughout several winters without losing a single leaf, and this when the temperature has sometimes fallen as low as 15° C. (=5 F.). Ch. D. B.

ORNITHOLOGY IN RELATION TO AGRICULTURE AND HORTICULTURE.

(Continued from p. 46.)

MISCELLANEOUS SMALL BIRDS.

In considering the relations of small birds to the cultivation and produce of the ground, it is necessary to turn our attention principally to that branch of tilling the soil which comes more properly under the head of horticulture. But in these days, when fruit farming and vegetable culture on a large scale are often the best way of developing the resources of the land, it has now become almost impossible to separate the sister industries of horticulture and agriculture.

In modern ornithological works, the thrush family is generally placed at the head of the list of British birds, and may therefore be dealt with first here. All our resident thrushes, the song thrush, missel thrush and blackbird, eat fruit (a good deal sometimes, it is feared) in gardens. And although the damage they do is often considerably exaggerated, there is no doubt that market gardeners, and others growing fruit on a large scale for profit, are liable to sustain considerable loss from the depredations of the thrush tribe, unless they protect their crop with netting, &c., in which case they suffer damage to the amount of the expense they are put to. On the other hand, the main food of these birds consists of worms, slugs, snails, grubs and wild berries (in autumn). Gardeners have few worse enemies than slugs and snails, and the number of these consumed by blackbirds and thrushes is something enormous. It must be remembered that while it is possible to protect fruit from the birds, we should be utterly unable to cope with the ravages of the hordes of slugs and snails which would overrun our gardens were they not kept in check by the self-same birds.

The common hedge-sparrow is a most harmless bird, and a great insect eater; and the same must be said of the tree-creeper and wren. The robin will take a few currants in late summer, but he is



FIG. 21.—NEUBERT'S HYBRID BERBERIS: SHOWING THE LEAVES CHARACTERISTIC OF EACH PARENT ON THE SAME SCOOT.

FOREIGN CORRESPONDENCE.

MARANTA ARUNDINACEA VARIEGATA.

This pretty foliage plant had long been cultivated in the Singapore Botanic Gardens when M. De Roone, from the firm of Linden, visited the gardens, and noticed the plant, and on his return to Europe

Since then many plants have been exported to various gardens in different parts of the world under the name of *Phrynium variegatum*, and it is only recently that I succeeded in getting flowers upon it which are unmistakably those of the Arrowroot, *Maranta arundinacea*. This being so, the old name in use in the Singapore Gardens must be restored, and the plant called *Maranta arundinacea* var. *variegata*. It is certainly a shy flowerer, and out of hundreds of

essentially an insect eater, and we have only to watch his operations on the lawn, or about the shrubberies, to convince ourselves of his fondness for these creatures and for worms. The nuthatch steals nuts in autumn, and in winter eats many large seeds, but all through the year it renders great service to trees by searching out the grubs and insects secreted in the bark.

Some of our warblers, the blackcap, garden warbler common and lesser whitethroats, come to us (in numbers varying according to the position of the garden) for some of our small fruits for a week or two in late summer; but there is generally a good deal of small fruit wasted in most gardens, and the little that the warblers take is probably never missed. Wild berries in the hedges content the greater number of these birds at that season, and in their visits to our kitchen gardens they may as often be seen busily hunting for insects as detected in furtively stealing a Currant or Raspberry. For the rest, they live during the time they are with us entirely on caterpillars and other insects, and feed their young on them. The blackcap indeed, arriving very early in April, when the weather is apt to be very cold, and insect life scarce, will then eat the Ivy berries which so providentially ripen at that season. The food of the nightingale is very similar to that of the birds just spoken of. Willow wrens come in numbers to gardens in late summer, but careful watching proves that the objects of their search are aphides, and small caterpillars, and other insects. Our other warblers are harmless or beneficial, and indeed these attributes may be truly claimed for the whole family.

The wagtails and pipits are purely insectivorous, and very beneficial. The same may be said of the redstart, and if the whinchat, stonechat, and wheatear eat any berries, they are only those of wild plants.

Head-money was formerly paid in some parishes for "tomtits," under the erroneous notion that the various species of titmice were injurious to gardeners. But to quote from Yarrell's article on "The Blue Titmouse":—"Yet none can be more mistaken than these men. If they watched more closely, they would see, that while all the buds were looked over, some of them only were picked open. Often a single bird or the whole family party will alight on a tree, and, after a very brief survey, will go on to the next, where, perhaps, a prolonged stay will be made. To man's eyes the two trees are just alike, and the buds at the same stage of growth—there is no seeming difference between any two on the same bough. The bird, however, knows better; the germ of the one is sound, that of the other infected, and hence the choice it uses. Hardly any portion of the bud is eaten; the egg or the insect already lodged there is the morsel sought. The bud, of course, when picked open, is in most cases utterly destroyed, but with it is also destroyed the potential destroyer of more buds than anyone can tell. The damage of which the gardener thinks he sees the doing has really been done before, perhaps months before. There can, in truth, be little doubt that this titmouse, with others of the genus, is a very great benefactor to the horticulturist, and hardly ever more so than when the careless spectator of its deeds is supposing it to be bent on mischief." This passage so admirably and concisely sums up the question of the supposed misdeeds of the tomtit, that it cannot be too widely read by those interested in the subject. Mr. Weir observed that a pair fed their young 475 times in the space of seventeen hours, bringing sometimes a single large caterpillar, at other times two or three small ones. Mr. Bond informed Messrs. Sharpe and Dresser that this titmouse "feeds its young very much with the small larvæ of the Gooseberry moth," and it is also said to feed on aphides and the grubs of wood-boring beetles, "including Scolytus destructor—the worst foe of the Elm, and on maggots from the round galls so common on young Oaks."

The food of the blue titmouse may be said to consist almost exclusively of insects, and it seldom seems to touch seeds or vegetable matter. The

greater titmouse varies its diet with seeds in winter, and both this species and the marsh titmouse are partial to Beech mast. Both the coal and the marsh titmouse are more addicted to a vegetarian diet than their congeners, but they usually confine their attention to various seeds, and the marsh titmouse does considerable good in gratifying its fondness for those of the Thistle. Titmice have been accused of pecking holes in Apples and Pears, but this can be of only occasional occurrence. The writer recently watched the operations of a coalit in an Apple tree for a considerable time, and as it paid no attention to the ripening Apples, but made a careful and exhaustive examination of the shoots and leaves among the small branches, it is obvious that insects, and not fruit, were the object of its search. Familiar residents in our gardens and orchards during the colder portion of the year, we miss their presence to a considerable extent during the summer months, when their active, restless lives are spent in ridding the trees and hedges of those noxious insects and caterpillars with which they are infested.

The starling has been purposely omitted here, as it has previously been fully dealt with in another article.

Larks do some damage by digging up newly-drilled Oats, and they have also been known to injure crops of autumn-planted Wheat about Michaelmas. But the time in which they can do mischief in this way is of short duration, and although it is said that their presence on the Clover stacks in winter is not always without its disadvantages, yet they must consume an enormous number of the seeds of pernicious weeds. They also during summer, and indeed during most of the year, destroy a vast quantity of insects. Larks are very fond of frequenting fallows and newly-ploughed fields, where they cannot do any damage, and must consume countless insects and seeds of weeds turned up by the plough and cultivator.

With regard to the various species of hard-billed birds, buntings, chaffinches, greenfinches, bramblings, tree and house-sparrows, to be seen scattered over a newly-drilled field in spring, it may be said that the grains which are properly buried by the drill and harrow are safe from them, and they are only able to pick up the scattered and exposed corns. These birds must now be considered in detail. The reed-bunting in summer is confined to the vicinity of water. It feeds on various small seeds, including those of some grasses; also on water and other insects. In autumn and winter it comes on to the arable land, and in hard weather is sometimes driven to frequent stack and cattle-yards. The bunting, sometimes called the corn-bunting, or bunt-lark, feeds largely on various seeds, and in autumn haunts the stubbles for grain. The young are fed on insects, and Mr. Gould saw the old birds feeding on cockchafer. In severe weather they may be seen about stackyards, and have been accused of pulling corn-straws out of ricks for the sake of the grain. But let anyone try to pull a straw with the ear attached out of a well-built rick! The writer can say that he never saw any rick seriously damaged in this way. The familiar yellow-bunting, or yellowhammer, feeds its young on insects, and these in summer constitute the food of the old birds also. Afterwards the seeds of many baneful weeds are consumed, especially those of the Buckwheat tribes (*Polygonum*), as for instance the Knot-grass (*P. aviculare*) and creeping *Persicaria* (*P. convolvulus*). These two plants, indeed, seem to be attractive to many of our buntings and finches. Grain is sought for in winter, but on account of its small, rather weak bill, the yellowhammer seems to prefer the smaller seeds. Hard frost brings them to the stackyards, but they evince a great liking for the yards where cattle are wintered. Montagu observed that the young of the ciril-bunting, a rare species except in Southern England, were fed upon grasshoppers, and he remarks that when older, some captive birds, although they relished Oats, always reject Wheat and Barley; small seeds were preferred.

The chaffinch is a mischievous bird among some kinds of newly-sown and sprouting garden seeds, and it no doubt helps itself to newly-sprouted Turnips in the fields; but as farmers always cut out half or two-thirds of the young plants at a later stage (unless the crop has been much injured by the fly), any damage the piefinch may do in this way is not appreciable. Its fondness for seeds and young plants of this family must result in the destruction of some noxious species, such as the wild Radish, wild Mustard, and Charlock or "Cur-lock." But in gardens protection must undoubtedly be given to some newly-sown seeds, such as Mustard, Radish, Cabbage and others. The wire protectors which every gardener has to keep, in order to be able to raise Peas in the presence of the sparrow, are excellent for this purpose. The useful services which the piefinch renders to man will, however, be recognised by anyone who watches it closely all through the spring and summer. Then it may be seen busily catching insects on the wing, and searching the tree tops and branches for its favourite caterpillars. On these it rears its young, and apart from the occasional salad it robs us of, they form with insects the food of the adult at that season. Allowing its faults to the fullest, it is after all our most insectivorous finch, and one of our most useful birds. In winter they are found about the stackyards (into which great quantities of weed-seeds are carried with the harvest, be it always remembered), on the fallows and stubble, especially those on to which manure has been drawn. Here they are joined by, or join, their cousins the bramble-finches, or bramblings, and the two species are often to be found about Beech woods and avenues. These form the favourite haunts of the bramblings (which visit us only in winter) so long as any "mast" is to be found. Afterwards they take to the open fields, where in addition to scattered grain they pick up numerous seeds of weeds. The late Mr. Scales, of Beachamwell, in Norfolk, considered them of service to the land, by devouring the seeds of the Knot-grass. The tree-sparrow is too shy to do our corn much damage. In summer it likes to live in pollard Willows by the streams, and in Apple orchards, and does not trouble the cornfields. In winter, although forced to come on to the arable land to feed with the other small birds, its home is still in the tall hedgerows and lofty Elms among the pastures, and small seeds are preferred to corn. Its mischievous and destructive cousin, the house-sparrow, is left to be dealt with fully elsewhere. The hawfinch eats green Peas when it happens to breed near a kitchen-garden, but its regular food consists of the kernels of stone fruits, especially Haws. Little seems known of the food of this shy bird in summer; but from the fact that it often breeds in deep woods and wooded country among pastures, it is probable that it consists largely of insects at that season.

The greenfinch is a great sinner among ripening Swede and Turnip seed—so much so that growers have been compelled to gather the crop unripe and dry it at home. Yarrell says that the young are from the first fed entirely upon soft seeds, thus destroying countless weeds. Be this as it may, the summer haunts of the greenfinch seem to point to the fact that a good many insects are consumed at that season. The predilection of the greenfinch for Turnip seed will, however, make it a useful auxiliary of the farmer in destroying also other, and injurious, cruciferous plants—the Charlock for instance. In winter flocks, often in company with tree sparrows, are seen on the fallows, where they can find little but insects and weed seeds, most of the scattered grains of corn having long before been picked up. Growers of Sunflowers, for the sake of the seed, must keep a watch on the ripening seed-heads, or a greenfinch may eat every seed, returning day after day until they are finished.

The goldfinch is a most useful and beneficial bird, both to the agriculturist and horticulturist, who should do all in their power to protect it. The goldfinch feeds its young on small caterpillars, and hence

its presence in orchards, where it delights to build, and it should always be encouraged. When it is not destroying insects, it lives almost entirely on the seeds of the Groundsel, Thistle, and other Composite plants; also on those of some trees, and of the Plantain, Dock, and other pests, which the farmer finds so difficult to eradicate. The good done by the goldfinches, even now in the days of their scarcity, induces a wish that the numbers of this beautiful and useful little finch might have a hundredfold increase.

Linnets are also consumers of the seeds of Thistles, Charlock, and other common weeds, and are especially fond of those of the common Dock.

Siskins and redpoles love the seeds of the Alder and some other trees, and the latter resemble linnets in their fondness for the seeds of Docks, Thistles,

also cognisant of the success which attends the efforts of Mr. S. in so many things horticultural, I am prompted to make a few remarks from personal observation on the practice of some cultivators, which differs from his.

When visiting gardens in the south and west of England last season, I saw some excellent crops of Strawberries of the best quality: but the best of all were in a small garden, where the successful cultivator removes every particle of foliage as soon as the crop is gathered, clearing off weeds and runners at the same time; this is immediately followed by a liberal dressing of farm or stable-yard manure. Young vigorous growth takes place immediately, and large crowns, surrounded by very luxuriant foliage, are always to be seen by the end of autumn, and

Stirlingshire. [The practice was common at one time, especially where old beds were allowed to run together for a season or two for the production of preserving fruit. It is, or was, the ordinary practice with Grove End Scarlet (the finest coloured preserving Strawberry), and with Alpine and Hautbois. Sticklers for theory to the contrary, the crops were always good ones, the old leaves not being removed till they were practically useless. *Ed.*]

BUD-VARIATIONS OR SPORTS.

WHAT THEY ARE AND WHAT THEY ARE NOT.

(Continued from p. 43.)

CAUSES OF THEIR PRODUCTION.

WHOEVER will investigate the cause of these sudden outbursts of local variation must, of course, sedulously examine each case for himself, according to the measure of his ability and of his opportunity. The circumstances, the history, the progress, the anatomy, of each particular sport must be investigated, both absolutely and in relation to similar outgrowths in other plants. Until this is done—and it has not been done yet—any explanation as to the cause of the phenomenon must be a matter of speculation. Still, we cannot help guessing, and though we may be wrong in our surmises, at least the process does good by setting us observing and thinking. Observing and thinking are processes valuable to all of us, but in a particular degree to those who practice the cultural arts. And so it happens—or, at least, we will hope so—that although the causes which have been assigned for these changes are various, some, perhaps, utterly wrong, others partially so, and all more or less inadequate to explain the whole of the phenomena, yet some advantage may accrue from the discussion. An indirect benefit is better than none at all, and anything which enforces us to take some measure of the extent of our own ignorance is likely to be beneficial. We should never be a bit the better if we simply acknowledged our ignorance, as, indeed, we needs must do in any case, but directly we attempt to find out in what particulars, and in what degree, we are ignorant, then there is some hope that some portion of our “nescience” may be dispelled. Under this impression we may allude to some of the assigned causes of sporting.

EXTERNAL CAUSES.

External causes are those which the gardener most generally invokes. In his opinion a sport is the consequence of some alteration in the nutrition of the plant. It gets too much or too little food, or the food is not of a suitable character—containing too much of one thing, too little of another, or the climate is charged with the results observed. It is very convenient to have the weather to blame; it may be too hot or too cold, too moist or too dry, too brilliant or too obscure; or the soil may be at fault, the drainage may be defective, the earth not sufficiently aerated, its temperature too high or too low. Combined action of some of these conditions is, of course, possible, intermittent action equally so, whilst we, in this country, are abundantly familiar, first, with one thing in the way of the weather, and immediately afterward with another. It is, therefore, not surprising if some gardeners, without troubling themselves much to see how the explanation fits the facts, do attribute “sports” to such causes as we have mentioned. To our thinking, the objections to this kind of explanation are fatal. External circumstances are, no doubt, potent enough to effect very great changes. We are daily witnesses of them; but they do not produce the kind of change which we know as “sports.”

On the contrary, sports occur sometimes when no alteration of external conditions is perceptible, and they do not occur when such alterations are very apparent. Or, again, they appear in one place, under one set of circumstances, and simultaneously at another place, under a different state of affairs; and although all the plants growing together have been



FIG. 22.—NEUBERT'S BERBERIS: SHOWING TRIFOLIATE LEAF INTERMEDIATE BETWEEN THAT OF BERBERIS AND MAHONIA.

and other composite plants. All these birds are eminently beneficial, and the writer is not aware of any damage which they have been alleged to do. He may say the same of the twite, or mountain linnnet, during its visits to southern Britain, when it seems to prefer the seashore and the edges of muddy estuaries, but in the Shetlands it is said to do considerable damage to newly-sprouting corn. *O. V. Aplin.*

(To be concluded.)

STRAWBERRY PLANTS.

WHILE recently reading the sound remarks of our trusty friend, Mr. Sheppard, on retaining the foliage of Strawberries intact, and being for many years in touch with his views on so important a matter, and

failure in any form is never known. This is not a solitary instance of the defoliating system in the south, and those I have known who advocate the practice cannot be induced to venture on any other mode of manipulating their Strawberries. While judging in a northern Scotch county at the end of last August, the 1st prize for Strawberries was awarded to an excellent exhibit of Elton Pine. They were of great size, and finely coloured; and while commenting to a bystander on the high-class merits of the fruit, and explaining what I saw in the English garden referred to, and the system of cultivation pursued, my new acquaintance told me the Strawberries exhibited were his, and he never at any time adopted (or even had heard of), any other system than that of defoliating the plants as soon as the fruit was gathered. *M. Temple, Carron House,*

exposed to the changed conditions of life, the sporting tendency shows itself in one particular plant only, and in one particular part of that plant, generally only in one bud. With all respect, then, for those who hold these views—and one, at least, of our most experienced and eminent plant-growers has lately publicly advocated them—we venture to think external causes, however adequate they may be in some cases, are inoperative in such cases as we are considering.

SEPARATION OF MIXED ELEMENTS—REVERSION.

A better explanation is that offered by Darwin, by Naudin and others, according to which sports are due to a dissociation of mixed elements, and to a reversion to the character possessed by one or other of the ancestors of the plant, perhaps one or two, perhaps an indefinite number of generations ago. Let us recall for a moment what a very composite thing a plant is, even such a one as we call a simple plant. At first it is neutral and homogeneous, a mass of protoplasm—containing cells—at least, so it was once said; but the homogeneity of protoplasm is a thing of the past. We do not believe in it now. On the contrary, we believe in frameworks and interstitial fluid, in granules and fibres, in some parts that are alive, in others that are dead; in some that are stable and immutable, in others that are mobile and changeable; in short, we have come to the conclusion that, physically and mechanically, as it was previously known to be chemically, protoplasm is very much "mixed."

Again, another of our old beliefs has been dissipated. Once we were taught that the cells of plants were closed bags without apertures, and that, while the fluid passed from cell to cell by osmosis, there were no visible pores, and no means of transmitting anything more solid than cell-sap. The passage of protoplasm from cell to cell was not then thought of as possible. But Mr. Walter Gardiner has changed all that. He, and others who have followed in his steps, have taught us how to see the pores in the cell-walls, how to see the passage of protoplasm through these pores from cell to cell, and how to employ the phrase "continuity of protoplasm" in a manner that gives us, at present at least, great satisfaction. These modern discoveries of the composite nature of protoplasm, and of its passage, at certain times, and under certain conditions, from cell to cell, seem to us to furnish a clue to the explanation of some of these cases of sporting, as they do also in the case of some of those curious cases in which the stock seems to influence the scion or the scion the stock, in cases of grafting.

Again, in the life-history of a plant there are several stages. There is the neutral stage, when it is, at any rate, so far as sex is concerned, an epicene. Then there is the sperm stage, when our plant consists of a mass of neutral matter, a particular portion of which is developed into sperm-cells, or into what will ultimately produce them. At another time the neutral cells of one portion of the general plant-mass develop into germ or female cells, or it may happen that both sperm and germ-cells may be developed at one and the same time, when the plant has, of course, a three-fold constitution.

All these modifications occur in the course of the life of each individual plant. But each individual plant is, necessarily, compounded of elements derived from its two parents, so that, for illustration sake, if we may consider the original stock to consist of three portions—neutral, male and female, respectively—it is obvious that in the first generation there would be six component elements; in the second, twelve; in the third, twenty-four, and so on. Who can count the generations of plants? It is enough for our purpose if we succeed in showing clearly their composite nature.

This being granted, it will not seem remarkable that occasionally a partial separation takes place, just as a scum may rise to the surface of some mixed fluid, or a sediment fall to the bottom of another. This illustration may, perhaps, serve to suggest the reason for the separation of mixed elements in plants; but that is too speculative a matter for us to enter upon here.

ILLUSTRATIONS OF SEPARATION.

It will be better for our present purpose to note one or two examples of imperfect mixture or dissociation of mixed characters wherein both the fact and its explanation are clear. One of the most interesting is that narrated by Mr. Noble, the originator of the white form of Jackman's Clematis. Noble's Clematis, is the result of a cross between Jackman's Clematis and C. patens. Soon after this Clematis was sent out, some dissatisfaction arose because, instead of producing flowers of good form and purity of colouring, more or less mis-shapen blooms of an unattractive appearance were formed. The matter was mysterious. The raiser was blamed by those who did not know that he is a highly competent man in his business, and one whose integrity is beyond question. The plant was condemned. Fortunately, however, the edict was not carried out in its entirety—some specimens were left. These were watched, and in due time afforded the explanation of the mystery. Jackman's Clematis flowers in the autumn on shoots formed during the spring and summer—on the new wood, as gardeners say—just as happens with a Rose. Clematis patens flowers in spring on shoots that were formed during the previous summer—on the old wood, in gardening phrase. Now, when Noble's Clematis came to be scrutinised, it was found that it produced two kinds of flowers—those which expand in spring are solitary, semi-double, never white, but bluish-gray, like those of C. patens. Those which unfold in autumn are produced in pairs and are single, like those of C. Jackmanni, but white. In the spring no flowers of the Jackmanni type are ever seen, and when the old wood is cut away, and only new wood thus suffered to produce flowers, no blooms of the patens character are seen, but only those of the Jackman type.

Another very interesting case of unmixing, or, if it be preferred, of partial mixture, is afforded by Neubert's Berberis (figs. 21, 22). This is a hybrid between the evergreen pinnate-leaved Mahonia and the deciduous simple-leaved Berberis vulgaris, and it bears leaves some of which are intermediate in appearance, while others are much like those of one or other of its parents.

A not uncommon illustration of a similar kind is the production of a Peach and a Nectarine on the same branch (fig. 23), and we have just learnt from Canon Ellacombe that some of the Berlin Hellebores show evidence of their hybrid nature by occasionally producing foliage [and flowers?] of the two parents separately from the same root-stock.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM URO-SKINNERI

Is a bold-growing evergreen plant, making large flat pseudobulbs, which spring from a creeping rhizome. The leaves are ovate-lanceolate, firm, and of good substance; the ground colour of the sepals and petals is very variable—indeed, this has been noted from the time of its first introduction. Mr. Skinner said of it "that it varied in almost every plant;" but although during the past thirty years we have seen many plants in flower, not one to approach the beauty of the one here figured has appeared. The colouring of the sepals and petals is, for the most part, of a pale green, marked over the surface with brown blotches, or of a dull brown, mottled more or less with green, and the lip white, dotted all over with blue or pale rose, with white markings, and not the rich rose and chestnut-brown of this illustration. The present plant is evidently a near ally of *O. biconense*, but Mr. Skinner points out the difference in the two species. He says, "*O. biconense* has oblong narrow bulbs and leaves, and no rhizome, but massed and always terrestrial, half buried in mossy banks." Our present plant has

large and flat bulbs, and a running rhizome; but we think that the conditions under which Mr. Skinner found it, i.e., on rocks, are too often lost sight of by our Orchid growers. We have frequently observed this plant to be very much over-potted, and in consequence, thriving indifferently; therefore, bear in mind our advice, and do not overburden the roots with soil, which is the great stumbling-block, especially to young amateur growers. Drain the pots carefully and well, and use for soil about half good peat fibre, from which all the fine mould has been well shaken, and some chopped sphagnum moss; mix the whole together with some medium-sized nodules of charcoal, and in potting add here and there a slight dash of sharp gritty silver-sand, pressing the whole down very firmly. At this, the dull season of the year, water sparingly, but keep the plant moist, and at the turn of the season, when the days lengthen and the sun brightens, more may be given, until in the summer season it may be treated in the same manner as the beautiful *O. crispum* (Alexandria), which we all love so well. *Orchid Album*, vol. ix., part 105.

CYPRIPEDIUM CENANTHUM SUPERBUM

Is an extremely handsome variety, presenting all the beauties of the original *C. cenanthum*, with the colours deepened, brightened, and intensified. The flowers, too, are larger, and the upper sepal is far more richly coloured, the intense deep vinous purple pervading the whole surface, and running out in feathery streaks to the broad white marginal border. We have not seen this variety produce a two-flowered scape, although we have in the case of *C. cenanthum*, but many of the kinds which have hitherto been looked upon as single-flowered have produced two flowers, and if this character should be developed in this case, it would add greatly to the pleasure of the grower. The flowers appear at an unusually welcome time, and only the last month (October), when walking through the establishment of Mr. Measures, we saw several of these plants in flower then, and enlivening the scene with their presence. These plants are all grown at The Woodlands in the East India-house, and we believe this is the best place for most of the species and hybrids from the eastern regions. *Orchid Album*, vol. ix., part 105.

BOTANIC INSTITUTIONS IN THE UNITED KINGDOM, INDIA, AND THE COLONIES.

ROYAL GARDENS, KEW.—Director, W. T. Thiselton Dyer, C.M.G., F.R.S., F.L.S.; Assistant Director, D. Morris, M.A., F.L.S.; Clerks, John Bliss and F. W. P. French; Keeper of Herbarium and Library, J. G. Baker, F.R.S.; Principal Assistant, W. B. Hemsley, F.R.S.; Mycologist, Dr. M. C. Cooke, M.A., A.L.S.; Assistant for India, Dr. Stapf, nominated; Assistants, N. E. Brown, A.L.S., R. A. Rolfe, A.L.S., C. H. Wright; Attendant, J. T. Jeffrey; Curator of Museums, John R. Jackson, A.L.S.; Office Assistant, J. M. Hillier; Préparateur, George Badderly; Curator of the Gardens, George Nicholson, A.L.S.; Assistant Curator, William Watson. Foremen:—Arboretum, William Truelove, Herbaceous Department, Daniel Dewar; Greenhouse and Ornamental Department, Frank Garrett; Temperate-house (Sub-tropical Department), William Bean.

ALIPORE.—Belvedere Botanic Garden.

ANTIGUA.—Botanical Station—Curator, Arthur J. Tillson.

BANGALORE.—Government Botanic Gardens, Lal Bagh—Superintendent, John Cameron, F.L.S.

BARBADOS.—Dod's Reformatory, Botanical Station—Superintendent, John R. Bovill.

BIRMINGHAM.—Curator, W. B. Latham.

BOMBAY.—Horticultural Gardens and Parks—Odeypore: Superintendent, T. H. Storey.—Poona: Lecturer on Botany, College of Science, G. Marshall Woodrow; Superintendent, W. Shearer.

—Bombay: Municipal Garden—Superintendent, G. Carstensen.

BRITISH GUIANA.—Botanic Gardens—Georgetown: Superintendent and Government Botanist, George S. Jenman, F.L.S.; Head Gardener, John F. Waby; Second Gardener, Robert Ward.—Berbice: Keeper, Richard Hunt.

BRITISH MUSEUM (Natural History Department), London.—Keeper of Botany, W. Carruthers, F.R.S.; Assistants, J. Britten, G. Murray, E. G. Baker, A. Gepp, and W. B. Rendle.

CALCUTTA.—Department of Royal Botanic Gardens

CAMBRIDGE.—University Botanic Gardens, Professor Charles C. Babington, F.R.S., F.L.S.; Secretary to Botanic Garden Syndicate, Dr. Francis Darwin, F.R.S., F.L.S.; Curator, Richard Irwin Lynch, A.L.S.

CANADA.—Ottawa: Dominion Botanist, Prof. John Macoun, F.R.S.C., F.L.S.; Director of Government Experimental Farms, Prof. William Saunders, F.R.S.C., F.L.S.—Montreal: Director, Botanic Garden, Prof. Penhallow, B.Sc.

CAPE COLONY.—Gardens and Public Parks—Cape Town: Director, Professor MacOxan, F.L.S.;

Anurādhapura: Conductor, T. de Silva, Arachchi.—Badulla: Conductor, D. Guneratne.

CHELSEA.—Botanic Garden, Society of Apothecaries.

CHISWICK.—Royal Horticultural Society's Garden: Superintendent, A. F. Barron.

CIRENCESTER.—Royal Agricultural College: Principal, Rev. John McClellan.

CORK.—Director, Prof. Hartog.

DOMINICA.—Botanical Station—Curator, Henry F. Green.

DUBLIN.—Royal Botanic Gardens, Glasnevin—Curator, Frederick W. Moore, Cor. Mem. R.H.S.—Trinity College Botanic Gardens: Professor, Dr. E. Perceval Wright, F.L.S., Sec. R.I.A.; Curator, F. W. Burbidge, M.A., F.L.S.

DOWNTON, near Salisbury.—Agricultural College: Professor Wrightson.

EDINBURGH.—Royal Botanic Gardens—Regius Keeper, Dr. Isaac Bayley Balfour, F.R.S., F.L.S.; Curator, Robert Lindsay, F.R.H.S. Minto House Agricultural: Botany, A. N. McAlpine; Forestry, Dr. Somerville, University.

FILL.—Botanical Station—Curator, Daniel Yeoward.

GAMBIA.—Botanical Station—Administrator, Hon Gilbert T. Carter.

GLASGOW.—University Professor, Dr. F. O. Bower, F.L.S.—Royal Botanic Institution: Curator, Robert Bullen, Cor. Mem. R.H.S.

GRENADA.—Botanical Garden—Curator, George W. Smith.

HONG KONG.—Botanical and Afforestation Department—Superintendent, Charles Ford, F.L.S.; Assistant Superintendent, Alexander B. Westland.

INDIAN ENGINEERING COLLEGE, STAINES.—Professor of Botany, H. M. Ward; Professor of Forestry, Dr. Schlich; Lecturer on Entomology, Mr. Blandford.

JAMAICA.—Department of Public Gardens and Plantations—Director, William Fawcett, B.Sc., F.L.S.—Hope Gardens: Superintendent, William Harris.—Castleton Garden: Superintendent, William J. Thompson.—Cinchona (Hill) Garden: Superintendent, William Cradwick.—Kingston Parade Garden: Superintendent, W. Campbell.—King's House Garden: Superintendent, Eugène Campbell.—Bath: Overseer, W. Groves.

LAGOS.—Botanical Station—Curator, Henry Miller.

LIVERPOOL.—Curator, J. Richardson.

MADRAS.—Botanical Department—Ootacamund: Government Botanist and Director of the Government Cinchona Plantations, M. A. Lawson, M.A., F.L.S.; Curator, A. Jamieson.—Madras Agri-Horticultural Society: Secretary, Edgar Thurston; Superintendent, F. M. Gleeson.

MALTA.—Botanical Garden—Director,

MANCHESTER.—Curator, Bruce Findlay.

MAURITIUS.—Department of Forests and Botanical Gardens—Pamplemousses: Director, John Horne, F.L.S.; Assistant, William Scott.—Curepipe: Overseer,

NAGPUR.—Horticultural Garden.

NATAL.—Botanic Gardens—Durban: Curator, John Medley Wood, A.L.S.—Pietermaritzburg: Curator, G. Mitchell.

NEW SOUTH WALES.—Botanic Gardens—Sydney: Director, Charles Moore, F.L.S.

NEW ZEALAND.—Wellington—Colonial Botanic Garden: Director, Sir James Hector, K.C.M.G., F.R.S.; Head Gardener, William Bramley.—Dunedin: Superintendent, Adam Gibson.—Napier, Superintendent, W. W. Bower.—Invercargill: Head Gardener, Thomas Wangle.—Auckland: Ranger, William Goldie.

NORTHERN INDIA.—Botanical Department: Director, J. F. Duthie, B.A., F.L.S.; Saharanpur; Superintendent of Garden, William Gollan.—Lucknow: Superintendent, M. Ridley.—Cawnpore: Assistant-Director in charge of Experimental Station, Sayed Mahammad Husain.—Lahore: Agri-Horticultural Society.

NOVA SCOTIA.—Government Botanist, and Secretary for Agriculture, Dr. George Lawson.

—Superintendent, Dr. George King, C.I.E., LL.D., F.R.S., F.L.S.—Seebpore: Curator of Herbarium, Dr. David Prain, F.L.S., F.R.S.E.; Curator of Garden, Robert L. Proudlock; Assistant,

—Mungpoo: Superintendent, Government Cinchona Plantations, Dr. George King, C.I.E., LL.D., F.R.S., F.L.S.; Resident Manager, J. A. Gammie; 1st Assistant, R. Pantling; 2nd Assistant, Joseph Parkes; 3rd Assistant, G. Gammie; 4th Assistant, Amos Hartless.—Darjeeling: Curator, Lloyd Botanic Garden, William A. Kennedy.—Agri-Horticultural Society of India, Secretary, J. Blechynden.

Head Gardener, H. J. Chalwin.—Grahamstown: Curator, Edwin Tidmarsh.—Port Elizabeth (St. George's Park): Superintendent, —King Williamstown: Curator, T. R. Sim.—Graaf Reinet: Curator, J. C. Smith.—Uitenhage: Curator, H. Fairey.

CEYLON.—Department of Royal Botanical Gardens: Director, Dr. Henry Trimen, F.R.S., F.L.S.—Peradeniya: Head Gardener, Peter D. G. Clarke; Clerk and Foreman, J. A. Ferdinandus; Draughtsman, W. de Alwis.—Hakgala: Superintendent, William Nock; Clerk and Foreman, H. M. Alwis.—Henaragod: Conductor, A. de Zoysa, Muhandiram.—



FIG. 23.—PEACH AND NECTARINE ON THE SAME SHOOT.

OXFORD.—University Botanic Garden—Professor, Dr. Sydney H. Vines, F.R.S., F.L.S.; Curator, William Baker; Sibthorpean Professor, Dr. J. H. Gilbert, F.R.S.

QUEENSLAND.—Colonial Botanist, F. M. Bailey, F.L.S.; Botanic Gardens—Brisbane: Head Gardener, Philip MacMahon; Overseer, J. Cameron.—Acclimatization Society's Gardens: Secretary and Manager, Wm. Soutter.—Rockhampton: Superintendent, J. S. Edgar.

RANGOON.—Agri-Horticultural Society.
REGENT'S PARK.—Royal Botanic Garden: Curator, W. Coomber.

ROYAL COLLEGE OF SCIENCE, LONDON.—Professor of Botany, Dr. Scott; Professor of Agriculture, J. Wrightson.

ST. ANDREW'S, N.B.—Dr. Wilson.

ST. KITTS-NEVIS.—Botanical Station: Curator, Charles Plumb.

ST. LUCIA.—Botanical Station: Curator, John Gray.

ST. VINCENT.—Botanical Station: Curator, Henry Powell.

SHEFFIELD.—Curator, J. Ewing.

SOUTH AUSTRALIA.—Botanic Gardens, Adelaide: Director, Dr. Schomburgk, Ph.D.—Port Darwin: Curator, Maurice Holtz.

STRAITS SETTLEMENTS.—Gardens and Forest Department, Singapore: Director, H. N. Ridley, M.A., F.L.S.; Head Gardener, Walter Fox.—Penang: Assistant Superintendent, Charles Curtis.—Malacca: Assistant Superintendent, Robert Derry.—Perak Museum; Mr. Wray.

SWANLEY, Kent.—Horticultural College: Director, F. Bond.

TASMANIA.—Botanical Gardens, Hobart Town: Superintendent, F. Abbott.

TRINIDAD.—Royal Botanical Gardens: Superintendent, John H. Hart, F.L.S.; Assistant, Walter E. Broadway.

VICTORIA.—Melbourne: Government Botanist, Baron Sir F. von Mueller, F.R.S., K.C.M.G.—Botanical Gardens, Director, W. R. Guilfoyle, F.L.S.—Hamilton: H. S. James.—Geelong: Botanic Garden.

[The above list has been compiled chiefly from the *Ken Bulletin*, and it has been obligingly revised for us by the Director. ED.]

THE HORTICULTURAL COLLEGE AT SWANLEY.

WHEN we look loungingly, as we often do, to Continental schools of horticulture, and regret that we have little or nothing of the same kind here, we must not overlook a few private establishments where a comprehensive horticultural education may be obtained. One of these is the Horticultural College of Swanley, of which the curriculum is before us. It is too long to reprint, but as showing its comprehensiveness, we give the main heading of the synopsis:—

SYNOPSIS OF SUBJECTS OF EXAMINATION FOR THE COLLEGE DIPLOMA.—*Theory of Horticulture*.—Soil, its origin and varieties. Nature of inorganic constituents. Methods of improvement. Drainage and aëration. Organic constituents. Manures, natural and artificial. Rotation of crops. Cultivation of fruit, varieties, standard, pyramid, espalier, and cordon trees; stocks and scions; walls and wall fruit, soft fruits, &c. Pot culture, leading principles of Composts; potting, water and watering, draining, shifting, plunging, feeding, &c. Glass-house management. Influence of temperature on plant life. Forcing. Ventilation. Shading. Management of hot-beds. Frames. Bottom heat. Plant hardening. Propagating house; raising of tender plants; sowing and management of seedlings. Propagation by cuttings. Grafting, budding, and layering. Plant training, pruning, thinning, budding, and disbudding. Calendar of garden operations.

Botany.—A branch of biology. Use to horticulturists. Divisions:—I, Morphology; II, Distribution;

III. Physiology; IV. Ætiology. Distinctions and limits of the plant kingdom.

In addition to the above, the Student will be expected to know the life histories of the following fungi, and the methods, if any, of eradicating those that are pests:—Plasmodiophora Brassicæ, Pythium, Phytophthora, Saccharomyces, Erysiphe, Podospheera Agaricus, Puccinia, and Claviceps. Also a general knowledge of the main divisions of the natural classification of the Phanerogams, with special knowledge of the characters of the following twenty-six Natural Orders:—Ranunculaceæ, Papaveraceæ, Cruciferae, Caryophyllæ, Malvaceæ, Geraniaceæ, Leguminosæ, Rosaceæ, Saxifragæ, Onagraceæ, Cucurbitaceæ, Umbelliferae, Boraginæ, Solanaceæ, Scrophularinæ, Labiatae, Ericaceæ, Primulaceæ, Valerianæ, Compositæ, Campanulaceæ, Cupuliferæ, Orchideæ, Iridæ, Liliaceæ, Graminæ.

Zoology as applied to Horticulture.—General anatomy of the Insect, with special reference to that of the honey bee. Life history of chief insects useful and injurious to plant life. Influence of insects on pollination of plants. General anatomy and life history of the Amphibian. Usefulness of the frog and toad to the horticulturist.

Chemistry.—Chemical and physical action. Indestructibility of matter. Elements, mixtures and compounds. Laws of chemical combination. Atomic theory. Principles of chemical nomenclature. Symbolic notation, formulæ and equations. Calculation of the quantities by weight taking part in reactions. Metals and non-metals. Graphic formulæ of HCl, H₂O, H₂S, NH₃, CO₂, H₃PO₄, and CaO. Weights and measures. Calculation of weight and volume of gas at standard temperature and pressure.

Elementary Physics.—I. Mechanics, &c. II. Hydrostatics and Pneumatics. III. Light. IV. Heat.

Building Construction.—Strength of timber, girders, "neutral axis," calculation of thrust. Glass—weight and quality of. Structure of glass roofs. Cubic contents. Boilers and hot-water apparatus. Piping, method of arranging pipes, ventilation.

Bookkeeping and Arithmetic relating to Horticulture.—Single and double entry; books of account; abstracts, prime cost, analysis of wages, stock-taking, balance sheets, &c. Banking and commercial transactions, forms of invoices, receipts, &c. Arithmetical calculations concerning cost of cultivation, valuations, land and timber measurements, and various farm and garden operations; weights, measures, &c.

Practice of Horticulture.—Candidates for Diploma must show proficiency in the above.

The examinations for the College Diploma were held from the 8th to the 12th inst., inclusive. A three hours' paper was set in botany, chemistry, natural philosophy, and arithmetic and book-keeping, while two hours were allowed for each of the other subjects. A table [which we do not reproduce] shows the high percentages which were obtained in many subjects.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

WHILE the ground remains frozen, little can be done beyond wheeling manure on to the quarters that require it, putting it in large compact heaps. Prunings and other rubbish should be collected into a heap and burnt, carefully saving the ashes for use when sowing seeds in the open ground, killing moss on lawns, top-dressing Onion beds and stone fruits.

SEEDS OF VEGETABLES.—In making out the seed order for this department, whilst relying chiefly on the well-tried favourites of former years, novelties should not be left untried, ordering small packets of those that seem to be desirable for trial during the incoming season. My selection is as follows:—

Peas.—William Hurst, William I., The Duchess, Duke of Albany, Stratagem, Triumph, Sharp's Queen, Telephone, Sir F. Millbank, Perfection Marrowfat, Reading Giant, Exhibition Marrow, Autocrat, Ne Plus Ultra, and Latest of All,

Onions.—Improved Wroxtton, one of the best in cultivation; Main Crop, White Spanish, Bedfordshire Champion, Improved Reading, Golden Rocca, and White Elephant.

Leeks.—The Lyons, Prizetaker, and Oxonian.

Broad Beans.—Johnston's Wonderful, Leviathan Mammoth Longpod, and Green Windsor.

Dwarf Beans.—Canadian Wonder, Webb's Victoria, Ne Plus Ultra, and Osborn's Forcing.

Beetroot.—Pragnell's Exhibition, Sutton's Blood Red, Nutting's Dwarf Red, Middleton Park Favourite, Egyptian Dark Red, and Turnip-rooted, for early sowings.

Runner Beans.—Ne Plus Ultra, a very good variety; Champion, Scarlet Runner, and Laxton's Czar.

Brussels Sprouts.—Reading Exhibition, The Wroxtton, and Northam Prize.

Carrots.—New Red Intermediate, Early Gem, Early Nantes, Model, Market Favourite, and Altringham.

Cauliflowers.—Dean's Snowball, Veitch's Early Forcing, Magnum Bonum, Sutton's King, Early London, Autumn Giant.

Broccoli.—Michaelmas White, Winter Mammoth, Vanguard, Self-protecting, Snow-white Perfection, Lite Queen, Knight's Protecting, and The Ledsham.

Cabbages.—Sutton's Earliest, All Heart, Flower of Spring, Mein's No. 1, Enfield Market, Wheeler's Imperial.

Celery.—Colonel Clark's Red, Standard Bearer, Catbush's Crystal White, White Gem.

Cos Lettuce.—Superb White, Alexandra, Webb's Exhibition, Bath Cos.

Cabbage Lettuce.—All the Year Round, Blonde de Berlin, Perfect Gem, Marvel, Favourite, Commodore Nut.

Turnips.—Early Milan, Snowball, White Stone, Model White, Golden Ball, and Green-top Stone.

Parsnips.—The Student, and Hollow Crown.

Savoy.—Universal, Improved Green Curled, Early Ulm, and Drumhead.

Tomatoes.—Favourite, Perfection, Trophy, Main Crop, Green Gage, and Laxton's Open Air.

Cucumbers.—Improved Telegraph, Model, and Tender and True.

SEEDS TO SOW AT THE PRESENT TIME.—A pinch of Celery, Cauliflower, Cabbage, Parsley, and Brussels Sprouts, may be sown for early use. The pans or boxes used should be filled with sifted, light sandy loam and leaf-mould, and put on the hot-water pipes for the soil to get warm before sowing the seed. The seeds must be sown rather thinly if they are new, and the pans or boxes placed in a vinery, forcing-pit, or Peach-house, where there is a night temperature of 55° to 60°, and near the glass. As soon as the seedlings are large enough to handle, they should be pricked out in slight hot-beds, or in boxes, 3 or 4 inches apart.

FORCING.—Another sowing should be made of French Beans in 8-inch pots, employing good turfy loam, leaf soil, and spent Mushroom manure, and a small quantity of bone dust, in filling the pots; half fill the pots with the compost, press it down, and put 6 or 7 Beans in each, selecting five of the best plants to remain when they come up. The pots may be put on the hot-water pipes in a forcing house, and as soon as the plants appear they should be placed in a position near the glass; a temperature of 65° by day and 60° by night being maintained. When they have grown to the top of the pots, the latter should be filled to within an inch of the rim with soil of the same temperature as that of the house they occupy. The plants should be tied as they advance to neat sticks with matting, or twigs of birch may be stuck into the pots to support them. Syringe the plants with tepid water in the morning and afternoon, which will tend to keep red-spider in check. Ventilate the forcing pits whenever the weather will admit of this being done, avoiding currents of cold air; and when the Beans are in bearing, afford them weak manure-water. C. J. Waite, Glenhurst, Esher.

THE FLOWER GARDEN.

HERBACEOUS PLANTS.—As soon as the frost goes, and one may tread on the ground, if new borders are intended to be made, the soil should be trenched, rotten manure being well mixed with the lower spit, as then it stands the plants in good stead in dry seasons. In replanting the border, it will be found that the generality of strong-growing herbaceous plants will be all the better for dividing; especially is this true of Helianthus, Harpaliums,

Phloxes, and such like, the outside portions being the best to retain, as they always have the sturdiest shoots or crowns, and moderate-sized pieces of these clumps yield the finest flowers and the most vigorous stems. In cases where herbaceous plants are grown in front of shrubs—and in no place do they look better—striking effects may be produced by planting them in groups, where, also, they can be more easily looked after. It need hardly be said that, as a rule, the tall subjects should be arranged at the back, and the shortest in front of the border; but such planting should not be followed too strictly, as here and there it adds much to the general appearance of the whole to have such things as some of the Sundewers, *Lilium auratum*, or plants of that class, standing well out in a way to break up and give more effect to the others. Not only do these remarks apply to flowering plants, they refer also to such as are valuable on account of their foliage and habit, chief among which are the Bamboos, *Arundo donax*, the Castor-oils, and others of that class, as they produce a striking effect. The most elegant Bamboo is *B. gracilis*, or, as it is perhaps more generally known, *Arundinaria falcata*, which sends up long, slender, arching stems, branching with light feathery shoots of foliage at the joints, the leaves being of a delicate and pleasing green shade of colour.

LILIUMS.—In preparing for *Lilium auratum* and other Lilies, holes should be dug where they are to be planted, and partly filled with road-scrappings or sharp sand, mixed with peat or leaf-mould and fresh turfy loam, as they do not succeed well in ordinary garden soil. In putting the bulbs in position, the proper depth is 6 inches, and before finally covering them up, it is always advisable to scatter some clean sand over them, so as to run in among the scales, as it is a great safeguard against rot and grubs, and prevents too great amount of moisture in the soil in contact with the bulbs.

GRAVEL WALKS.—In cases where these are unsatisfactory, it is best to remake them, as the fault generally lies at the foundation, and no amount of patching, top-dressing, or half-measures of that kind will improve them much when the bottom is faulty. Clinkers, brick-ends, chalk, or material of that kind, forms the firmest base, but the great mistake many make is in having it hollow or loose. Whatever is used should be filled between, either with chalk or gas-lime, the latter being proof against worms, and both excellent preventives of weeds, which always abound in gravel, if these close-binding materials do not form part of the bed on which it is laid. Another enemy to sound walks is the surface water, which soaks into badly-made ones; in such as have a foundation as that advised, there is no fear of its finding its way there, and it must be carried off by means of drains and gratings. If the roller be used soon after rain, the walks will remain in good order for years. *J. Sheppard, Woolverstone Park, Ipswich.*

THE ORCHID HOUSES.

INTERMEDIATE-HOUSE.—*Masdevallia tovarensis* has proved itself to be one of the hardest of white-flowered Orchids in foggy weather, ours having been quite unaffected by it. *Miltonia vexillaria* plants are at this season growing strongly, and should be examined with care at short intervals for thrips, which are apt to harbour in the young growths, and quickly disfigure. A well-bloomed *Miltonia* loses much of its beauty if the leaves have been disfigured by these insects. No difficulty will be experienced in keeping the plants clean if they are thoroughly syringed overhead every morning, the low temperature now being kept acting likewise as a deterrent to the increase of thrips. *M. vexillaria* should always be placed in a light position, and where a good current of air will so play about them, and dry them during the day, that the low temperature kept at night will not lead to damping of the small lower newly-made leaves. The cause of damping is certainly want of ventilation. The temperature in this house should range from 50° to 52° at night, but should it fall below these figures for a few hours no harm will be likely to ensue, but then, on no account, should syringing be performed till the air of the house reaches its normal temperature. A rise of 5° to 10° in the daytime by sunheat will be of benefit to the plants.

Vanda teres and *V. Hookeriana*.—Plants of this species growing in the stove, and syringed daily, are now sending out flower-spikes plentifully, which I think clearly shows that these plants are injured by being kept dry for even one day. *A. G. Catt, Parkfield Gardens, Hallow.*

PLANTS UNDER GLASS.

THE FORCING-PIT.—Great care must be taken in transporting plants from this structure to the conservatory and greenhouse during severe weather, always choosing the warmest part of the day, and at the same time using some kind of protection. Continue to bring in fresh batches of plants to fill the place of those taken away. From this time onwards there should be no difficulty in keeping up a plentiful supply of bloom, as with plenty of material in reserve, and brighter weather as the days increase, the occupants of this house will come on much more freely than at the close of the year. *Spiraeas*, *Deutzias*, *Staphylea colchica*, which are showing for bloom, will require a little weak manure-water occasionally. I prefer the manure-water from the farm-yard, but great care will be required in having it diluted to the required strength, or otherwise it will be very injurious. The temperature at night may range 65° to 70°, with a rise of 5° to 10° during the day.

THE GREENHOUSE.—Plants of *Cinerarias* and *Calceolarias* requiring repotting should be seen to at once, using three parts loam and one of leaf-soil, with enough silver-sand to keep the same open. Keep a sharp eye on the plants for green-fly, and on its first appearance slightly fumigate twice in succession, which will generally be sufficient to kill the fly. Keep the plants as close to the glass as possible, to ensure sturdy growth, and give air on all favourable occasions. Keep the night temperature from 45° to 50°, allowing it to rise 5° or 10° during the day. Arrange the plants in this structure once a week, picking off all decayed leaves, and at the same time keep the house scrupulously clean.

THE ROSE-HOUSE.—Should the occupants of this house not yet have been pruned, no time should be lost in having it completed, at the same time having the house thoroughly cleaned; the woodwork, glass, and trellis with soft soap and water, and the walls with hot lime-wash, adding a little flower-of-sulphur to the wash. Take all loose soil off the borders, and thoroughly moisten them with clear water, afterwards finishing off with a heavy top-dressing of loam, decayed manure, and half-inch bones. Keep the night temperature of this house from 40° to 45°, till the plants begin to break, syringing them lightly on all favourable occasions, which will help the buds to break freely.

TREE CARNATIONS.—I should not think this class of plants was ever held in such high esteem as at the present time, as where flowers are required in large quantities, which is the case in most gardens, the Carnation is always a welcome addition to the flower basket. It is advisable to propagate a fresh stock of plants each year; the present is a very good time to take cuttings of the winter-flowering varieties. The soil most suitable for the cuttings is one consisting of two parts leaf-mould, one of loam, and one of sand, which should be well mixed together; and having prepared the required number of 3½ or 4-inch pots, the cuttings may be, to the number of four, placed round the edge of each pot. If possible, always get the side shoots with a heel attached, as these are always found to root much more freely than others. After the cuttings have been inserted and watered, the pots should be placed in a frame or under hand-glasses, where they can have a bottom-heat of 70° to 75°; and after they are rooted, which will take about four weeks, they may be gradually hardened off before being placed in a light position, taking care to have them as near the glass as workable, it being very essential to keep the young plants as sturdy as possible. After they have made a quantity of roots, they may be potted singly in 4 or 5-inch pots, according to the strength of the plants, using the same kind of soil as that recommended above. Place the plants in a pit close to the glass for a few weeks, that is, till they have taken to the fresh soil, the temperature of the pit being kept at from 45° to 50°. Later the plants may come into cool frames, and by the first week in May they will be ready for placing out in the open on a hard bottom, choosing a nice, warm situation for them. The strongest plants will be ready for another shifting into 6 or 7-inch pots by the first week in June, the soil for this potting consisting of good fibrous loam, with sufficient sand to keep it open, at the same time having the plant potted firmly. Grow them on in a sunny situation during the summer. Be careful in having them staked at the proper time, as growth proceeds. When the plants have filled their pots with roots, a little quite clear weak manure-water made from sheep dung may be afforded them occasionally. *R. Milner, Penrice Castle Gardens, Swansea.*

THE HARDY FRUIT GARDEN.

PRUNING FRUIT TREES.—As yet very little progress in pruning trees, &c., can be made. However, for the past week advantage has been taken of a few hours' mildness on a few days to forward the pruning and nailing of Plums and Sweet Cherries, to be followed, when it is advisable, with Morellos. In pruning Plums and Sweet Cherries, suitable young shoots should be retained here and there for the purpose of replacing worn-out branches and filling gaps, which not unfrequently occur in Cherries. Cut back to a couple of eyes all weak shoots, and ill-ripened ones to the mature wood. All the shreds and ties should be removed if they are likely to cut into the bark, and leave ample room in the new ones, being careful that the bark is not bruised with the hammer, or gumming will ensue. Recently-planted young trees should be left till the last, so as to allow of the soil about them sinking.

MORELLO CHERRIES.—These require a different method of pruning than the sweet varieties, and they should be pruned and trained more like the Peach; although young healthy trees will bear fruit on the spurs in abundance, they are apt to exhaust themselves, and eventually become very crippled. Leave plenty of young shoots all over the trees, but not thickly, as is often the case; cut out here and there old branches, and endeavour to maintain a supply of healthy shoots to take the places of those cut out. Young shoots not required should be spurred back to two buds, especially those at the base of the trees, to supply both fruits and shoots another year. The trees may be nailed after the pruning is finished. Weather permitting, the trees should be thoroughly washed with Gishurst soap, at the rate of 4 oz. to the gal, or soap-suds and sulphur; and should scale be troublesome, use petroleum emulsion, or put a wineglassful of petroleum in the suds, applying it warm, and stirring it the while. The best of the old shreds may be saved, steeped in hot water, and used again. Unslacked lime dusted over the main branches when damp, will destroy moss and lichens. After the whole of the work is finished and the frost has disappeared, the border should be slightly pricked up with a fork, leaving it in neat order. *H. Markham, Mereworth Castle, Maidstone.*

FRUITS UNDER GLASS.

TOMATOS.—This fruit is now commonly grown where accommodation exists that can be made to serve the purpose; and cuttings are better for early fruiting than seedlings, and should be taken from healthy plants in autumn, or raised from seeds sown in September, and failing these preparatory operations, which may not always be practicable, a few seeds may be sown thinly this month in pots or pans in a mild bottom-heat, employing a fairly rich compost, and not affording much water to the soil till the seedlings appear above ground, when they should be put close to the glass. Prick the plantlets off, when large enough, into small pots, and replunge in bottom-heat until they are ready to be shifted into pots singly. For the earliest crop, Horsfield's Prelude is a good one, as it sets freely without artificial fertilisation, and cropping so freely, that the bunches of fruit require thinning, if large fruits are looked for. Ham Green and Conference are equally good varieties to succeed the first-named, and may be followed by Perfection and Hackwood Park. For early fruits 8-inch pots are best, employing large pots, and more loam in the compost for later fruiters.

CUCUMBERS.—A small house or pit should be prepared for Cucumbers about this date; fermenting materials being got in readiness by mixing and turning it over, so that time may not be wasted. Soil also may be mixed and put under cover out of the reach of frost. Sow seeds of trustworthy varieties at once, and singly in small 60's, putting the pots near the glass in bottom-heat of 80° to 82°, and affording them no water before they are through the soil. Put the soil into the pit to get warm, and plant out when the plants are strong enough, keeping a night temperature of 70° in mild weather with 10° to 15° higher day temperature. For very early fruiting, seeds should have been sown some time ago, the plants being now ready to be transferred to the beds. As Cucumber plants get into growth, air should be admitted carefully, and in gradually increasing volume, weather permitting, which is of great service in inducing sturdy growth, a remark which also applies to the culture of early Melons and Tomatos. Seeds of Melons and Tomatos should be sown for succession or for reserves. *G. Wythes, Syon,*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	JAN. 19	Lilies, and other Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	JAN. 21	Roses, Fruit Trees, Gladioli, Spireas, Lily of the Valley, Bulbs, &c., at Stevens' Rooms. Lilies, at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 22	Imported and Established Orchids, Japan Lilies, Tuberoses, &c., at Stevens' Rooms.
FRIDAY,	JAN. 23	Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	JAN. 24	Roses, Fruit Trees, Gladioli, Spireas, Lily of the Valley, Bulbs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—37° 6.

The Royal Horticultural Society. THE programme for the year has just been issued, containing information as to the work of the Society, and showing how its operations are crippled for want of funds. With the subscription rate as low as one guinea, it may be hoped that very large accessions of new Fellows may be made, and especially of practical horticulturists who can not only appreciate but take part in the Society's work. The Society deals with all departments of horticulture, and by co-operating with the various special societies, has opportunities for effecting good which no other Society of like kind in the kingdom can have. In its garden at Chiswick it has resources which, could they only be made fully available, are calculated to be of the utmost service to horticulture. The *Journal* now appears with regularity, and its contents are substantial contributions to horticultural literature. The Library is in the hands of the Lindley Trustees, who expend on it the whole of the very small proceeds of the Trust Fund at their disposal. Fellows and others would do good service by contributions of books to the Lindley Library, or by augmenting the small sum at the disposal of the Trustees. The afternoon lectures during the last season were of a high order of excellence. During the present season Cyclamens, Snowdrops, Bulbous Plants, Lachenalias, Cape bulbs, Hybrid Rhododendrons (greenhouse section), Alpine Plants, Tea Roses, Hardy Perennials, Small Fruits, Peaches, Stove Plants, Gladioli, Water Plants, Insect-eating Plants, Sunflowers, Michaelmas Daisies, Conifers, Soils, and Christmas Roses are to be thus discussed at the several afternoon meetings. The list is sufficiently varied, and the names of the lecturers offer a guarantee that what they say will be worth listening to.

The usual Committee meetings will be held, and an endeavour will be made to render the small shows held in connection with them less exclusively trade exhibitions than heretofore, by offering a few prizes for amateurs. There is so much human nature in mankind, that the stimulus afforded by prizes is one that cannot judiciously be overlooked, even though competition for the sake of money is not a very exalted proceeding, and is one that benefits horticulture only indirectly. The main object of these smaller shows should be the collection and diffusion of information. In our opinion, competition should, in the main, be confined to the larger shows, at which display, rather than information, is the primary object. The Temple Show is to be held on May 28 and 29, and at this, though the largest and in some respects most important show of the whole year, no specific prizes are offered, but "cups and medals will be awarded to any particularly meritorious exhibits." This is a case where, in our opinion, the interest would be distinctly heightened by competitive exhibits. Those who think the money-prize system should be again adopted on a large scale, should in each case contribute to a special fund for the purpose. A guinea subscription will not suffice for the award of money prizes.

One very noticeable feature is the co-operation of the National Auricula and Primula Societies, the National Rose Society, and of the National Carnation and Picotee Societies, to each of which the parent Society contributes £10. This seems to us, under the circumstances, somewhat of a reversal of the natural procedure, but we are too pleased to note the fact of co-operation, to be fastidious as to the way in which it is to be carried out.

The meetings at Chiswick, which are the most enjoyable and instructive to the horticulturists, and which were last year we believe the best attended by the general public, are this year to be devoted to the exhibition of, and to the discussion of the merits of hardy perennials on July 7; of Strawberries, Raspberries, and Currants on July 8; of Perennial Sunflowers and Asters on October 6, and of Conifers on October 7. This latter ought to be specially interesting, and a fine exhibition should be secured, inasmuch as a Veitch Memorial Medal and £5 will be offered by the Veitch trustees for the best collection of fresh cones and branches with foliage; whilst for the 2nd prize, a Silver Knightian Medal and £2 10s. are offered, and £1 10s. as a 3rd prize. It is to be hoped that, in addition to these prizes for cones, &c., exhibitors will bring specimens in pots or baskets. Probably, also, arrangements could be made, in case of need, to allow the specimens to remain till the end of the week. The interest, commercial and otherwise, of the Conifers is so great that we trust the Council will use every effort to make their intentions known, and so secure a fine display and a large attendance of visitors. Of the other details of the schedule we may speak on future occasions. In the meantime, it is obvious that the Council is making an honest effort to meet the wishes of horticulturists of all classes, and we earnestly hope their efforts may be crowned with success.

More than four hundred new Fellows were elected last year, but under the new rates of subscription this number must be very largely increased, if Chiswick is to be developed and maintained as it ought to be.

The Gardeners' Royal Benevolent Institution.

THE annual meeting of this Society, held under the Presidency of Baron v. SCHÖDER, as this number is passing through the press, affords matter of rejoicing. Its career has been one of uninterrupted success. Starting from the smallest beginnings, and doing a minimum of good, it has gradually advanced, till it is now an Institution whose financial condition is eminently sound. The Institution does a large amount of good to those who stand most in need of it, as well as to those who have, by their own thrift and foresight, worked for and earned what they get from the Society. For it must not be forgotten that whilst the liberality of the friends of gardening and of gardeners has contributed in large measure to the building up of a satisfactory fund, yet that the gardeners themselves have aided powerfully, according to their means, in providing for their own requirements in case of need, or for the amelioration of the circumstances of others less favourably placed than themselves.

Here, then, we have an Institution which appeals to the sympathies of the charitable, without infringing the laws of the economist, and which manages to combine the best instincts of our hearts with the intelligence and foresight of the philosophers. For the fiftieth time, Mr. CUTLER has been elected Secretary. The proposal was made by Mr. JOHN LEE, and seconded by all the members upstanding. The Society has prospered so greatly under Mr. CUTLER's management, that we could wish it were possible to secure his services for another half century. That, however, is not within the range of practical politics. What is within our scope is to be mindful of his great services, and to tender to him on the part of the friends of the Institution our hearty appreciation of his work, and our thanks for his warmest devotion to the interests of the sick and needy among our ranks. An interesting feature of the "friendly dinner," which follows the labours of the day, was the presentation by his friends and associates of an address illuminated on vellum to Mr. HARRY VEITCH, in recognition of the services rendered by him as treasurer to the Institution, and as chairman of the anniversary festival last year.

The Fruit-Growers' Association.

A YEAR or two ago, when people began to awake to the desirability of improving and extending the culture of hardy fruit in this country, reckless exaggeration threatened to ruin, or at any rate, delay, the progress of a movement which had in it the germ of much that was good. Well-meaning enthusiasts, not sufficiently endowed with the judgment begotten of actual experience, prophesied the salvation of British agriculture, and the assured prosperity of the British farmer, if only he would take to fruit culture. Whether he knew anything about the matter or not, whether circumstances were propitious to the enterprise or the reverse, did not seem to be matters of much importance to over-confident writers who looked on them as mere questions of detail! Fortunately, the gardeners came to the rescue, and with their practical knowledge and judgment, cleared the course of much that was absurd or misleading, and showed the only methods of procedure likely to result in success, viz., the collection of facts, the just appreciation of their value, and the wide dissemination of the inferences derived from them in the proper quarters.

To the Royal Horticultural Society great credit

must be assigned for their most instructive Conferences and exhibitions at Chiswick. The nature and extent of our resources were by them rendered evident, and a standard of excellence in cultivation established. Then came the Fruit-growers' Association, which started very modestly at the Crystal Palace, and at which the right keynote was struck at the very first meeting nay, in the inaugural address itself.

Steadily, without much fuss or clamour, the Association has pursued its course, so that the annual report read at the meeting on the 8th inst., is really a remarkable document; remarkable, as showing how much has been done in a short time, at a cost which is so little, as to be not the least surprising feature of the enterprise. All this indicates work; and work, indeed, there

be followed up by practical instruction in the orchard, and actual demonstration in the cottage garden. Local horticultural societies might do much more in this way than they do. It is very nice to get up local shows, to stimulate pleasant excitement amongst exhibitors, and to provide healthy recreation for the country-side. These things have their value, and that is not slight, but the actual benefit conferred on the cultivators, whether of flowers, fruit, or vegetables, is not proportionate to the means expended. If demonstrators and inspectors could be appointed to pay periodic visits of inspection to the gardens, orchards, and farms within a certain area, much more good might be done. The duty of the inspector would be to give advice when requested, to point out defects in cultivation, and

culture in this country shows marked signs of extension and improvement. The agricultural returns show that. It is for the Royal Horticultural Society and the Fruit Growers' Association to foster the growing industry and guide it into the right channels, and once more prove that gardening is no mean element in the prosperity of the country, and that gardeners are something more than the ministers to luxury.

DICKSONIA ANTARCTICA.—In our illustration (fig. 24), a form of gardening embellishment adopted in the garden of T. D. HOBY, Esq., near Newry, is shown, in which plants of *Dicksonia antarctica* form the chief feature. Ferns of the character of *Dicksonias* are, by their tall stature and graceful fronds, well adapted for the wild or "sub-tropical" garden, and

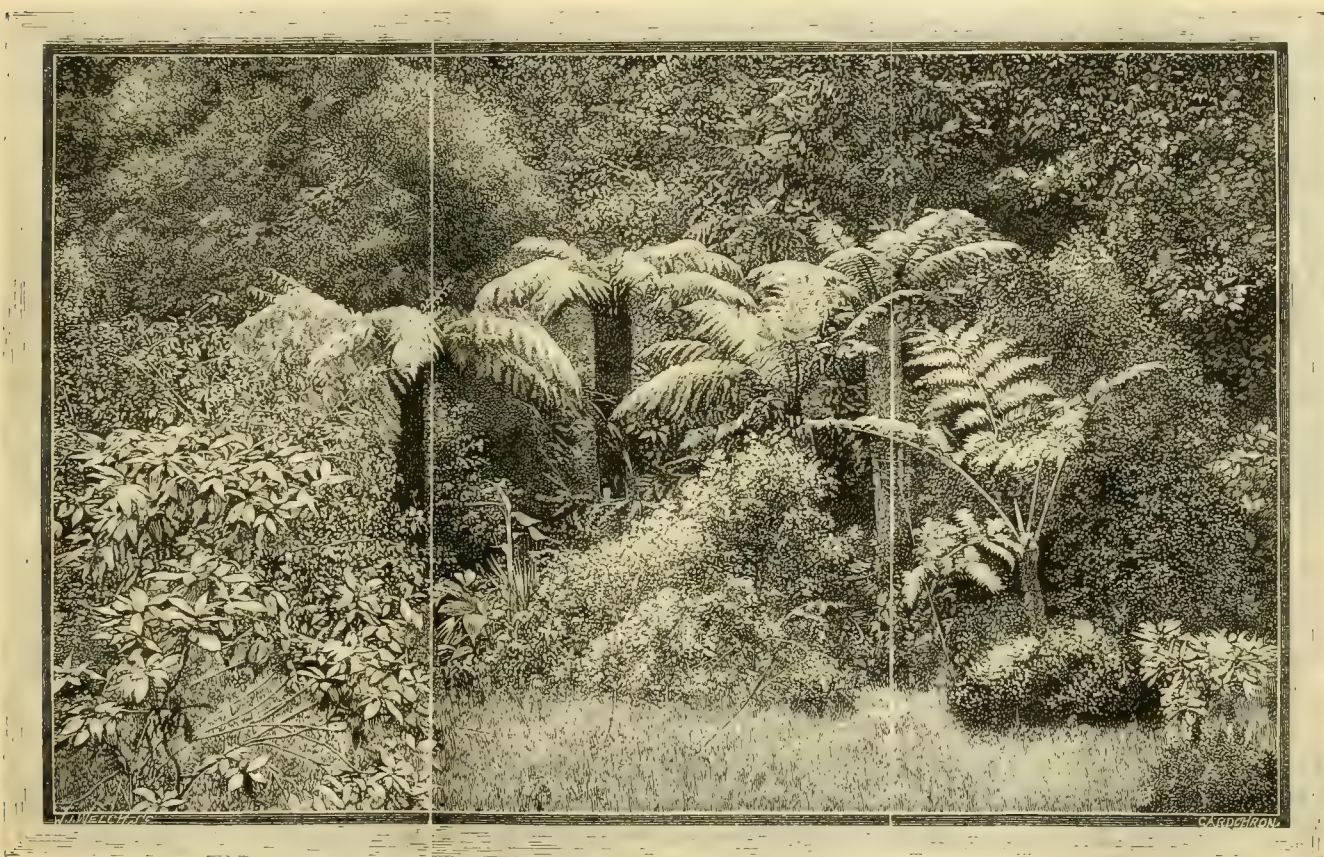


FIG. 24.—*DICKSONIA ANTARCTICA*, AS PLUNGED OUTSIDE FOR SUMMER AT DROMOLANE, NEWRY, WITH A BACKGROUND OF HARDY TREES, SHRUBS, AND CONIFERS.

has been on the part of the members of the committee, and more especially of the Honorary Secretary, Mr. LEWIS CASTLE, whose services were acknowledged in a pleasant way, after the recent meeting. One excellent feature in the proceedings of the Association has been the despatch of competent lecturers to various towns to point out the best kinds of fruits to grow for market in particular districts, and explain the best methods of procedure.

This is a step in the right direction, one that we have always advocated in these columns, and one such as our continental neighbours have long adopted; but good as this plan is, much more is needed. To talk, however fluently and judiciously, to an audience, even with the aid of diagrams, black-board, specimens, and the like, is not sufficient. Instruction so conveyed requires to

to show how they might be improved to make known the best kinds to be grown, and to be the means of distributing from Chiswick or elsewhere, grafts of the more suitable sorts. Surely there is no local society but has many members quite competent to act as judges and advisers in cases where such assistance might be solicited. This is work which might be organised by the Royal Horticultural Society and the Fruit Growers' Association, separately or in conjunction, and which might be carried out in detail with the necessary modifications by the societies affiliated with those two bodies. Chiswick would continue to be, as it has been for many years, the central experimental garden, and its importance and usefulness as such should be developed by all possible means.

Be all this as it may, it is certain that fruit

impart a pleasant diversity where 'massive-leaved low-growing plants preponderate. The late Mr. GIBSON introduced the fashion of grouping Ferns in shady glades at Battersea Park, a feature that was considerably extended by his successors. Given shade not too dense, plenty of water at the root, and the sprinkling of the fronds and surface of the soil in dry weather, the plants keep in perfect health during the summer months. The photograph was kindly sent to us by Mr. BURBIDGE.

THE FRUIT COMMITTEE at its meeting on Tuesday last, discussed a point of so meinterest it was urged that the committee should have power to grant to special dishes in a collection some award or certificate, as it frequently happens that there is in a collection of fruits or vegetables one or more dishes of special merit. A similar award has been made at the conferences of the Society and it would seem that some such power would be

generally appreciated. The matter has been referred to the Council for consideration.

THE DUKE OF BEDFORD.—The death, on the 14th inst., of the ninth Duke of BEDFORD is announced. The Dukes of BEDFORD have been well known as horticulturists and planters at Woburn Abbey and elsewhere, and the late Duke, as owner, *inter alia*, of Covent Garden and its purlieus, was a liberal subscriber to the gardening charities. The Marquis of TAVISTOCK, who succeeds to the title, married a daughter of Earl SOMERS, of Eastnor Castle.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The quarterly meeting of this Society was held at the Caledonian Hotel on Monday evening last, when Mr. NATHAN COLE took the chair. Nine new members were elected, making a total for the year of seventy. Mr. W. GUNNER, of Croydon, and Mr. GEORGE DIXON were elected as auditors of the past year's accounts. Mr. HARRY J. VEITCH has kindly consented to preside at the annual meeting at the Caledonian Hotel, on Monday, April 9, at 8 p.m.

A NEW POSTAL REGULATION, under which letters may be forwarded by railway, is announced by the Postmaster-General to come into operation next month. "Railway Letters" will be accepted for conveyance by the next available train, on being tendered at any parcels booking-office, for the sum of 3d. They must not weigh more than 1 oz., and a 1d. stamp must be affixed in the usual way, the remaining 2d. being paid to the railway officer on handing the letter in. The payment will defray the cost of transmission to the station of address, but as the railway companies do not undertake delivery, the letter must either be addressed "till called for," or "to be posted on arrival." In the latter case, it would be posted immediately on arrival at the receiving station for the next delivery by postman. The railway companies are responsible to the Postmaster-General, and letters transmitted under this arrangement are deemed to be in all respects letters sent by post, and the ordinary conditions and regulations of the Post Office will apply to them. This arrangement will probably be found very convenient in certain emergencies, as, at the present time, no letter can legally be sent by rail. Of course, urgent communications frequently are sent by train, but they are treated by the railway company as "parcels," and the lowest charge—except for short distances—is 6d. It will be noticed that any missive weighing over 1 oz. will still be excluded from the new service, and will either have to be forwarded as a parcel or wait for the next mail.

"ICONES PLANTARUM."—The last part of this publication is entirely occupied with figures of Indian Orchids, to which, indeed, the whole of the eleventh volume is devoted. The plants illustrated are mostly of exclusively botanical interest. It forms a useful companion to the last part of the *Flora of British India*, in which Sir J. D. HOOKER has described the Orchids of British India.

"BOTANICAL MAGAZINE."—The January number is devoted to two plants only—*Dipladenia illustris* var. *glabra*, t. 7156, a rosy-pink Brazilian plant, varying very greatly in its foliage. The other plant is the gigantic *Amorphophallus Titanum*, tabs. 7153–5, which flowered at Kew in 1889, and which was figured and described in our columns at the time. (See our volume for 1886, ii., p. 432, figs. 88, 89; and 1889, i., p. 746, 804, figs. 119, 120; 1889, ii., p. 19, figs. 3, 5, 6.)

WOLVERHAMPTON HORTICULTURAL SOCIETY.—We learn that at a meeting of the committee of the above society, held recently, it was announced that the profits of the last show amounted to £588 15s. 7d., of which it was determined to invest £500 as a reserve fund, and the balance to be expended on improvements in the Park. The committee have now £900 invested as the result of their first two shows. The next Fête will be held on July 14, 15, and 16.

LADY GARDENERS.—The January number of *Work and Leisure*, which opens with an article in which it is said that Mrs. RICHMOND, of Tiverton, Devon, proposes to open near London, this spring, a School of Horticulture for ladies. Female gardeners are to be trained there, and it is hoped that eventually a dépôt for the sale of the products of the Institution may one day be opened in London. It remains to be proved if there is a sufficient number of ladies blest with bodily strength for this work, to make the scheme a success. The gardening profession is already overstocked (there are often five or six columns of advertisements from gardeners requiring places to one of employers seeking gardeners). Book-keeping, arranging flowers and fruit, and bouquet making, are tasks requiring light fingers or good taste. Such jobs as digging in manure and tramping over the fields in all weathers, are not tasks for ladies, and indeed, are not undertaken even by the women who work in market-gardens.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are desired to publish the following statement of the receipts and payments of the above for the year ending December 31, 1890:—

Dr.	£	s.	d.	£	s.	d.
To Balance, 1889 ... ..	...	...	...	753	6	10
Annual subscriptions	1103	12	0			
Donations at and in consequence of annual dinner	2144	9	6			
Collecting cards	876	2	7			
	4124	4	1			
Advertisements... ..	67	14	6			
	4191	18	7			
Dividends on Stock	6	9	1	3		
Interest on deposits	114	9	1			
	713	10	4			
				5235	8	11
				£5988	15	9

Stock in Two-and-Three Quarter per cent. Consols, standing in the names of the Trustees, viz., Dr. Hogg, John Lee, and N. N. Sherwood, Esq., £25,000.

Cn.	£	s.	d.
By Pensions and gratuities	2614	13	4
Secretary's salary and honorarium	£212	10	0
Rent of offices... ..	75	0	1
Stationery	40	11	1
Book of cheques	3	6	8
Printing	155	14	11
Expenses of annual dinner... ..	93	16	0
Irvine & Co., addressing circulars and postage of same	94	11	0
Postages, wages, and sundry petty expenses	71	11	8
	750	1	4
	3398	14	8

Purchase of £2000 Two-and-Three-Quarter per cent. Consols 1847 19 0

Balance, viz.:—
With Treasurer at Banker's 668 13 9
With Secretary 23 8 4

692 2 1
£5988 15 9

Audited January 9, 1891.

JOHN LEE,
J. WEBBER,
J. WILLARD,

Auditors.

Just on going to press, we learn that the following persons have been added to the list of pensioners—two females and twelve males—H. Primmer, 2657 votes; T. Stevenson, 2509; J. Gage, 2376; Susanah Davison, 2127; D. Innes, 2033; W. Newcombe, 1910; G. Hinxman, 1875; W. Bunn, 1710; J. H. Poole, 1609; J. Gibbons, 1539; Mary Ann Lane, 1326; and by right, C. Craig, J. Shepherd, and P. Wright.

FLOWERS FROM GARELOCKHEAD, ARDDARROCH.—We have received from the Orchid collection of R. B. WHITE, Esq. (Orchid-grower, Mr. J. Brown), some pretty forms of *Laelia anceps* Hillii, the delicate tinting of which is very pleasing. *Odontoglossum Rossi majus*, of a fine bold character; a form of *O. Pescatorei*, with an unusually pretty spotted lip; *Lycaste Skinneri* alba, from a plant

that has been for a long time in bloom, and continues to exhibit flower-buds; *Oncidium ornitho-hyuncum* album, a novelty to be welcomed at this season, pretty and fragrant.

STOCK-TAKING, DECEMBER, 1890.—A glance at the annexed extract from the summary of the imports from foreign countries and British possessions for the month of December, 1890, will satisfy the reader that "plus has it"—or, in other words, that the balance is on the "increase" side of the account to the tune of £1,137,240; and which, considering the general outlook, is a very pleasing record. The food imports are very satisfactory, and as it is possible that the stocks of some of the raw materials used in manufacture are running low, a turn in the tide in that direction may be expected—it has partially set in. The "summary" extract is as follows:—

	1889.	1890.	Difference.
	£.	£.	£.
Total value of imports	38,297,208	39,431,448	+1,137,240
§ II.—(A.) Articles of food and drink—duty free	11,770,004	12,735,321	+965,317
(B.) — do., dutiable	2,367,896	2,587,080	+219,184
§ VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)... ..	10,232,829	9,900,101	—332,728
§ VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	3,029,375	3,118,735	+89,360
§ IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed)	1,657,703	1,558,892	—100,811
(B)—Parcel Post	19,274	50,119	+30,845

It should here be noted that for the twelve months the imports show a decrease of £6,709,747, as compared with those of 1889. The exports for the month of December show an increase of £382,000 as compared with those for the same period in 1889; the balance for the year is also on the right side, but on this we will have a few words to say on another occasion. The accompanying figures respecting the imports of fruits and vegetables are extracted from the general returns, and possess all their usual interest and significance:—

	1889.	1890.	Difference
§ II. Fruit:—			
Apples, raw bush.	426,629	433,237	—143,392
Unenumerated, raw	45,000	51,400	+6,400
Onions	331,600	273,697	—50,903
Potatoes cwt	18,311	47,589	+29,278
Vegetables, raw, unenumerated Value	£29,836	£35,094	+£5,258

ANOTHER VINE DISEASE (GLÆOSPORIUM PESTIFERUM, C. & M.)—We have recently received from Brisbane some Vine shoots and Grapes suffering under the infliction of a new Vine disease, which, if it spreads, is likely to be of a very destructive character. The shoots, petioles, and peduncles present a shrivelled and miserable appearance, sprinkled, in some places densely, with small hemispherical knobs, about the size of a good-sized pin's head, and of a rosy-pink colour. Subsequent examination proved that these knobs were a mass of hyaline fungus spores, which had oozed out of orifices in the cuticle, and hardened by exposure to the air into that form. The cells beneath the cuticle are without any distinct conceptacle or perithecium, and the spores are produced upon short delicate sporophores rising from the cushion-like base of the cells. The spores, or conidia, are cylindrical, straight, and rounded at the ends, from 14 to 15 micromillimetres long and 3 to 4 broad, hyaline and colourless, with rather granular contents. When mature, they issue in a sort of gelatinous mass through orifices broken

in the cuticle, and soon harden into the pin-head knobs, which remind one strongly of some of the small forms of *Tubercularia*, so common in this country. On the application of moisture, the spore-masses dissolve, and the spores are carried away freely wherever the water trickles. In some respects this fungus resembles another of the same genus (*Gleosporium ampelophagum*), common on Vines in Europe and the United States; but it differs in the colour of the exuded spore-masses, and in the dimensions of the spores, which are double the length, and broader than in the European species; besides which, we have no knowledge that the mass of spores in *Gleosporium ampelophagum* ooze out and form such *Tubercularia*-like masses. The diseased fruit is stunted, shrivelled,

than there is in toad-stools, and that in such a matter as referred to in our previous article, "The only right which A. has is to prevent B. from passing off his own goods as A.'s."

ORCHIDS TO NAME.—We are asked to publish the following request:—It is particularly requested that all packets containing Orchids to be named at Kew, may be addressed officially, "The Director, Royal Gardens, Kew." Such packets at present frequently arrive at hours when the herbarium is closed. Unless directed as above, the director cannot guarantee their safe receipt from the post office.

PRESENTATION.—On New Year's Day, as we gather from *The Sleaford Gazette*, Mr. D. LUMSDEN, son of the respected gardener at Bloxholm Hall

TUNBRIDGE WELLS.—The Gardeners' Mutual Improvement Society of this town held its second annual soirée on Wednesday evening, January 7, and was well attended. Numerous objects of interest were exhibited by members and friends.

SEED ORDERS.—A retail seedsman sends us the following seasonable admonition to gardeners:—"The Editor will do an immense service to a large body of seedsmen's assistants in London and the provinces, if he will be kind enough to urge upon his readers the desirability of not waiting for the present severe weather to disappear before sending their orders for seeds to their seedsmen. In the most favourable seasons, the occupation is of an arduous description, and the seedsmen's staff is engaged for long hours in



FIG. 25.—*NICOTIANA GLAUCA*: A SUB-TROPICAL BEDDING PLANT. (SEE P. 84.)

and exhibit a few of the spore-pustules scattered over them. It is an unenviable addition to the fungi of Australia. *M. C. Cooke.*

COPYRIGHT IN NAMES.—The question raised in a recent communication has elicited various comments. Of course, so far as we are concerned, the matter is one of principle only. We know nothing about the particular Grape mentioned in the advertisement, neither is it likely to be of any interest to readers on this side of the Atlantic. Nor do we know anything about the amount of protection which the American laws may give. We have, however, since our former issue, obtained an opinion from a very high judicial source to the effect, that in this country there is no more copyright in plant names

Gardens, Sleaford, was presented by the *employés* on the estate with a handsome present on his leaving home to enter Messrs. J. VEITCH & SONS' Nurseries, Chelsea.

CAIRO.—While we have been stifled with fog and frozen with cold, the fortunate visitors to Cairo have been enjoying delightful weather with bright sun, and a temperature of 65° on January 3.

DOWNTON COLLEGE.—This is one of the few institutions in the country where the principles of cultivation are taught in connection with instruction in the practice. We greatly regret to hear that the College was totally destroyed by fire on the 13th inst. The pupils were fortunately away for the vacation,

endeavouring to keep pace with the work; but in a year like the present, if purchasers delay sending their orders until the frost goes, it means a still greater pressure upon the workers."

MUSHROOM GROWING EXTRAORDINARY.

The sanitary inspector for the suburban district of Edmonton visited a dwelling-house in the district under the control of the Edmonton Local Board of Health. Some 10 or 12 loads of manure had been placed in a cellar beneath the dwelling rooms, to form a bed in which to grow Mushrooms. In reporting the circumstance, the inspector remarked it was evident the owner thought more of rearing Mushrooms than of the health of his wife and family. A

notice requiring the removal of the offensive and health-destroying heap was served promptly, and its requirements were duly complied with.

HORTICULTURAL SHOW FIXTURES.—Amongst the late arrivals of dates of coming shows, are Brighton and Hove Chrysanthemum Show, November 3 and 4; Maidenhead Horticultural Society's Show, August 13; Ascot, Sunninghill, Sunningdale, and District Horticultural Society's Show of Chrysanthemums, November 4 and 5; Lee, Blackheath, and Lewisham Horticultural Society's Show will be held as usual at the Cedars, Lee, on July 1 and 2.

NICOTIANA COLOSSIA.

The plant figured on p. 83, is one of the novelties of the year sent out by Herr F. C. Heinemann, seedsman of Erfurt, and who kindly furnished us with the engraving. This gigantic Tobacco reaches a height of 10 feet, as do some other strong-growing varieties, but the leaves are very much larger, full-grown ones being 3 feet in breadth, with a width of 1½ feet. The leaves are tinted prettily with red when young, and when mature they become of a dark green colour, although the red veins remain, and contribute to the fine appearance of the plant. The Nicotianas are easily raised from seed, sown in heat in February and March, so that any of our readers who may wish to grow this or any other variety this year, may readily do so for ornamental purposes.

HOME CORRESPONDENCE.

LAWN MOWER COMPETITION IN MARCH.—In the programme of the Crystal Palace Horticultural Exhibition advertised in the *Gardeners' Chronicle* of January 3, it is stated that two competitions of "exceptional interest" are to be held. The first is for lawn mowers, which are to undergo a practical test in the palace grounds—and this in the middle of March—when, so far as my experience runs, there is in the generality of years no grass to mow. But perhaps it is the degree of noise, and not the ease of cutting of the machines which is to receive notice; at all events, the awards made at a competition at that time of the year can carry little value with them. The other competition is for spraying machines, and now that spraying has received so much attention of late, considerable interest should centre in it. L.

JUBILEE OF THE "GARDENERS' CHRONICLE."—The Jubilee of the *Gardeners' Chronicle* comes as a significant reminder to us, who were, to a certain extent, sponsors to this child of promise, when at its birth, fifty years ago, horticulture, full of hopes and fears, prophesied its own redemption through the interesting new-comer. How anxiously we watched its childhood and youth, until promise melted into fulfilment in its manhood, and as its quickening powers opened a new world, by the genius of that veritable Columbus, its first Editor, our highest aspirations were realised. That he was (unlike his prototype) well assisted by his able staff goes almost without saying, though its number was small in 1841, compared with what it is in 1891; still, the same excellent quality distinguished it, though the quantity was lacking, and no one is likely to underestimate the power of that "little leaven," which in practical, just as much as in spiritual, things, "leaveneth the whole lump." Now, the question presents itself, Have we, as gardeners, improved in skill in just proportion to the growing light of knowledge given us since 1841? Have we advanced along the royal road experience has paved for us with becoming rapidity? When I remember the old flues as modes of heating, and the ponderous boilers whose warming powers were so faulty, that an ordinary stove or viney required the hourly attendance of the luckless young gardener in charge all through the long winter's night, I wonder what the fortunate young men of the present day, who can leave their fires in the evening, and find them all right in the morning, would think of many experiences of my own. Especially, I recall an episode in Murphy's winter, when, on the famous night (Christmas Eve, I believe it was) my turn of duty came, and I watched, with growing consterna-

tion, the mercury continue to fall lower and lower, until it reached 4° below zero, Fahr. (36° of frost). Every hour of that memorable night I had to tramp about a third of a mile to attend to a distant conservatory and stove, and my hand stuck to an iron latch precisely as a magnet clings to and picks up a needle, while my nostrils closed with each inspiration, and were only forced open by the following expiration! Backwards and forwards I marched from 6 o'clock at night until 6 o'clock on the following morning, when I was relieved. . . . Things are far different now for the young aspirant; yet difficulties could not quench the admiring ardour with which the examples of the Lindleys and Paxtons, the Hendersons, Osbornes, Loddiges, Lows, Rollissons, and many more whose names even I have now forgotten, filled me and other young men with admiration, and lured us on to follow the path they had trodden before us. There was Joseph Knight, for one, who made a name even before the Veitches took possession of their London house; then there were the Leviathans amongst the gardeners—the Erringtons, the Greens, the Ingrams, the Edmonds, the Frosts, the Barnes, and others, since forgotten, but in those days veritable beacons, showing us, as we stood at the entrance of our career, the grand prospect which lay before us, and lighting up to our dazzled eyes the as yet unclimbed mountains of life. I remember how I wondered if I should ever advance far enough to touch the garment's hem of the great men I almost worshipped! and now, in the evening of my days, what can I say? Must I admit that the talent confided to me has been wrapped in a napkin, and so must be returned to the giver without interest? To a certain extent, I fear I have been an unprofitable worker, have missed grand opportunities, and fallen short of my youthful ideals; nevertheless, the wonders of Nature have been an open book, written by God Himself to me, and have taught me lessons which I could have learned in no other calling or business, so that I do not regret the early enthusiasm which influenced my choice, and would only say to all young aspirants, "never be cast down by obstacles and difficulties, 'hitch your wagon to a star,' in the words of the wise American philosopher, and then follow its guidance with a cheerful heart, and always remember there is neither pleasure nor profit in mediocrity, and no good thing is obtained save by aiming beyond it." These thoughts have delayed, however, my answer to the question, "Has gardening improved as much as it ought to have done during the fifty years of the *Gardeners' Chronicle's* life?" The reply must be like that on matters of doctrine, given, according to Froude, by the English Church. "Yes, and No!" Yes as to Orchids; for in their culture the progress has been enormous, and has reached the very seventh heaven of perfection. No, with regard to Camellias and Azaleas; while with Heaths, Epacris, New Holland plants, &c., not only has there been no improvement, but an actual retrogression. Yes may be frankly repeated about Roses and Pelargoniums, though I almost fear the skill is declining, and I fancy the cultivators of annuals has retrograded considerably, to judge from the appearance of Balsams, Coxcombs, Treviranias (*Achimenes*), &c. Could our forefathers look in occasionally at our exhibition tables, they would vanish into thin air with horror and disgust at the burlesque, recalling what they saw in their own day. A Balsam, say 4 to 5 feet by 3 to 4 feet; a Coxcomb 2 feet in diameter; Trevirania coccinea, grown from a single stem, 18 to 24 inches high and 12 inches in diameter. Where can we see now *Schizanthus pinnatus* and *retusus* in perfect cones, 4 to 5 feet high and 2 to 3 feet in diameter. Chrysanthemums, too, were grown far better fifty years ago; the hideous mop-sticks, with one great coarse flower and no foliage, are but sorry outcomes of all the appliances and modern skill of to-day's gardeners. . . . There are, however, two plants whose names occur to me as deserving of unstinted praise, two plants in whose cultivation immense advance has been made, and before whose state of perfection my criticism must bow with bated breath. . . . Each of these plants has been taken in hand and perfected by one man in particular, which is a rather remarkable fact: need I name the man and the flower? Veitch and *Amaryllis*—Kelway and *Gladiolus*? But I am afraid this long gossip is a sign of my second childhood, so I will close with heartiest congratulations to the *Gardeners' Chronicle* on its fifty years of useful and successful life, and wishing it and its Editor and staff, a very happy new year, and many of them! Charles Noble, Bagshot. [Our years will be rendered more useful to our readers, and our labours more happy to ourselves, if

we are favoured with more "gossip" of this interesting character. Ed.]

— In continuation of my few remarks last week, I desire to add:—The establishment of the *Gardeners' Chronicle* was an epoch in the history of British horticulture, and its appearance was coincident with a great revival in the higher branches of the gardeners' art, subsequently greatly aided by its opportune and instructive essays on its true principles. Paxton, at Chatsworth, was able, by the ample means at his command, to furnish valuable illustrations of the possibilities of the successful cultivation of exotics, and especially of Orchids, the extraordinary beauty of which Dr. Lindley so fully recognised, and the culture of which he strenuously and unceasingly advocated, and in this, as you have justly recorded, he received the able support of Mr. Bateman. The *Gardeners' Chronicle* has always claimed and deserved the support of scientific men, and has welcomed their assistance and co-operation. It is an honour to possess contributions from Charles Darwin, Dean Herbert, Professor Daubeny, Dr. Royle, and Henslow, and Solly. It was to the patronage and support given by wealthy noblemen and gentlemen that the skill of gardeners had scope, and we may always gratefully remember the material help given to gardening by the Dukes of Devonshire, Bedford, Sutherland, Buccleugh, Portland, and Norfolk; the Marquis of Westminster, Earl Derby, Countess of Granville, Sir P. Egerton, Sir W. Middleton, and many other gentlemen, titled and untitled; and the men who gave effect to their wishes in the promotion of horticulture may, and have, justly found a record of their services in the *Gardeners' Chronicle*, whose Jubilee is celebrated. I may follow the early list by giving the names of Bailey, Caic, Moffat, Wilson, Wooley, Henderson, Errington, Tillery, McIntosh, Frost, amongst others, gardeners, with two exceptions, I have had the pleasure of meeting. W. J., Belvoir.

COPYRIGHT IN NAMES.—I am afraid you lean too much to the amount of protection afforded by the Trade Marks Act. Suppose I bought for sowing my fields a few bushels of Hallet's Pedigree Barley and got a good crop, should I be restrained from sending it to market under that name, because I get a better price for it on account of its fine germinating power, if I did not stipulate with the buyer that it must be malted and not used for sowing? It would certainly cause a loss of price. Should I be liable to damages if the buyer did not fulfil his engagement? It is all too absurd *prima facie* to be maintained. I buy from a firm its new seedling Pelargonium for bedding, let us say "Meteor." Am I to be restrained from multiplying the plant that I have obtained legally, so as to fill a bed I want to plant, or must I buy from the firm every plant necessary to fill the bed? [Certainly not. Ed.] Suppose I am allowed by law to propagate the plant for my own use, and after a while give up gardening, and sell all my stock, must I sell all the Meteors without a name, or throw them on the refuse heap? If allowed to propagate a plant, could the firm who sent it out sue me for giving or exchanging from my young stock? [No, unless there were some agreement to the contrary. Ed.] If I were to sell knowingly some newly-imported plant, copyright seedling, or bud variety, under a name of my own, the customer would certainly be entitled to some redress for the deceit practiced on him? A botanical diagnosis is certainly public property [Yes], and every one must use it for selling his plants if he knows of it, nay, he ought to be sued for not doing it, unless in good faith. I find among my plants of Carter's Mammoth Pea a better plant, which I fix in a strain. I try to introduce to the public. Am I to be restrained from calling it Improved Carter's Mammoth Pea, or must I give an entirely new name, omitting the filiation? or am I even prohibited altogether from selling it, because it sprang from seed whose offsprings I am forbidden at all from selling, except for culinary purposes; and to resume it, would it be advantageous to the public at large, and to the producers of new things in particular, to fetter the sale of plants and seeds in that way? I should think not. Brussels. [See a note on this subject in another column, wherein it is expressly stated on high authority, that there is no copyright in plant names. Ed.]

FUMIGATING INSECTICIDES.—I observe that "J. C. W." takes exception to my method of lighting the fumigating paste, but if he reads my note carefully he would see that the cakes are lit without difficulty with an ordinary match, and that the cakes then smoulder slowly. I also stated at p. 701, vol. viii.,

Gardeners' Chronicle, that when a large quantity of the fumigating paste is required, a few shavings might be used; but if he objects to their use, or paper, why not use two or three small pieces of charcoal? I certainly do not see the harm a very small quantity of paper can do, as in the old method paper was the chief factor. I have not used the sheets (McDougall's) he recommends, which largely consist of paper, in large sheets, and therefore more useful than the older tobacco-papers. The chief factor in most insecticides is nicotine, and the better the quality of this substance, the more effective. I never use cinders for lighting fumigating materials; I have always advised the use of charcoal for this purpose. Much can be said in favour of the fumigating materials lately introduced; Campbell's I have found especially effective, and it is one that shows a step in the right direction. *G. W.*

TEMPERATURE FOR DISAS.—Some Disas can be grown perfectly well in a much lower winter temperature than Mr. Catt gives them. I have plants of *Disa grandiflora*, *D. racemosa*, and *D. tripetaloides*, growing with the utmost vigour in a house which, during the last three or four weeks, has never been

being covered with snow, but I anticipate great losses in Broccoli left out unprotected—many heads were cut and stored in a cellar. Cabbages, Sprouts, and Colewort are better for the frost, if on being cut they are put into a dark room, and where there is sufficient temperature to gradually thaw before them cooking. All Lettuce have a sorrowful look, and I have doubts if any will survive, except those which are planted at the foot of the garden walls. This season will be one which will test the hardihood of many so-called hardy Lettuces, as well as many other plants. *W. A. Cook, Compton Bassett.*

CHRYSANTHEMUMS IN PEACH-HOUSES.—Much as we admire our favourite "Mum," I fear the great extent to which the culture of the plants is now pushed has in some cases caused detriment to other subjects. When cultivators have to cram their vineries, peacheries, and other structures with plants, when their permanent inmates should be at rest, much evil must accrue from the practice, and while I am out of sympathy with what is too common, I must confess to being actually blameable in the same way. While an early Peach-house now being forced was rested and treated as it should be, two other

rubbish, but valuable matter and material in the right place, the only thing with regard to it being to treat and use it properly, and when that is done it will show its beneficial effects on the crops in the ground wherever it goes. Premising that the rubbish is of the usual kind, the way to manage it is to get some air slaked, gas, or fresh lime, proportionate to the bulk, and cast it over the heap, adding at the same time, or before, a few bushels of soot and salt, and then to turn the whole over together, taking care while doing so to pick out any sticks or wood, which may be laid aside to be charred or burned with any trimmings or prunings of hedges or bush fruits, as the residue or ashes so obtained will be of great service to mix in after, or save for many purposes when the season for using comes round. If there is any trenching to be taken in hand, ordinary rubbish heap stuff may, with advantage, be utilized at once without the labour of turning and mixing, as filling it into carts or barrows and getting it on to the ground will do that, and in heavy land it is highly beneficial by being somewhat rough, as when thrown in below it acts as an aerator and drainer, and so sweetens the soil and helps the roots of the crops, which dive down and feed on it, and fatten thereby. As a preparation for Asparagus beds there is nothing to equal it, when applied in the way referred to, and in trenching it into ground, two sorts may be made or selected, the one, the rough, to go in at the bottom of the opening, and the better or finer to be mixed in above. So used, it is far superior to manure, as though perhaps not so rich it is more lasting, and the influence it has on the soil tells for many years, as I can testify and bear out by what I see here where land has had a good lot of it. Apple trees seem to like it immensely, as they root and ramble about where it is with the greatest freedom; and as a top dressing it works wonders among Raspberries, Rhubarb, Seakale, and such like permanent crops. The only objection to rubbish heap stuff when applied in that way being the weeds, but if a fairly heavy covering of lime and a little salt be mixed in at the turning of the heap over, most of the seeds are destroyed. Leaving the rubbish heap, and looking forward to the summer crops and border plants, many sticks and stakes will be required for their support and training, and in the preparation and sorting of these there is much to be done, as new ones may be cut to right or suitable lengths and pointed, tied up into handy bundles, and put away ready for use, as by-and-by time will be too precious to spend over such jobs. If the weather is so bad as to be unfit for outdoor-work, then labour may be profitably employed under cover, as there is the fruit-room requiring attention in the picking over Apples, that all the slightly specked may be sorted out and used first. Potato stores to go over, and the stock to be turned, as that is very important, both with those for seed, except Ashleaf, and others for use, the turning and moving the bulk helping very much to prevent sprouting, and so keeping them in good condition, and right for the seasons. Onions and Shallots will need examination. In most gardens many labels are required, and pegs, either for Strawberry and Carnation layering, or other purposes, and these can be made—the first-named out of spare bits of hard yellow deal or laths, and the latter from Birch or old brooms. Pots, too, that have once been used are not fit to put plants in again without being cleaned, and they may be washed, a quick way of dealing with them being to put them into a large tub, partly filled with warm water, to soak, and then just a rub or scrub round with a piece of matting or brush will fetch the dirt off. Tools, also, need an annual overhauling and attention, to see that they are right according to list, and put in order, as wooden rakes, as well as ourselves, lose their teeth, and must have others put in; and spades and forks all pay for a good clean, and enter the ground more freely and easily when bright. All who have had to do with plants, and forcing or growing of fruits under glass, know how essential full light is, but this cannot be had with dirty glass, which obstructs or shuts out its ingress, and here there is a work of a very urgent and important kind to remove the filmy coating which in one year becomes quite thick inside and out. The inside may be dealt with under the worst of weather, and that out is best undertaken immediately after a rain, or when the deposit is soft from fog or damp, as then a half-worn-out hand-brush, tacked or tied on to a long light splint or rod, will soon liberate it with a rub up and down, and the garden engine or syringe, charged with water, and brought to bear, will at once wash it off. The inside may be treated in like manner, but besides



FIG. 25. —NARCISSUS MONOPHYLLUS, THE WHITE HOOP PETIOLE. (SEE P. 86.)

higher than 40° at night. Last night and the night before it was 34°, and once at least it was just down to 32° at night, and none of the three species showed the least symptom of being the worse for it. They grow in a lean-to at the north side of a cold greenhouse, which is just kept clear of frost. Mr. Backhouse, who probably has the largest stock of Disas in England, grows them in a house which is certainly much cooler than 48° or 50°, though I do not know how much so. It would be worth while to learn this from him, for he is most successful in the cultivation of Disas. *C. W. Strickland.*

EFFECT OF THE FROST UPON BRASSICAS.—The damage done to the above will hardly be felt till a general thaw takes place, but I believe it will prove to be very bad, inasmuch as the open weather in November was much above the average in temperature, and the growth was remarkable for the time of year. The several varieties of Brussels Sprouts have felt more or less the effect of frost, both early and late supplies being in many instances quite rotten. This is the case in these gardens, and in this locality generally. Chou de Burghley is quite spoiled; but as yet I do not know how others will have fared, all

houses were filled with Chrysanthemums till the end of December, and the trees in these are showing signs of expanding their fruit buds much earlier than is desirable, thus giving some additional trouble and anxiety. Many other gardeners will have had similar experiences, and yet it is difficult to understand how the practice can be avoided. I have, during the Chrysanthemum season, to supply 300 to 400 cut blooms a week, and have therefore to turn all glass-houses, during that period, to the best account. I hope there are no employers so exacting as to expect fine Peaches or other fruits, while the treatment of the trees, by crowding them with other plants, is what it too often is at the present day. *Stirling.*

WORK FOR BAD WEATHER.—The hard weather makes us poor frozen-out gardeners look round and see if there is any profitable work connected with the art to be done indoors. In large gardening establishments there is always plenty to do, and in small places if properly planned, and according to the amount of labour, there is also much that may be done. In the outdoors department, first of all, let us turn our attention to the rubbish heap, which really is a misnomer, as the various gatherings there are not

the glass, there is the wood-work, which should all have a scrub, as insects often lurk there, and hybernate for the winter; and if not insects, a thorough scrubbing and cleaning is necessary for the removal of the slimy or drip deposit that it always to be found, more or less, up the sides of the bars or frames, spoiling the paint. To act on it, there is nothing like water, with enough soft-soap just to colour or cloud it, and if this is used hot or warm, the labour will be lessened, and the cleaning made perfect. The leaves of the Orange, Camellia, Rhododendron, Ficus, Nerium, &c., may be sponged by any ordinary labourer, and their foliage made bright and nice; while for the more skilled, plenty of occupation may be found in training, tying, &c.; but these hints are only as reminders to some, and just to point out to young beginners what may advantageously be done. J. S.

SCOTLAND.

SCOTTISH HORTICULTURAL ASSOCIATION.

THIS Association held its ordinary monthly meeting on the 6th inst., at 5, St. Andrew Square, Mr. James Greive, vice-President, in the chair. Mr. M. Todd, Florist, Edinburgh, read a paper on "Market Gardening in the Lothians." Mr. Todd said that market gardening about Edinburgh was an ancient occupation, clearly at least dating back to the time of Jenny Geddes, the arch church reformer, who was the chief kail-wife or vendor of vegetables in her time. Much of the ground now covered by modern Edinburgh was occupied by gardens and nurseries, whence Jenny and others drew their supplies. Many of these gardens have been built over within the last fifty years. There were in the Lothians at the present time about 160 market gardens, ranging from 2 acres upwards, and in all there were about 2500 acres under market garden crops. Very little of this was devoted to orchards of the larger fruits, the conditions of tenure of the land being unfavourable to these being planted. But to the several small fruits there was a very considerable proportion of the above acreage devoted. Strawberries took the largest area of any of the hardy fruits, occupying, as they did, about 250 acres. Garibaldi was almost the only sort grown, and Ormiston the district in which they predominated most as a crop. There, also, the Raspberry was more important than in any other district. Strawberries realised, on the average, from £40 to £60 per acre; Raspberries from £20 to £28 per ton. The district of Dalkeith was the most famous for Gooseberries. Currants, particularly black Currants, were extensively grown in the districts named, and in others. But vegetables occupied the largest area in all districts; it was estimated that there were annually grown 200 acres of Leeks, while other hardy crops were in proportion to public demand. Very liberal culture was the rule of practice. Farmyard manure was the staple fertiliser, of which 60 tons per acre was an ordinary dressing. Peat-moss litter was gradually growing in favour, and nitrate of soda was the principal artificial stimulator used. Two crops per annum generally were taken from the land. The produce found its way chiefly to Glasgow and the populous places of the West, and also to Newcastle; in these places vegetables, reputedly from Edinburgh, found the readiest sale. Superior culture, care in the selection of only the best varieties, and a conservative retention of what was good till something better was found, had made the reputation of market gardeners of the Lothians in distant markets. Though slow to adopt any novelty in varieties of vegetables, they were always willing to test anything recommended to them from respectable sources, and new vegetables could hardly be put to a more severe test than the standard of the Lothians' market gardener. W. S.

EDINBURGH BOTANICAL SOCIETY.

January 8.—The Society met in the evening at 5, St. Andrew Square, Mr. R. Lindsay, President, in the chair.

The following motion, proposed by Professor Bayley Balfour, was adopted:—"That *The Proceedings and Transactions of the Society* be printed and issued monthly, or at short intervals as may be found convenient during the session, instead of as now being issued in the form of a single part after the close of the session."

Dr. Cleghorn took occasion to thank the Society for having elected him British Honorary Fellow, and referred to interesting incidents in his long connection with the Society—a period of over fifty years.

The following communications were made:—

1. "Note on the Relation of Density of Medium to the Macroscopic Form of Bacterial Growth." By Alexander Edington, M.B. Communicated by Professor Balfour. By cultivating *Bacillus arborescens* in a gelatine medium, it was found that, according to the amount of gelatine used, the appearance of the culture definitely varied. In the denser medium the arborescence was less marked. The temperature of the room, by affecting the density of the medium, led also to the change of appearance of growth. It was pointed out that a record of the temperature should be kept where experiments with bacteria are being carried out; identification of species would thus be more readily accomplished.

2. "On the Structure of *Tmesipteris Fosteri*, Endl." Part I. By J. Melvin Lowson, M.A., B.Sc.

3. "On a Differential Nucleolar Stain." By Gustav Mann.

4. "Commentaries on British Plants." No. I. "The Coarse Anatomy of the Wood of Trees and Shrubs." By Professor Bayley Balfour and Dr. J. Muirhead Macfarlane. (With lantern illustrations of structure). Sections of stems of the following were exhibited on the screen:—*Clematis*, *Berberis*, *Cheiranthus*, *Helianthemum*, *Lavatera*, *Tilia*, *Hypericum*, *Tamarix*, *Rhamnus*, *Euonymus*, *Acer*, *Pinus*, *Juniperus*, and *Taxus*.

5. "On Temperature and Vegetation at the Royal Botanic Garden," by R. Lindsay, Curator.—The month of December was, on the whole, a favourable one. A good deal of frost occurred during the month, but not so severe as to do much injury to vegetation. Comparatively tender plants are so far uninjured in the open ground. No snow fell, and there was a very light rainfall. The thermometer was at or below the freezing-point on twenty occasions, the aggregate amount of frost registered being 121°, as against 70° for the corresponding month of 1889. The lowest readings occurred on the 10th, 20°, 19th, 22°, 20th, 22°, 21st, 20°, 22nd, 17°. The lowest day temperature was 30°, on the 13th; and the highest 56°, on the 1st. Not a single plant came into flower on the Rock Garden during December. The total number of species and well-marked varieties which have flowered on the Rock Garden during the year 1890 amounts to 1353, being 131 less than during 1888. The deficiency occurred during the months of June and July. The largest number of plants came into flower during May. Usually by far the greatest proportion blooms in June. The number of species which came into flower each month was as follows:—January, 37; February, 25; March, 73; April, 150; May, 365; June, 346; July, 204; August, 81; September, 47; October, 23; November, 2; December, 0; total, 1353. A record has been kept, showing the date when each plant was first observed in flower.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 13.—The first meeting of the year was held at the Drill Hall on Tuesday last, when a small collection of Orchids of good quality was exhibited, as well as a fine display of well-coloured Apples from Hereford. Of course, the attendance of the general public was not large, but there was plenty of business for the several committees, and committee fol-

lowed committee with that regularity and profusion which renders the Horticultural Tuesdays fatiguing to those who have to begin at the beginning, and go straight on to the end. The afternoon lecture on Cyclamens was eminently practical and good, Mr. Warren leading off with a concise paper on the "Culture of the Persian Cyclamen;" Mr. Wilks following with a more elaborate disquisition on the hardy species, their history, diagnosis, and cultivation. The papers will be published in the *Journal* of the Society, so that we refrain from further comment, merely adding that a highly interesting and valuable discussion followed, in which Messrs. Walker, Martin (Sutton & Sons), and George Paul took part. Unfortunately, not a single Cyclamen was shown, so that the effect was like that of the play of *Hamlet*, with the part of the Prince of Denmark read by the prompter in the absence of the original.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. B. Wynne, H. Herbst, T. Baines, W. Furze, W. C. Leach, C. E. Pearson, G. Nicholson, R. B. Lowe, H. Turner, C. Jeffries, T. B. Poë, J. Walker, Ch. Noble, H. H. D'Ombraim, G. Paul, C. T. Druery, F. Ross, R. Dean, and J. Fraser.

A hybrid Begonia was shown by Messrs. J. Veitch & Sons, King's Road, Chelsea, it is the result of crossing a crimson-scarlet flowered tuberous variety with *B. Socotrana*, the latter being the seed-bearer; the progeny is a charming plant, bearing flowers of a glowing crimson-scarlet hue, with a tinge of the colouring peculiar to *Socotrana*. The flowers, of fairly regular form, are borne on an erect scape of about 6 to 8 inches in height, the leaves being round and pale green, the whole plant somewhat recalls a *Pelargonium*, and must prove to be a welcome addition to our bright-coloured winter-flowering plants; it is appropriately named *Winter Gem*. From Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, came a pan of the seasonable Hoop Petticoat Narcissus, *N. monophyllus*, of which an illustration is given on p. 85. It is very effective when grown in a mass. A few blooms of American varieties of *Chrysanthemum* were sent by Mr. W. C. Leach, gr. to the Duke of Northumberland, Albury Park, Guildford.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. De B. Crawshaw, N. Cookson, F. G. Tautz, J. Dominy, H. Ballantine, H. Williams, E. Hill, J. Douglas, L. Castle, S. Courtauld, J. O'Brien, H. M. Pollett, and Dr. M. T. Masters.

From the nurseries of Messrs. B. S. Williams & Son, Upper Holloway, N., there was sent an extensive group of Orchids, elegantly arranged with a few foliage plants, and a large-flowered *Clivia* was employed as a centre-piece. Of the Orchids shown, *Cypripediums* were in the majority, the following being among the best specimens:—*C. Sallieri* and *C. s. var. aurata*, *C. Fitchianum*, *C. Lceanum superbum*, *C. Dauthieri* var. *marginata*, and *C. insigne* var. *albo-marginata*. Other interesting plants were *Lælia anceps Dawsoni*, the pretty *Oncidium Phalænopsis*, *Epidendrum Wallisii*, and *Brassia antherotes*.

Messrs. F. Sander & Co., St. Albans, staged a few specimens of interest, the most attractive being *Lælia anceps Ballantianiana*, a very delicately-coloured form, the whole flower is lightly suffused with crimson-rose, which, while more intense on the petals, is deep at their apices; the lip is rich crimson, with a yellow crest. *Dendrobium Leechianum*, which was also sent, resembles a very fine form of *D. Ainsworthii*. Other plants were *Lælia anceps alba*; *Cypripedium Kramerianum* (*antherum* × *villosum*), which partakes strongly of the first-named; the flower is deep red-brown, the dorsal sepal having a white margin; and an unnamed *Catasetum*, with flowers of brown, with the lip and column white.

Mr. H. Ballantine, gr. to Baron Schroder, The Dell, Egham, sent a flower of *Cypripedium Harrisianum superbum*; it is a large bold flower, of a dark crimson-brown colour—more so than has the type.

A series of varieties of *Lælia anceps*, together with the type, were sent from Highbury, Birmingham, by the Right Hon. J. Chamberlain, Esq., M.P., the most noteworthy vars. being *oculata*, *Barkeriana*, and *grandiflora*, the last-named being large, with a very deeply-coloured lip.

Messrs. J. Veitch & Sons showed a few hybrid *Cypripediums* in *C. Calypso* (*Spicerianum* × *villosum* Boxalli), *C. Niobe* (*Fairieanum* × *Spicerianum*), *C. Lathomii* (*villosum* × *Spicerianum*), and *C. Creon* (*antherum superbum* × *Harrisianum*), which shows

a fine dark flower, the dorsal sepal being very deeply coloured; also *Dendrobium euosmum roseum* (nobile ♂ × *Dendrocharis* ♀), somewhat resembling a small-flowered *D. nobile* or a *D. Linawianum*, and *Calanthe excellens* (Regnier × *vestita*), the lip being very rich rose, intense in the throat, petals and sepals creamy-white.

Other exhibits included *Cypripedium carnisianum*, from J. C. Parr, Esq., Grappenhall, Heyes, Warrington; it is a cross between *C. Henryanum* and *C. Spicerianum*; the dorsal sepal is white, with a rose suffusion, and a deep central line of that colour; the petals are green, with a spotted brown base, fading to rose in the apex. Messrs. Pitcher & Manda sent plants of *Cypripedium Masereellianum*, *C. Leezanum* Burfordense, a pale-coloured form; and *C. magniflorum* var., with straw-yellow flowers. *Cypripedium Savageanum* superbum, with a light rosy flush, came from S. F. Ebner, Esq., Horton House, Beckenham, Kent; a specimen *C. insignis* came from C. Burnham, Esq., Stoke Newington; and from A. S. Smith, Esq., Cobham, Surrey (gr., Mr. J. Quarterman), a white-flowered form of *Cattleya Trianae* was sent, but the bloom had not yet fully expanded.

Fruit Committee.

Present: P. Crowley, Esq., and Messrs. J. Lee, R. D. Blackmore, T. J. Saltmarsh, G. Reynolds, W. Bates, G. Cliffe, W. Warren, J. Wright, A. H. Pearson, A. Sutton, A. Dean, J. Hudson, H. Balderston, F. Q. Lane, J. Smith, W. Denning, and Ch. Penny.

The only object submitted was a collection of about fifty dishes of Apples, well-coloured samples, from Mr. J. Watkins, Pomona Farm, Hereford; about one-half were Cider Apples, and in many cases interesting information as to the specific gravity, &c., of the fruits was given.

Awards were made as follows:—

By THE FLORAL COMMITTEE.

Award of Merit.

To *Begonia Winter Gem*, from Messrs. J. Veitch & Sons.

Cultural Commendation.

To *Narcissus monophyllus*, from Mr. T. S. Ware.

By THE ORCHID COMMITTEE.

Award of Merit.

To *Lælia anceps* Ballantiniiana, from Messrs. F. Sander & Co.

To *Lælia anceps grandiflora*, from the Right Hon. J. Chamberlain, Esq.

MEDALS.

Silver-gilt Flora Medal, to Messrs. B. S. Williams & Son, for a group of Orchids.

Silver Banksian Medal, to Mr. J. Watkins, for a collection of Apples.

MARKETS.

COVENT GARDEN, January 15.

[We cannot accept any editorial responsibility for the subjoined reports, which are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the price on any particular day, but the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted must not be taken as indicating the prices at any particular date, still less can they be taken as anything more than guides to the prices in the coming week. Ed.]

Business still very dull, with no alteration in values. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	3 6-7 0	Lemons, per case	15 0 25 0
— Nova Scotia, brl.	15 0-25 0	Melons, each	0 6 2 0
Cobs, Kent, 100 lb.	55 0-60 0	Pine-apples, St. Mi-	
Grapes, lb.	0 9-3 0	chael, each	2 0 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, per dozen	2 6-...
each	0 4-0 6	Mushrooms, punnet	2 0-...
Beans, French, lb.	1 0-...	Mustard and Cress,	
Beet, red, per dozen	2 0-3 0	punnet	0 4-...
Brussels Sprouts, lb.	0 4-...	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Seakale, per basket	2 0-3 0
Cauliflowers, each	0 4-0 6	Shallots, per lb.	0 6-...
Celery, per bundle	1 6-2 6	Spinach, per bushel	7 0-...
Cucumbers, each	0 6-0 9	Tomatoes, per lb.	0 9-1 0
Endive, per dozen	2 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

Potatoes.—Trade still very good for best samples, at last quotation, but commoner kinds a little easier. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Evergreens, in var.,	
Aspidistra, doz.	18 0-42 0	per dozen	6 0-24 0
— spec. plants, each	7 6-10 6	Ferns, in var., per	
Bouvardias, p. doz.	9 0-18 0	dozen	4 0-18 0
Chrsanthem., p. doz.	4 0-18 0	Ficus elastica, each	1 6-7 0
— specimen plants,		Foliage plants, vari-	
each	2 6-5 0	ous, each	2 0-10 0
Cyclamens, dozen	9 0-18 0	Hyacinths, per doz.	10 0-12 0
Cyperus, per dozen	4 0-12 0	— Roman, per doz.	9 0-12 0
Dracena terminalis,		Marguerites, doz.	6 0-12 0
per dozen	30 0-60 0	Mignonette, per doz.	4 0-6 0
— viridis, per doz.	12 0-24 0	Palms in variety,	
Eunymus, in var.,		each	2 6-21 0
per dozen	6 0-18 0	Poinsettias, dozen	9 0-15 0
Ericas, various, doz.	8 0-18 0	Solanums, per doz.	9 0-15 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Bouvardias, per bun.	0 6-1 0	Mignonette, 12 bun.	2 0-4 0
Callæthiopica, 12 bl.	8 0-12 0	Pelargoniums, scarlet,	
Carnations, 12 blms.	1 0-3 0	12 spr.	1 0-2 0
Chrysanth., 12 bun.	12 0 18 0	Poinsettias, 12 blms.	4 0 12 0
— 12 blooms	2 0-6 0	Primulas, double, 12	
Cyclamens, per doz.	0 3-0 6	sprays	0 6-1 0
Eucharis, per dozen	4 0-6 0	Roses, Tea, per doz.	1 0-4 0
Gardenias, 12 blooms	6 0-9 0	— coloured, dozen	3 0-5 0
Heliotropes, 12 spr.	0 6-1 0	— red, per dozen	3 0-6 0
Hyacinths, Rom., 12		— Safrano, French,	
sprays	1 0-1 6	per box of 100	3 0-6 0
Lilium, var., 12 bl.	2 0-18 0	— ditto, per dozen	1 0-3 0
Maiden Hair Fern,		Stephanotis, per 12	
12 bunches	4 0-9 0	sprays	9 0-12 0
Marguerites, 12 bun.	3 0-6 0	Tuberose, 12 blms.	1 0-2 0
Narcissus (paper		Violets, 12 bun.	1 0-4 0
white), 12 sprays	1 0-2 0	— Parme, Fr., bun.	7 6-8 6
— French, 12 bun.	4 0-9 0	— dark, Fr., bun	2 0-3 6

ORCHID-BLOOM in variety.

SEEDS.

LONDON: Jan. 14.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report an increasing activity in the seed market trade. As regards both foreign and English red Clover seed, the tendency of values is upwards. Alsike, white, and Trefoil, keep firm. For winter and spring Tares there is an improved inquiry. Hemp and Rape seed exhibit a further substantial advance. There is no change in Mustard seed. Blue Peas and Haricot Beans are steady. For Canary seed the demand is meagre. Linseed and Buckwheat are hardening.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending January 10, and for the corresponding period last year:—1891: Wheat, 32s. 6d.; Barley, 28s. 8d.; Oats, 17s. 6d. 1890: Wheat, 30s. 1d.; Barley, 31s. 5d.; Oats, 18s. 4d. Difference, Wheat, + 2s. 5d.; Barley, — 2s. 9d.; Oats, — 10d.

FRUIT AND VEGETABLES.

SPITALFIELDS: Jan. 14.—Fair supply of green vegetables, demand fair. Moderate supply of fruit, demand inactive. Potato trade fairly good. Prices were as follows:—English Apples, 5s. 6d. to 10s. per bushel; American do., 16s. to 24s. per barrel; English Tomatoes, 5s. to 8s. per 12 lb.; foreign do., 1s. to 1s. 9d. per box; forced Rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles. Savoy, 2s. to 5s. per tally; Cabbages, 2s. to 4s. 6d. do.; Curry Kale, 1s. 6d. to 2s. per bushel; Seakale, 1s. 6d. per punnet; Spinach, 1s. 6d. to 2s. 6d. per bushel; Brussels Sprouts, 1s. 9d. to 2s. 9d. per half-sieve; Cauliflowers, 2s. to 4s. per dozen; Greens, 2s. to 3s. per dozen bunches; Turnips, 2s. to 3s. do.; Carrots, 3s. to 3s. 6d. do.; do., 25s. to 50s. per ton; Parsley, 2s. to 3s. per dozen bunches; Celery, 6d. to 1s. per bundle; Horseradish, 1s. to 1s. 4d. do.; Parsnips, 1s. to 1s. 6d. per score; Beet-roots, 4d. to 6d. per dozen; Endive, 1s. to 1s. 6d. do.; Cabbage Lettuces, 1s. 6d. to 2s. do.; Leeks, 2s. 6d. to 3s. 6d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; English Onions, 5s. to 5s. 6d. per cwt.; Bordeaux do., 6s. to 6s. 6d. per case; Belgian do., 4s. to 4s. 3d. per bag of 110 lb.; Dutch do., 4s. to 4s. 3d. do.; Spanish do., 7s. 6d. to 8s. per case.

STRAFORD: Jan. 13.—There has been an excellent supply of all kinds of produce at this market during the week; a good trade was done at the under-mentioned quotations:—Savoy, 4s. to 5s. per tally; Greens, 1s. to 1s. 6d. per sieve; do., 3s. to 4s. per dozen; Turnips, 2s. to 3s. per dozen bunches; do., 60s. to 70s. per ton; Carrots, household, 45s. to 55s. do.; do., cattle-feeding, 28s. to 34s. do.; Parsnips, 1s. to 2s. per score; Mangels, 18s. to 20s. per ton; Swedes, 18s. to 21s. do.; Onions, English, 100s. to 110s. per ton; do. Dutch, 3s. to 4s. 6d. per bag; Apples, English, 3s. to 7s. per bushel; Celery 7d. to 1s. per roll; Watercress, 7d. per dozen.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.			RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.						
	Above (+) or below (—) the Mean for the week ending Jan. 10.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1891.	Below 42° difference from Mean since Jan. 1, 1891.	More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 3, 1891.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Ins.	Total fall since Jan. 3, 1891.
							Percentage of possible Duration for the Week.
							Percentage of possible Duration since Jan. 3, 1891.
1	5	0	59	7	29	9	4
2	6	0	76	6	35	5	2
3	8	0	80	6	43	3	3
4	11	0	104	9	61	2	4
5	9	0	90	10	46	5	2
6	10	0	87	11	58	5	2
7	6	0	61	8	31	11	2
8	7	0	70	9	40	7	1
9	9	0	67	14	48	6	2
10	7	0	60	14	37	6	2
11	8	0	53	20	38	6	2
12	7	0	30	23	21	5	2

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S. Principal Graving, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending January 10, is furnished from the Meteorological Office:—

"The weather has continued very cold and wintry in all parts of the Kingdom, but the sky has been clearer than for some time past—especially in the West and South. In Ireland and Scotland the conditions have been rather variable, the frost having been at times interrupted by decided thaws and some rain.

"The temperature has remained below the mean, the deficit having ranged from 5° to 6° over Scotland, from 7° to 8° over Ireland, and from 9° to 11° over the greater part of England. The highest of the maxima, which were recorded on the 4th at the English stations, but on the 10th elsewhere, varied from 50° in 'Scotland, N.' to 40° in 'England, E.' The lowest of the minima, which were registered on the 7th in most of the Irish and Scotch districts, and on the 10th in most parts of England, varied from 7° in 'England, E.' (at Gledeston), 8° in 'Scotland, E.' (at Braemar), and 9° in 'Scotland, N.' (at Lairg), to between 11° and 16° in most other districts, to 18° in 'England, N.E.' and to 25° in the 'Channel Islands.'

"The rainfall has again been considerably less than the mean in all districts.

"Bright Sunshine has been much more prevalent than for several weeks past, and has been in excess of the average for the time of year in nearly all districts. The percentage of the possible amount has varied from 46° in the 'Channel Islands,' and 40° in 'England, S.W.' to 20° in 'Scotland, N.' and 16° in 'England, N.E.'"

PRICES CURRENT OF MATERIALS.

OILS.			
Linseed	ton	21 10 0	21 17 6
Cocoa-nut, Cochín	...	33 10 0	34 0 0
— Ceylon	...	29 0 0	...
Palm, Lagos	...	26 0 0	26 10 0
Rapeseed, English pale	...	28 5 0	...
— brown	...	26 15 0	...
Cottonseed, refined	...	18 0 0	18 5 0
Tallow and Oleine	...	21 0 0	40 0 0
Lubricating, U.S.	...	6 0 0	7 0 0
— refined	...	7 10 0	12 0 0
TAR—Stockholm	barrel	1 1 0	...
Archangel	...	0 11 0	...

TIMBER.		£ s. d.	£ s. d.
Greenheart, B.G.	ton	6 15 0	7 5 0
Teak, E.I.	load	10 0 0	13 0 0
Sequoia, U.S.	foot cube	0 2 3	0 3 0
Ash, Canada	load	2 10 0	1 5 0
Birch	...	2 5 0	4 5 0
Elm	...	3 10 0	1 15 0
Fir, Danzig, &c.	...	2 0 0	3 15 0
Oak	...	2 10 0	4 10 0
Canada	...	4 17 6	6 10 0
Pine, Canada red	...	2 10 0	3 10 0
yellow	...	2 0 0	5 10 0
Lath, Danzig	fathom	5 0 0	6 0 0
St. Petersburg	...	5 0 0	7 0 0
Deals, Finland, 2nd and 1st std.	100	7 10 0	10 0 0
4th and 3rd	...	7 0 0	7 5 0
Riga	...	6 0 0	8 0 0
St. Petersburg, 1st yellow	...	9 10 0	11 0 0
2nd	...	7 10 0	9 0 0
white	...	7 0 0	10 0 0
Swedish	...	7 0 0	15 10 0
White Sea	...	8 0 0	17 0 0
Canada, Pine, 1st	...	13 0 0	24 0 0
2nd	...	9 0 0	16 0 0
3rd, &c.	...	7 0 0	10 0 0
Spruce, 1st	...	8 10 0	10 10 0
2nd and 2nd	...	6 10 0	8 0 0
New Brunswick, &c.	...	5 10 0	7 10 0
Battens, all kinds	...	4 10 0	15 10 0
Flooring Boards, sq. 1 inch, prepared,	...	0 10 0	0 14 0
First	...	0 8 0	0 10 6
Second	...	0 5 6	0 7 9
Other qualities	...	0 0 4	0 0 5
Cedar, Cuba	foot	0 0 4	0 0 5
Honduras, &c.	...	0 0 3	0 0 4
Mahogany, Cuba	...	0 0 4	0 0 6
St. Domingo, cargo average	...	0 0 4	0 0 6
Mexican	...	0 0 1	0 0 5
Tobacco	...	0 0 5	0 0 6
Honduras	...	0 0 5	0 0 6
Box, Turkey	ton	1 0 0	13 0 0
Rose, Rio	...	12 0 0	19 0 0
Bahia	...	10 0 0	18 0 0
Satin, St. Domingo	foot	0 0 9	0 1 3
Porto Rico	...	0 0 10	0 1 6
Walnut, Italian	...	0 0 4	0 0 7

METALS.		£ s. d.	£ s. d.
IRON—Bar, Welsh, in London, ton	...	6 10 0	6 17 6
at works in Wales	...	6 0 0	6 10 0
Staffordshire, in London	...	7 0 0	8 0 0
Copper—British, cake and ingot	...	57 0 0	58 0 0
Best selected	...	59 0 0	60 0 0
Sheets, strong	...	66 0 0	...
Chili, bars	...	53 0 0	...
YELLOW METAL	lb.	0 0 6	0 0 6
L'AD—Pig, Spanish	ton	12 17 6	13 0 0
English, com. brands	...	13 2 6	13 5 0
Sheet, English, 3 lb. per square foot	...	15 0 0	15 5 0
and upwards	...	16 10 0	...
Pipe	...	27 0 0	27 10 0
ZINC—English sheet	ton	90 15 0	...
TIN—Straits	...	90 15 0	...
Australian	...	90 15 0	...
English ingots	...	...	...

The Builder.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

Will some correspondent of *Gardeners' Chronicle* kindly give the names of the best dwarf Japanese Chrysanthemums—one or two of pink, red, and yellow?

NOTICES TO CORRESPONDENTS.

APPLE BLIGHT: *Wynberg, C. G. H.* Oidium farinosum, Cooke in *Grev*, first time out of Europe. *M. Cooke*.

BOOKS: *D. S.* There is no work which gives in the English tongue the characters of all the genera of plants in a tabulated form. In Latin, there is the *Genera Plantarum*, in three volumes, of Bentham and Hooker, which should be in the public library of your town. For the orders in English, and the uses of plants, see *Henfrey's Elementary Course*, latest edition, (J. Van Voorst, 1, Paternoster Row, E.C.)

CAMELLIA JAPONICA, SINGLE-FLOWERED: *Enquirer*. Few, if any, of these are named by the trade, and being, in most instances, seedlings on their own roots, they are strong growers. *C. Donckeaari* is one of the best semi-double varieties. It is rose, blotched with white, and very free. *C. reticulata* has fine large, showy, crimson flowers. *C. Waratah* is practically a single-flowered species or natural hybrid, in that the inner petals, together with the stamens, form a compact bunch in the centre of the flower, only one row of perfect petals showing around these.

CAMPANULA MEDIUM: *D. S.* You are quite right in your supposition that, under ordinary circumstances, the specific name should be written with a small initial letter, and that it should be made to agree with the generic name in gender—thus,

media; but the exception means something. We have not the books at hand to discover what, but presumably it is that there was an older genus, called Medium, which Linnaeus reduced to Campanula, retaining, as in many similar cases, the old generic name as the appellation of the species.

CATTLEYA FLY: *H. A.* Which is it? *Capsus Cattleyae*, figured and described by Professor Westwood in these pages on August 25, 1877; or *Phytocoris militaris*, figured and described on August 2, 1879. Beyond the careful use of insecticides and fumigation, we know of no other means of destroying either insect. They are fortunately not natives of this country, and their stay in any house is not very long; moreover, there is no fear of recruiting the stock from outside. Keep all newly-purchased plants by themselves for a time.

CHRYSANTHEMUM L. BOEHMER: *Mum Grower*. Apply to Mr. Bruce Findlay.

CINERARIA LEAF: *W. H. M.* The leaf has been mined by *Phytomyza nigricornis*. Syringe the plants with a mild solution of Quassia, to make the leaves distasteful to the insect. Closely examine each leaf daily, and if a gallery is seen, the insect will usually be found at the end of it, and may be killed by pricking or squeezing. Badly infested leaves cut off, and burn them. Celery, Turnips, and Chrysanthemums are attacked by this and a similar miner in the same manner.

CORRECTION: NEW PLANTS IN OUR LAST ISSUE.—Mr. T. Osborne, writing from The Grove, Teddington, desires us to state that he was the raiser of *Cypripedium Osbornii*, whilst in the service of H. J. Buchan, Esq., Southampton, and not W. Howard, Esq., to whom it was incorrectly attributed by us.

CURRENTS OF COMMERCE: *M. H. M.* It is the variety of Grape Vine known as the Black Corinth Currant Grape, Zante, &c. The Vine is moderately vigorous, matures well, and is very fruitful.

GARDEN OF 60 FEET BY 20 FEET: *N. B.* There are a variety of ways of laying it out. There might be rockwork in places against the walls, following an irregular line; in front of this, some erect-growing Cupressus or other evergreens may be planted. The rockwork could be planted with Saxifrages, Sedums, Campanulas, Thyme, Gentians, Primulas, and other hardy species that do well in towns—not forgetting autumn and spring Crocus, Scillas, Triteleias, dwarf Iris, small growing Ivies, Clematis, a few summer annuals being used to help out the display. The corners of the parallelogram might contain a few flowering and evergreen shrubs; the rest should consist of turf, with a walk and a few flower-beds of simple form at the sides, which might be filled with Lilies, Gladiolus, Stocks, Asters, Pelargoniums, or what you please; and as an undergrowth to the taller slender plants, use Mignonette, dwarf Nasturtium, Lobelia gracilis or other, Nemophila, and Myosotis. Do not depend much on hardy annuals, for they do but little good in London gardens.

METEOROLOGICAL INSTRUMENTS: *J. S. U.* To make the data collected easy of reference, a book should be obtained, each sheet of which is large enough to contain thirty-two or thirty-three lines, and ruled crosswise for the day of the month, for mean, maximum, and minimum temperatures; for readings of the barometer, night and morning; rainfall, in decimals; the direction of the wind, and for general remarks—therefore, nine columns in all, which should each be furnished with its appropriate heading, preferably in type. The thermometer or thermometers should be fixed on the north side of a neatly-made post, furnished with a small overhanging cap, and at 3 feet from the ground. The position should be open, and unsheltered by trees or buildings, as also for the rain-gauge. It is of advantage to have a thermometer placed at the ground level, on either turf or cultivated land.

NAMES OF FRUITS: *Walter Maule*. Moss's Incomparable.—*W. M.* Small fruit, Brymer; large one, Fearn's Pippin.—*Z.* 1, Hambledon Deux-ans; 2, not known—too much decayed; 3, Bess Pool.

NAMES OF PLANTS: *C. K.* 1, Libocedrus decurrens; 2, Cupressus Lawsoniana; 3, Picea excelsa, common Spruce apparently; 4, Cupressus Lawsoniana; 5, Biota orientalis, variety plicata; 6, Sequoia gigantea (Wellingtonia).—*Baco*. 1, Send fertile frond; 2, Blechnum brasiliense; 3, Nephrolepis tuberosa; 4, Aspidium plicatum; 5, Cyperus alternifolius; 6, C. laxus; 7, Panicum plicatum; 8,

Tradescantia repens; 9, T. zebrina; 10, Saxifraga sarmentosa; 11, Casuarina stricta. You should only send six specimens at a time.—*F. B.* A form of Odontoglossum praenitens.—*F. S. D.* Should send better specimens another time. 1, Send a proper specimen—not a miserable scrap; 2, Amaryllis reticulata; 3, Tradescantia discolor; 4, Nephrodium molle, probably; 5, Bigonia jasminoides, probably, you should send when in flower; 6, Anthericum lineare, fruits next week.

ROOT-GALLS ON THE OAK: *C. N.* These are the work of a small wingless fly, Cynips aptera, the



FIG. 27.—ROOT-GALLS ON THE OAK.

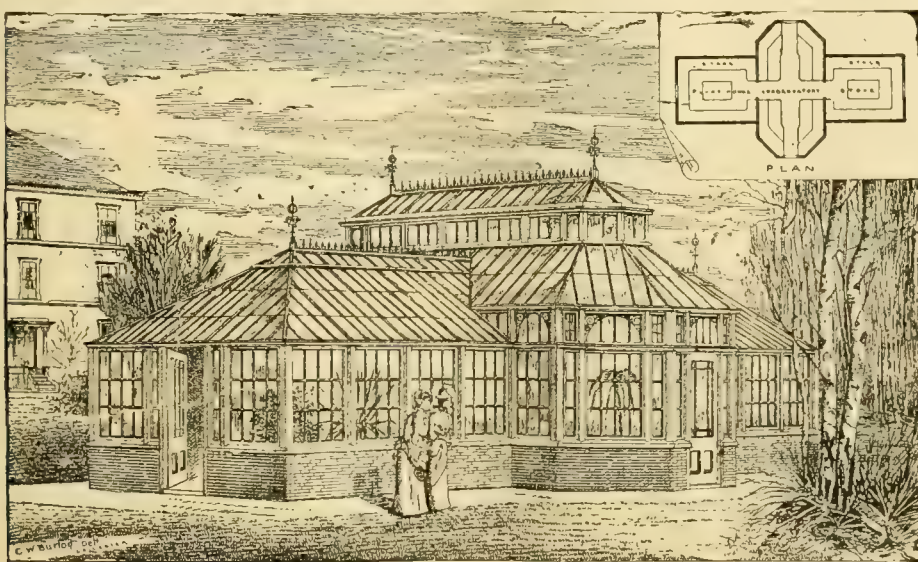
female of which deposits her eggs on the root-fibres, setting up irritation and swelling there, and thus laying up a store of food for the young when hatched.

STECHGINSTER AND STECHPALME: *G. T.* These are the German vernacular names of the—first, the Furze (Ulex europaeus); and, second, the Holly (Ilex aquifolia). "Stech" meaning to stick or prick, in allusion to the leaves of these plants.

CATALOGUES RECEIVED.

- ALFRED LEGERTON, 5, Aldgate, London, E.C.—Trade Seed List.
 W. DRUMMOND & SONS, Stirling, N.B.—Seeds, Implements, &c.
 KENT & BRYDON, Darlington—Garden Seeds.
 DICKSONS & CO., 1, Waterloo Place, Edinburgh, N.B.—Garden Seeds.
 IRELAND & THOMSON, 81, Princes Street, Edinburgh, N.B.—Garden Seeds.
 HEWITT & CO., Chad Valley and Market Hall, Birmingham—Seeds.
 W. B. HARTLAND, 24, Patrick Street, Cork, Ireland—Seeds.
 HOOPER & CO., LD, Covent Garden, London, W.C.—Seeds.
 BARR & SON, 12, King Street, Covent Garden, London, W.C.—Flower Seeds, Bulbs, &c.
 J. AND R. THYNE, 83, St. Vincent Street, Glasgow—Seeds.
 EUGÈNE GUEQUIER, 25, Rue de Belle Vue, Ledebeg-lez-Gand, Belgium—General Plant List.
 J. BACKHOUSE & SON, York—Seeds and Sundries.
 W. RUMSEY, Joyneys Nurseries, Waltham Cross, N.—Garden and Farm Seeds.
 F. HEINEMANN, Erfurt, Germany—General Catalogue of Seeds and English Supplement.
 THOS. BUTCHER, 35, George Street, Croydon—Seeds.
 B. L. COLEMAN, Sandwich, Kent—Seeds.
 HAAGE & SCHMIDT, Erfurt, Germany—Plant and Seed Lists.
 WM. CUTBUSH & SON, Highgate, London, N.—Seeds.
 PETER HENDERSON & CO., 35 and 37, Cortlandt Street, New York—General Catalogue.

COMMUNICATIONS RECEIVED.—Captain J. D. Smith, Baltimore.—G. H., Cairo.—J. V. K., Brussels.—Director of Agriculture, New South Wales.—T. K., Wellington, New Zealand.—A. G. H., Mt. Kembla, New South Wales.—C. R. H., J. O. W.—D. T. F.—M. P.—J. H. G., Ghent.—T. R. S.—W. Miles.—F. S. D.—C. W. D.—R. W.—J. R. J.—J. R.—A. P.—F. C.—G. C.—W. W.—J. R. H.—G. W. H.—B. S. W.—C. W. S.—E. S.—A. W.—C. J. W. (next week).—J. R. J.—J. H. L.—J. A. K.—T. C. D.—W. P.—J. J. W.—R. A.—E. J.—J. B. W.—W. C. & Son.—I. Cheal.—A. D. J. S.—A. C. F.—H.—W. H. D.—R. D.



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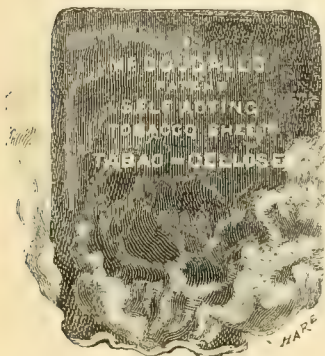
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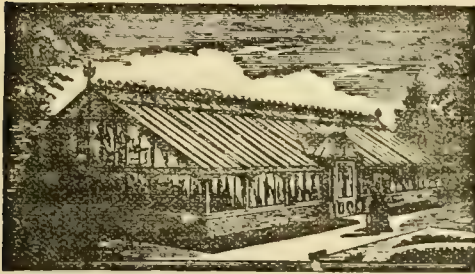
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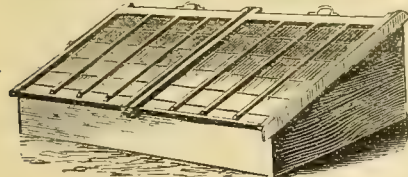
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4 " " 16 feet by 6 feet ...	5 8 0

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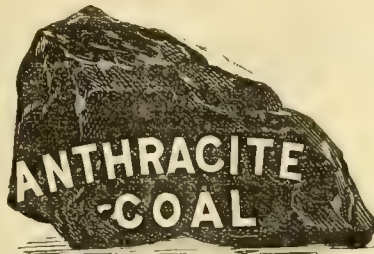
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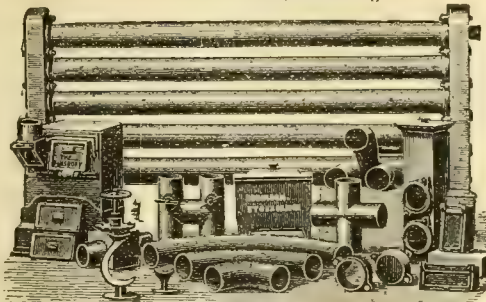
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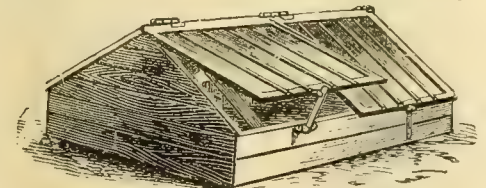
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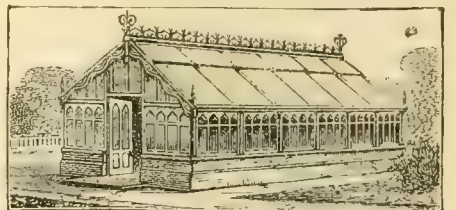
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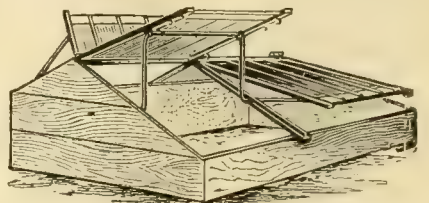
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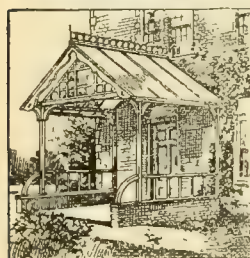
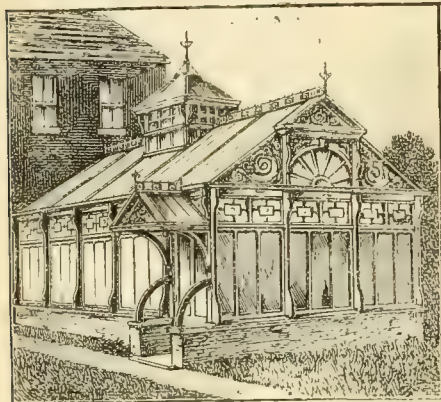
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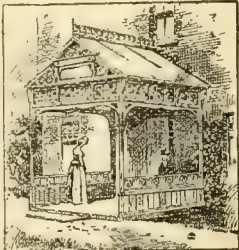
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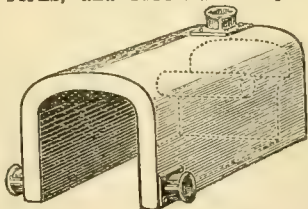
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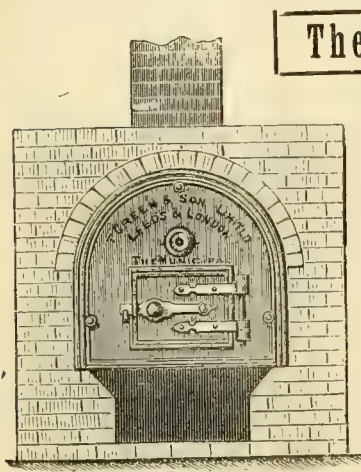
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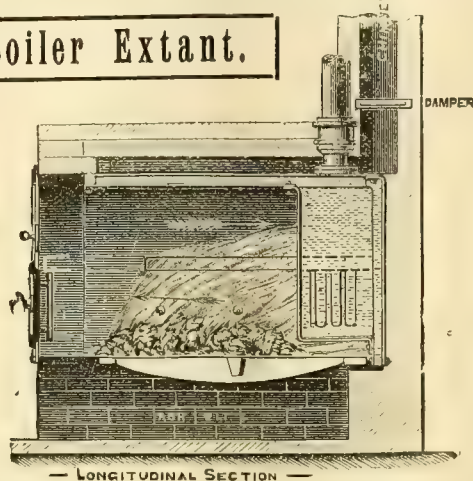
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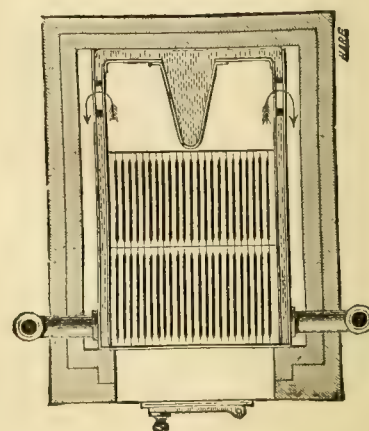
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Advertisers are specially requested to note, that under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

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THE GARDENERS' CHRONICLE,
Vol. VIII., Third Series, JULY to DEC., 1890.
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GRAND FLORAL FETE, YORK,
JUNE 17, 18, and 19, 1891.
PRIZES, nearly SIX HUNDRED POUNDS.
Schedules now ready. Apply to—
13, New Street, York. CHAS. W. SIMMONS, Secretary.

To the Subscribers of the
**GARDENERS' ROYAL BENEVOLENT
INSTITUTION.**—ISAAC GIBBONS and FAMILY beg
most sincerely to RETURN THANKS to all kind friends who
assisted him at the Election on January 15, 1891.

**GARDENERS' ROYAL BENEVOLENT
INSTITUTION, ELECTION, 1891.**—DAVID INNES
desires to THANK all those Friends who have so kindly ren-
dered him assistance by placing him on the List of Pensioners
on Thursday, JAN. 15 last.
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The Best Present for a Gardener.
VINES and VINE CULTURE.
The most complete and exhaustive Treatise on
Grapes and their Culture ever published.
New Edition.
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A quantity at 15s. per bushel.
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Full descriptions, with numerous Illustrations and Price List of upwards of 1500 varieties, see SUTTON'S AMATEUR'S GUIDE in HORTICULTURE for 1891. Price 1s., post-free; gratis to Customers ordering goods value 20s.
SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, the Queen's Seedsmen, READING.

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WHOLESALE PRICES.—Great care is taken in select-
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rate growth. Every Market Grower should send for a
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B. L. COLEMAN, Seed Merchant and Grower, Sandwich, Kent.

CLEARANCE SALE of BULBS, all in fine
condition. HYACINTHS, TULIPS, DAFFODILS,
CROCUSES, SNOWDROPS, SCILLAS, CHIONODOXAS, and
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Highest Market Prices guaranteed. Prompt cash.
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MY DWARF ROSES are the finest Plants I
have ever grown. Many kinds are bushes 3 to 6 feet high.
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KELWAY'S GOLD MEDAL COLLECTION.
Grand Bulbs, selected from a Stock of 25 Acres.
Twenty large Exhibition sorts, in good variety, for 10s.;
twenty good Border sorts for 5s.; or, select your own sorts (all
prices), from a List of 400 varieties, gratis upon application.
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WANTED, CUT FLOWERS, in quantity,
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DENERS' CHRONICLE,"** 1856 to 1869, or any Volumes
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GENISTAS for growing on. Price for cash to—
H. TITE, The Nurseries, Hampton, Middlesex.

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STEPHANOTIS, ASPARAGUS TENUISSIMUS, and
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F. SANDER AND CO., St. Albans, Herts.

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JAMES CARTER AND CO.'S first importations have now
arrived in the finest condition. Magnificent Bulbs, price 1s.
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introducers of this attractive Lily into England, and have
again secured the best Bulbs of the year.
Seedsmen by Royal Warrants to H.M. The Queen, and H.R.H.
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TO FORESTERS and PLANTERS.

SWEET CHESTNUTS, extra stout, 4 to 7 feet.
ASH, 2 to 4 feet, and 5 to 8 feet.
PINUS AUSTRIACA, handsome, 4 to 6 feet.
All fine stuff. For special terms, apply to
GEORGE BUNYARD AND CO., Old Nurseries, Maidstone.

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Priced CATALOGUE of VEGETABLE and FLOWER
SEEDS—including all Novelties of Merit, and Garden Requi-
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LIST of SEED POTATOS comprises all the best
varieties under cultivation. They have been grown from
selected stocks expressly for seed purposes, and the quality
this season is exceptionally good.
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ORCHIDS.—Clean healthy plants at low
prices. Inspection invited. Kindly send for CATALOGUE.
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SPROUTS. Hundreds of Testimonials.
Lord Scarborough's Gardener says:—"It is the hardiest and
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Price 6d. and 1s. per packet; per oz., 1s. 6d.; per lb., on
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SUPERB ORCHIDS, CHEAP.—Thousands
to select from. Write for List, free.—P. McARTHUR,
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**STANDARD PLUMS, DAMSONS, and Single
ALMONDS,** per 100 or 1000. Price on application. Also
AUCUBAS, 1 to 3 feet, per 100 or 1000.
FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

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CHARLES TURNER can offer the above
with tall stems and strong heads.
The Royal Nurseries, Slough.

AVENUE and ORNAMENTAL TREES.—
Norway Maple, 10 to 12 feet, 30s. per 100; Limes, 8 feet,
40s. per 100; Sycamore, 10 feet, 30s. per 100; Birch, 10 to 12
feet, 30s. per 100; Elm, Wyeh, 8 feet, 20s. per 100; Elm,
English, 8 feet, 30s. per 100; Ash, 10 to 12 feet, 25s. per 100.
GABLES MITCHELL, Nurseryman, Stranraer.

Trade Price Current, 1891.
PETER LAWSON AND SON (Limited),
Wholesale Seed Growers and Merchants, Edinburgh,
have posted their ANNUAL CATALOGUE of VEGETABLE
and FLOWER SEEDS to their Customers. If not delivered in
any case, another copy will be posted upon application.
The ANNUAL CATALOGUE of AGRICULTURAL SEEDS
will be published later on, meanwhile Special Offers will be
made, when requested.

Thirty-fifth Annual Issue.
W. THOMPSON, SEEDSMAN,
34, TAVERN STREET, IPSWICH,
Bugs to announce that his FLOWER SEED CATALOGUE
for the present season is now ready, Post-free to Customers.

**THOMSON'S IMPROVED VINE and PLANT
MANURE.**—This valuable Manure is made only by us.
Every bag and tin has our name on it. To be had of all Nursery
and Seedsmen, and direct from us. 1 cwt. and over carriage
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WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday Next.
IMPORTANT TO THE TRADE.

Immense Importations of LILIES from Japan, &c.
MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 28, 50,000 unusually fine Bulbs of LILIUM AURATUM (many in cases as received); 5000 L. LONGIFLORUM, 5000 L. SPECIUM RUBRUM and ALBUM, &c., specially lotted for the Trade and other large buyers; 10,000 Pearl TUBEROSES, &c.
On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

1000 Choice named Standard and Dwarf ROSES, Pyramid and Dwarf Trained FRUIT TREES, BORDER PLANTS, Ornamental EVERGREENS, SHRUBS, CONIFERS, &c. Also a fine collection of DAFFODILS, NARCISSUS, &c., LILY of the VALLEY crowns and clumps, SPIRÆAS, LILIUMS, HYACINTHS, TULIPS, CROCUSES, and many other DUTCH BULBS.

MR. J. C. STEVENS will **SELL** the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY and SATURDAY NEXT, January 28 and 31, at half-past 12 o'clock precisely each day.
On view mornings of Sale, and Catalogues had.

Thursday, February 19.

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.
MR. J. C. STEVENS begs to announce that his FIRST SPECIAL SALE of the SEASON of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 19, and he will be glad if Gentlemen Desirous of Entering Plants for this Sale will please send Lists as soon as possible.

Monday Next.

SPECIAL SALE OF 25,000 HARDY PLANTS, LILIES, and other BULBS.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 26, at half-past 12 o'clock, 25,000 HARDY PLANTS and BULBS, consisting of Carnations, Picotees, Pæonies, new French Canons, and Dahlias; 10,000 Pan-crati-ums, Ismenes, Narcissus, Calochorti, Tritelias, Muscari, Montbretias, Watsonias, Ixias, early-flowering Gladioli, Anemones, and many other beautiful varieties for outdoor planting. A magnificent collection of Iris, including all the best in cultivation, Germanica, Siberica, Pumila, Olbiensis, Kempferi, and a host of varieties too numerous to mention. Many thousands of Berlin Crocus, Lily of the Valley and Gladioli; 500 Cypripedium spectabile, and other varieties; 1000 home-grown Lilies, consisting of Giganteum, Brownii, Humboldtii, Washingtonianum, Parryi, Cordifolium, Han-soni, Krætzleri, tigrinum, speciosum, longiflorum superbum, Parlatum, Colchesteri canadensis, and many others. Also a collection of hardy Perennials, consisting of some of the best in cultivation, as *Heuchera sanguinea*, *Senecio pulcher*, *Papaver orientale*, *Aquilegia*, *Chrysanthus*, *Anthericum*, *Hezercallis*, *Campanulas*, and many others.

On view morning of Sale, and Catalogues had.

Friday Next.

ONE HUNDRED AND TWENTY DISA LONGICORNIA.

OFFERED FOR THE FIRST TIME. This wonderful blue-flowered Orchid, which may be regarded as a congener of the famed *D. grandiflora*; its flowers, varying from pure white to bright blue, are as large as those of *D. grandiflora*; its broad green leaves similar to those of *D. grandiflora*, and its culture equally easy. Of it Thunberg says:—"With great difficulty, and at the hazard of my life, I got for the first and last time, the large blue *Disa longicornia*, which is as beautiful as it is singular in form." See coloured plate and description in Bohn's *Orchids of the Cape Peninsula*. See also dried flowers.

Also a few lots of other rare DISAS and SATYRIUMS, including the handsome crimson *S. PRINCEPS*, and the fine new *DISA RACEMOSA*, recently figured in *The Garden*.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE OF ORCHIDS, on FRIDAY NEXT, January 30, at half-past 12 o'clock.
On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 30, at half-past 12 o'clock, valuable IMPORTED and ESTABLISHED ORCHIDS, comprising the following new and rare plants:—
NEW DENDROBIUMS—*Dendrobium dicuphum*, purple and white, very free flowering; *D. Foeschii*, *Cymbidium canaliculatum*, *Eulophia venosum* and *Hoetzelii*, *Angraecum bilobum* and *fastuosum*.

VANDA SANDERIANA.

A magnificent lot of very fine plants, the soundest lot ever brought into the market. An importation of the largest Andaman Island form of *Dendrobium formosum giganteum*, *D. heterocarpum*, *D. nobile*, collected in Thibet, a hitherto unsearched region; *D. densiflorum*, distinct and remarkable from Bhothan; *Phaius tricolor*, one of the finest of the genus; *Cymbidium longifolium*, very rare; new variety of *C. grandiflorum*, Section of *Ceburnum major* var., from Bhothan, large white fleshy flowers (imported); *Cattleya Percivaliana*, 20 splendid specimens; *Aërides Sanderianum*, 20 grand specimens (established); *Angulora* species, unflowered (established), splendid plants; *Cattleya Schofieldiana*, established and unflowered; *C. Brymeriana*, strong plant; *Lycia* to *Skinneri* alba, strong plant, in flower; *Corylogne cristata* alba, with flower-spikes; *Galeandra d'Escagnolleana*, fine plant; *Aërides Savagiana*, a new crimson-flowered *Aërides*; *Angraecum Scottianum*, Cypripedium *Sanderianum*, *Dendrobium Leochianum*, *Epidendrum Xanthinum*, the new *Grammatophyllum Mesaurium*, *Lachia anceps* Williamii, *L. Eyermanii*, *L. grandis*, *L. Sobralia*, *Xantholuenia*, imported, and growing freely; *Gloriosa superba*, fine Tubers.

On view morning of Sale, and Catalogues had.

Wednesday Next.

190 Cases of JAPANESE LILIES.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 28, at half-past 12 o'clock, 10,000 fine Bulbs of LILIUM AURATUM, 3500 L. ALBUM KRETZERI, 10,000 L. LONGIFLORUM, and 1,000 L. AURATUM SPECIES, all received from Japan in first-rate condition; 9,000 American Pearl TUBEROSES, LILIUM SZOVITZIANUM, a large assortment of English-grown and other LILIES; HARDY BULBS, HERBACEOUS PLANTS, and 50 lots of FERNS and GREENHOUSE PLANTS, from an English Nursery.
On view morning of Sale, and Catalogues had.

Nursery, Seedsmen, Florists.

TO LET, on Lease, old-fashioned HOUSE, GARDEN, STABLE YARDS, SHEDS, and 8 Acres MEADOW LAND. Finsbury Park. Four miles from City. E., 3, Praed Street, Paddington, W.

TO BE DISPOSED OF, a nice little Established FLORIST and SEED BUSINESS—a Shop and House in the middle of one of the best streets, and a Stall in the Market Hall. Apply, 71, Bridge Street, Warrington.

NURSERYMEN desirous of DISPOSING of their BUSINESSES are invited to send particulars, in confidence, to the undersigned. Must be situated in Hampshire, Surrey, Sussex, or Kent. Businesses must stand the strictest investigation.

Apply, by letter, P. Q. R., Crossley, Moir & Co., Advertising Agents, 57A, Coleman Street, E.C.

FOR SALE, a FLORIST'S SHOP (High Class).

Apply to THE CONSERVATORY, Finchley Road, Hampstead, N.W.

FOR DISPOSAL, a SEED BUSINESS.—The only one in a large town. Rent low. Spring Seed Lists have been sent out. A smart Plate Glass Window, Seed Drawers, &c. A suitable opportunity for a Man with Small Capital. Now is the best time to go into business.

Apply to R. J., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, London, W.C.

FREEHOLD LAND, 8 Acres, all Main Road Frontage; 270 feet above the sea; close to Southend. £35 an acre. — **FREEHOLD NURSERY**, Tottenham, £310. Grapes and Tomatoes producing over £100 a year; 5 miles from Covent Garden; three Greenhouses, 48 feet by 22 feet, heated with one large Saddle Boiler, and filled with Vines and Roses; Propagating House, 17 feet by 9 feet. Good trade.
LINDSEY, 15, Leadenhall Street, E.C.

Wanstead.

Eight miles from Covent Garden, in a fine open position, on the borders of Epping Forest, and abutting on Wanstead Park.

A NURSERY of about 10 ACRES of deep, rich LOAMY SOIL, fine for Fruit Trees and Roses. Fine Stool Grounds, and thriving Young Stock. Cottage. Lease 11 years unexpired. Rent £15 per annum. Owners retiring from the Nursery Business. Price on application.
Apply to PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

Landscape Gardening.

B. MALLER AND SONS are prepared to furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

THE TOWER FURNISHING COMPANY (Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.
Address, SECRETARY, 43, Great Tower Street, E.C.

Notice Change of Address.

MR. H. E. MILNER begs to notify that, in order to meet the need for increased office accommodation at DULWICH WOOD, as well as to ensure more convenience for consultations, he has taken additional offices at WESTMINSTER CHAMBERS, 7, VICTORIA STREET, S.W., which henceforward will be his chief office.
HENRY ERNEST MILNER, F.L.S., Assoc. M. Inst., Landscape Gardener.

FERNS! FERNS!! FERNS!!!—Cheap Trade offer in 25 most saleable sorts, stove and greenhouse, 12s. per 100; from stores, 6s. per 100, 50s. per 1000. Terra-cotta Baskets, 2s. doz.; Stumps and Vases, 1s. 6d. doz.; for showhouse, bazaars, &c., packed free. Cash with order.
J. SMITH, London Fern Nursery, Loughboro' Junction, S.W.

Seeds.

CHARLES TURNER'S Descriptive and Priced CATALOGUE of KITCHEN, FLOWER GARDEN, and FARM SEEDS, will be sent Free on application.
The Royal Nurseries, Slough.

CHRYSANTHEMUM ETHEL.—Large, white, reliable, Christmas and New Year flowering variety.

Cuttings post-free in Great Britain, at 1s. 9d. per dozen; or 10s. 6d. per 100. Terms, cash with order.

J. J. KING, Park Gate, Swanwick, Hants.

SEAKALE for Forcing, superior Selected Large Crowns, none better in the Trade, 75s. per 1000 under 500, 8s. 6d. per 100. Cash with all orders. A large quantity to offer.
ALFRED ATWOOD, Grower, 21, Shillington Street, Battersea, S.W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At the Annual General Meeting of the Subscribers held on January 15, 1891, for the Election of Nine Pensioners, it was resolved: That in consequence of Two Vacancies having occurred in the List of Pensioners since the Voting Papers were issued, the number to be elected be increased from Nine to Eleven. The following was the Result of the Ballot:—

Votes.	NAME.	Result.
655	HENRY BARTHOLOMEW.	
1299	THOMAS BENNING.	
1710	WILLIAM BUNN	ELECTED.
593	JOHN BUTLER.	
883	JONAH DICKENSON.	
2376	JAMES GAGE	ELECTED.
1539	ISAAC GIBBONS	ELECTED.
1875	GEORGE HINXMAN	ELECTED.
2023	DAVID INNES	ELECTED.
1228	LOUISA JENNINGS.	
411	JANE ELIZA NICHOLS.	
1609	JOSEPH HENRY POOLE	ELECTED.
2657	HENRY PRIMMER	ELECTED.
224	ISAAC BROWN (Dead).	
183	WILLIAM COLEMAN.	
2127	SUSANNAH DAVISON	ELECTED.
1319	MARY ELIZABETH GRAY.	
1326	MARY ANN LANE	ELECTED.
1241	HENRY MARTIN.	
774	ELIZABETH MAY.	
963	GEORGE MEDLAND.	
125	JAMES MUNRO.	
1910	WILLIAM NEWCOMBE	ELECTED.
2509	THOMAS STEVENSON	ELECTED.
642	HARRIET WOOLFORD.	

The Meeting then declared Henry Primmer, Thomas Stevenson, James Gage, Susannah Davison, David Innes, William Newcombe, George Hinxman, William Bunn, Joseph Henry Poole, Isaac Gibbons, and Mary Ann Lane, as having the greatest number of votes, duly Elected Pensioners from December 25, 1890.

EDWARD ROGER CUTLER, Secretary.

59, Parliament Street, S.W., January 16, 1891.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

Many Acres of Lilies of the Valley!

T. JANNOCCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNOCCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.

BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.

BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.

DESCRIPTIVE CATALOGUE free on application.

BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

To Nurserymen, Builders, Local Boards, Vestries, and others who intend planting Trees and Shrubs this season.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to offer an extensive stock of FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c., which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine SEAKALE and RHUBARB for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

ASPARAGUS, 5-yr. old for forcing, grand roots, 7s. 6d. per 100; 3-yr. old for planting, 25s. per 100. Cash with order. My Asparagus always makes top price at Covent Garden. Read the following unsolicited testimonial:—"Please send me another 200 5-yr. old Asparagus roots. I may say that the last 200 were the best lot of forcing roots I ever bought, and my employer says the quality is excellent.—C. H. PERKINS, The Gardens, Milton Abbey, Blandford, December 27, 1890."

J. J. CLARK, Market Gardener, Goldstone, Brighton.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense Stock of Orchids,

And they are constantly receiving Importations from various parts of the world.

NEW DESCRIPTIVE PRICED CATALOGUE

Post-free on application to

THE VINEYARD AND NURSERIES,
GARSTON near LIVERPOOL.

BEGONIA SEEDS.—Sow now. The best and cheapest is Box's Strain—surest of germination, finest of flowers. Single varieties, half-packet, 6d.; per packet, 1s. and 2s. 6d.; collection, 8 colours, 2s. 6d. Double varieties, half-packet, 10d.; per packet, 1s. 6d. and 2s. 6d.; collection, 8 colours, 5s. Most complete List in the Trade, gratis. JOHN R. BOX (for 10 years J. Laing's Sole Partner), Seedman and Begonia Grower, Croydon.

Profitable Plums. Fine Standards.

GEORGE BUNYARD AND CO., Maidstone, can offer the Czar, Victoria, Gisborne's, Belgian Purple, Blue Prolific, Engleheart, Cox's Emperor, and the Waterloo or Kent Bush, the only one that produced a crop this past season. For prices, &c., apply below.

N.B.—Some of the above in Half-standard and Feathered Trees, and all other Fruits.

The Old Nurseries, Maidstone.

HARDY AZALEAS.—A selection of the most beautiful, many of which were raised in this Nursery, well furnished plants, covered with buds, from 1½ to 3 feet high.

AZALEA MOLLIS.—Very fine plants up to 2½ feet, well budded.

AZALEA OCCIDENTALIS *or* **MOLLIS.**—White, with lemon blotch—very beautiful, offered for the first time.

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H. J. VEITCH, Hon. Secretary.

King's Road, Chelsea, January 21, 1891.

MEMORIAL

TO THE

LATE MR. SHIRLEY HIBBERD, F.R.H.S.

IN compliance with a requisition signed by influential representatives of all departments of Horticulture, a Public Meeting was held at the rooms of the Royal Horticultural Society, on December 9, 1890, Sir Trevor Lawrence, Bart., President, in the chair, when it was unanimously resolved to establish some Memorial of the life and work of the late MR. SHIRLEY HIBBERD, and the following gentlemen were appointed as a Committee to carry the resolution into effect:—

- (1) As representing the Council of the Royal Horticultural Society—Rev. W. WILKS, M.A., Secretary; GEORGE PAUL, Esq., and JAMES DOUGLAS, Esq.
- (2) As representing the Fellows and Subscribers—W. H. COLLINGRIDGE, Esq., W. MARSHALL, Esq. (Chairman of the Floral Committee), R. DEAN, Esq. (Secretary of the National Chrysanthemum Society), and Dr. MAXWELL MASTERS (Vice-President of the National Rose Society), the latter gentleman being nominated as Chairman of the Committee.

On December 19 the Committee so appointed met to consider the various suggestions which had been made as to the form of the proposed Memorial, and also to take steps for carrying it into effect. At this Meeting, the following resolutions were unanimously carried:—

- (1) Proposed by Mr. MARSHALL, and seconded by Mr. W. H. COLLINGRIDGE: "That this Committee recommend that a portrait of the late MR. SHIRLEY HIBBERD be painted, and that, after defraying the necessary expenses, the remainder of the fund subscribed be invested in the names of Trustees, to be hereafter appointed, for the benefit of the orphan daughter of the late MR. HIBBERD."
- (2) Proposed by Mr. DOUGLAS, and seconded by Mr. DEAN: "That the portrait be entrusted to the care of the Trustees of the Lindley Library, on behalf of the Royal Horticultural Society."

The Committee have already received promises of financial support, chiefly from those present at the original meeting, to the amount of about £100, in sums varying from 2s. 6d. to £25, and they now earnestly solicit further assistance in carrying the above proposals into effect.

The gentlemen who signed the original requisition to the Council were:—The Very Rev. the DEAN OF ROCHESTER, President of the National Rose Society; Rev. H. H. D'OMBRAIN, Secretary of the National Rose Society; T. W. GIRDLESTON, Esq., National Dahlia Society; R. DEAN, Esq., Secretary National Chrysanthemum Society; W. MARSHALL, Esq., Chairman of the Floral Committee; R. D. BLACKMORE, Esq., Vice-Chairman of the Fruit Committee; Dr. ROBERT HOGG, *Journal of Horticulture*; HARRY J. VEITCH, Esq., Chairman of the Orchid Committee; W. ROBINSON, Esq., *Garden*; Sir JOHN D. T. LEWELYN, Bart., National Auricula Society; Professor M. FOSTER, Secretary Royal Society; Dr. MAXWELL T. MASTERS, *Gardeners' Chronicle*.

Subscriptions may be sent to any Member of the Committee, or to Dr. MASTERS and the Rev. W. WILKS, at the Offices of the Royal Horticultural Society, 117, Victoria Street, Westminster.

MAXWELL T. MASTERS,

Chairman of the Committee.

WILLIAM WILKS,

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MR. WATSON, Superintendent Kew Gardens, Dec. 27, 1890.

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MR. G. M. SMALL, 218, Cashel Street, Christchurch, New Zealand, Nov. 20, 1890.

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Vol. VIII., Third Series, JULY to DEC., 1890.

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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 24, 1891.

ECHOES OF THE PAST, VOICES OF THE PRESENT.

PROBABLY the most marked and notable distinction between the old ways and the new in horticulture will be found to lie more in modes and methods of procedure than in the finished products. "Thorough" was the motto, and leisurely painstaking, the breath of life of the older horticulturists. Whatever is worth doing is worth doing well, was the watchword of their daily practice: The hurry-scurry, haste, and consequent scamping of natural beauty and sound culture, for flimsy furnishing or decorative floral upholstery, found little or no place in the horticulture of fifty years ago. The so-called bedding-out system of flower-garden furnishing, still slept, in the original genius of Mr. John Caie, and only took tangible shape tentatively years afterwards in the beautiful gardens of the Dowager Duchess of Bedford, Bedford Lodge, Kensington. No artist exhibiting his first picture was ever more coy, shy, and ill to please, than was Mr. John Caie with his fast blends of contrasts and harmonies, and nice adjustments and balancings of grave and gay, verdure and colour, foreshortenings and extensions of apparent extent and magnitude. No landscape seer probably ever saw these matters with the clearness and taste of Mr. John Caie, and it was not until he threw up the reins of the new method of flower garden culture in despair, that the system itself ran to seed in blazes of vulgar glare that threatened at one time to sweep the system, with its many merits as well as its glaring demerits, out of our gardens. The art of decorating houses, churches, and public buildings, might also be said to be sleeping in the brain of Mr. Wills at Oulton Park, who was too eagerly

engaged in equalling or excelling Mr. Errington in cultural success to have time for the resolution of his future decorative exploits, which at a later period attracted so much attention, and gave a marvellous impetus to decorative horticulture, and to the wholesale cultivation of special subjects and plants for these objects.

A good deal may be said for and against these novel modes of decorative furnishing out-of-doors and in. Whilst carefully, however, avoiding subjects of mere controversy, it may be safely affirmed that the introduction of these two strong impetuous currents with the older horticulture, checked or rendered impossible a good deal of that thoroughness and perfection of workmanship which was the pride and the glory of the older gardeners. Surface show began to assume the places of solid knowledge and cultural solidity, and all these changes were greatly hastened through the enormous demands made for quantity. Mass in many quarters passed muster not only for right but for beauty, and in the struggle after quantity, quality has too often had to go to the wall.

Less than fifty years ago, however, the workmanship in gardens, if not the general culture of plants, was much superior to the general average of to-day. Master gardeners then insisted on perfect digging, nailing, training, pruning, raking, and mowing. To give one illustration—one of my earliest memories is that of the training of a Morello Cherry tree, on which nearly a week had been spent. The journeyman had made several mistakes in equally dividing the leaders, and placing the young wood at proper distance and correct angles of inclination. It was nearly finished as the master passed; he stopped, took the hammer, undid several branches, and insisted on the whole tree being re-trained, an object-lesson in thoroughness never forgotten by men or lads. The same perfection of workmanship was insisted on in all other manual or brain work, even to the best modes of stoking or damping down fires.

But as already remarked, the *Gardeners Chronicle* came as a shock of corn in proper season on January 2, 1841. There was considerable expectancy in the air horticultural, though little of passionate excitement or eager haste. Hence the first numbers were solid rather than showy. Sir Joseph (then Mr.) Paxton's Calendar of Operations, alone was a most solid epitome of practical gardening—sound, safe, and thorough, week by week. It was rather a bold experiment to have this first gardener in the country instruct his fellows under his signature as to their weekly deeds in the garden—but it proved successful. In looking through Paxton's Calendar for January, 1841, we are impressed with the fact that little or nothing would be needful to make it perfect for 1891. The master mind is heard in these sentences, from the introduction to the first Calendar: "The gardener will do well to go round with the determination of finding fault with himself, not his men; he will often discover that this is productive of good, and much more satisfactory than if it emanated from his employer." And again, though this is more true of fifty years ago than of to-day, "The gardener has now (January 24, 1841), much leisure time, let us impress on his mind its importance for improvement and to study in." A note to Paxton's second Calendar, January 9, 1841, says that, with the thermometer near zero, it can chiefly apply only to indoor gardening. In his third Calendar, Mr. Paxton refers to the continuance of severe frost, and to his ability to cover out from his pits and houses of from 10° to 15° of the same, a fact of

great current moment, with rising coal, and frost still hesitating to leave after hugging us closely for six weeks. On January 23, there is a further reference to the continued frost, which ran nearly through the month. In proof of what may be called the solidity of the basis of the *Gardeners' Chronicle*, it is only needful to read the prospectus of the paper already printed, and to glance at the contents of the first number.

The great frost of fifty years ago reached almost its crowning severity and eccentricity on the day after the first number of the *Gardeners' Chronicle* was launched. The thermometer near London fell to 1½° below zero, and the storm of wind, hail, thunder, and lightning, extended throughout the country. The storm raged in London for about an hour and a half; various churches and roofs were injured, great trees in Epping Forest were blown down, and great injury was done, heavy storms of hail of unusual size. Throughout the week the cold continued very severe, and roads and streets were sheets of ice, and in Regent's Park alone 10,000 skaters were on the ice daily. Over the greater portion of Great Britain and Ireland, as well as on the Continent, this storm of wind, hail, snow, thunder and lightning raged, and the record of its severities may make us really thankful that our very similar weather now, though it may have lasted longer, has not resulted in such abnormal and alarming severities. *D. T. Fish.*

NEW OR NOTEWORTHY PLANTS.

CYRTANTHUS (NEMELLA) PARVIFLORUS, *Baker, n. sp.**

This is a new species of *Cyrtanthus*, allied to *C. angustifolius* and *collinus*. It has bright scarlet flowers, much smaller than those of *angustifolius*, with segments not at all spreading. I have received it alive from Mr. John Leman, gardener to T. T. Dawson Paul, Esq., of Newmarket Road, Norwich, to whom it was sent from Port Elizabeth. I have seen dried specimens from the Mountains of Eastern Griqualand, altitude 4,500 feet, collected by Mr. Tyson; and from the Saddleback range in the Transvaal, altitude 4,000 to 5,000 feet, gathered by Mr. Ernest Galpin; also from a garden at Stockenström, from Mr. Scully.

Bulb oblong. Leaves produced with the flowers in January; linear, straight, bright green, a foot long. Scape terete, as long as the leaves; flowers 10 to 12 in an umbel; spathe-valves lanceolate, an inch long; pedicels at most as long as the spathe. Perianth sub-cylindrical, 1 to 1½ inch long, bright scarlet; tube ½-inch diameter at the top, ⅓-inch at the base; segments erect, imbricated, ¼-inch long. Style reaching to the tip of the segments, tricuspidate at the apex. *J. G. Baker.*

CYPRIPEDIUM × CELIA, *n. hyb.†*

This is a very pretty hybrid *Cypripedium*, raised in the collection of Wm. S. Kimball, Esq., of

* *Cyrtanthus (Nemella) parviflorus*, n. sp.—Foliis synanthris linearibus viridibus; scapo tereti pedali; umbellis 10—12 floris; spathe valvis lanceolatis; perianthio sub-cylindrato splendide scarlatino horizontali tubo curvato sub-cylindrato, segmentis tubo 3—4 plo., brevioribus, exterioribus oblongo-lanceolatis interioribus oblongis; genitalibus perianthio equilongis.

† *Cypripedium × Celia*, n. hyb.—Leaf linear-oblong, acute, light green, irregularly tessellated with dark green. Dorsal sepal suborbicular, over 1½ inch broad, white, with numerous light green nerves on the basal half, and a narrow purple median band. Petals linear-oblong, over 2 inches long, a little ciliate, light green, nearly white towards apex, with a narrow purple median band, and about seven lines of small dusky-purple spots. Lip 2 inches long, purple-brown in front, paler behind, infolded side-lobes with numerous purple-brown spots on a pale ground. Stamens obovate-reniform, the two apical teeth very broad and rounded, purple, with white margin and green reticulations in the centre. Probably derived from *C. Spicerianum* and *C. tosum*. *R. A. Rolfe.*

Rochester, New York, by Mr. George Savage, which flowered for the first time in October, 1890. Its parentage, unfortunately, was lost. The characters of *C. Spicerianum*, however, are so strongly stamped on the entire flower, that there can be no doubt it was one of the parents. It is equally certain that a light-coloured member of the tessellate-leaved group was the other. I at first fixed upon *C. superbiens*, but Mr. Kimball points out that this species flowers in the summer, when *C. Spicerianum* is not in bloom. *C. tosum*, however, does bloom with *C. Spicerianum*, and the two were crossed together. Now, after studying the whole question, Mr. Kimball, Messrs. Low & Co. (through whom the specimen and a drawing were received), and myself, agree that *C. tosum* will account for the plant's character, even better than *C. superbiens*, and was probably the other parent. Nevertheless, if the parentage of *C. × Hornianum*, *Rchb. f.*, is correctly given, *C. Spicerianum* and *C. superbiens* must sometimes flower together. I believe characters of *C. tosum* are present in the leaf, dorsal sepal, and stamens, and to some extent in the petals also. The slight ciliation probably comes from the other parent. It is interesting as the first hybrid derived from *C. tosum*. The name is given, by request, in honour of Mr. Kimball's daughter. *R. A. Rolfe.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM NIVEUM, *Rolfe*. (*D. Macfarlanei*, *Rchb. f.*, NOT OF F. MUELL.)

A FINE raceme of this splendid species has just been sent to Kew for determination by Mr. Wm. Yea, gardener to Admiral Fairfax, of Ravenswood, Melrose. It was collected by the Admiral in New Guinea, and sent home about two years ago, having now flowered for the first time. A change of name is unfortunately necessary, for when Reichenbach originally described it in 1882 (in these columns, vol. xviii., p. 520), he must have overlooked the fact that the name had been applied seven years previously to another species, also from New Guinea, and belonging to the section *Aporum* (*F. Mueller, Papuan Plants*, i., 1875, p. 29). For this species, the name *D. Macfarlanei* must be retained. For our present species the name *D. niveum*, which has not previously been used, is eminently suitable, in allusion to the snow-white flowers. The only colour in the present specimen is a few radiating light brown nerves on the base of the side lobes of the lip, and a few light green ones near the plant tooth on the disc. The original form has a little more purple on the side lobes. The expanded flowers measure 4½ inches in diameter; it is a most distinct and beautiful species. *R. A. Rolfe.*

CALANTHE NATALENSIS.

The above evergreen species has pale lilac flowers—a colour not common in the genus—the prevailing tints being white, rose, or a pale yellow colour. A native of Natal and like many other plants of that country, it flowers in winter. The leaves are ribbed, wavy, elliptic lanceolate, broad, and dark green; from 5 to 7 inches across, about 12 to 18 inches long, and of course, all radical. The scapes are erect, about 18 inches high, terminated by a flowering raceme for about 6 inches in length. The long spurred lip behaves somewhat similar to that of *C. colorans*, except that instead of changing to ochre it becomes of a brownish-cinnamon colour. The flowers last sometime in that state, giving the flower-spike a novel appearance. This species requires no great heat to grow in, the intermediate or warm greenhouse suiting it, and it is during the winter that it requires artificial heat the most. A rich fibry compost, good drainage in the pots, and at all times an abundant supply of water, both at the root and overhead, are its simple requirements. To those unacquainted with the plant, it may be described as a dwarf lilac-flowered *C. veratrifolia*. *F. R.*

EARLY PEAS.

PEAS sown in the autumn and late winter months are, in the generality of years, of but little value to the gardener, whereas spring-sown seed produces better crops, and, as a rule, not later than those sown two months earlier. In our garden the Pea plants are guarded from the sparrows, which otherwise do them much harm, by wire-netting guards costing about 9s. for 12 yards run. Small triangular glass protectors would be the best things for those who do not mind the expense, the base not being more than 10 inches broad. These contrivances need not be costly, and they would last with care for many years. McIntosh, in the *Practical Gardener*, published in 1828, recommends the use of such protectors, and if they were used, the evils attendant on autumn and winter sowing would cease. We have surely improved the quality, productiveness, and early bearing in garden Peas since that book was written; but I doubt if greater intelligence is brought to bear now-a-days on the general cultivation of the kitchen garden crops. Our predecessors were not stimulated by the prospect of winning prizes at exhibitions, and yet, as we know from records now in existence, they must have gathered Peas in May seventy or eighty years ago. There was a Pea grown under the name of "Early May," which of itself would be sufficient evidence that Peas could be gathered out-of-doors in that month. Successful results will greatly depend upon the state of the ground when sowing in the autumn, and much more upon the position chosen for the sowing. Where they are sown on a border protected from the north and east by high walls, and the soil well drained, and therefore warm, and it is dry at the time of sowing, the first gathering may be expected to be early, but not every garden possesses such warm borders; and in many instances the soil is heavy and retentive of moisture. As the best position in the garden is selected for these sowings, the partial loss of the crop is sorely felt. Young gardeners, eager to be first with Peas, will often try the plan of sowing in troughs, pots, or boxes in a forcing-house. This plan is not always attended with good results, and there is the danger of the plants being greatly injured by frosty winds, so that nothing is gained over out-of-doors sowings. These Peas, if they remain unharmed, seldom bear a heavy crop. Of course, the injurious effects of this method of forwarding the Pea may be reduced by careful management, such as by gradually inuring the plants to the open air by placing them first in a close frame, and gradually admitting a free circulation of air every day until they can be exposed fully.

The next point is to choose a fine day for planting out, and if the soil is still very moist, to put about the roots some siftings from the potting-bench, or fine compost of some kind. I do not care to start them in boxes or pans, but if it is thought well to do so, it would be best not to place them in too warm a place; in fact, they ought not to be subjected to a forcing temperature at all. Rather, they ought to be allowed to come on slowly, in a well ventilated cold frame, and before planting them out, they ought to have been exposed to the open air for a week or ten days previously at least. Those who have had any experience with the planting or sowing of early crops in heavy soil, must also know the importance of autumn preparation of the ground. Deep cultivation is not of so much importance in soils that are heavy, as their efficient drainage and heavy manuring. I find that peat-moss litter from the horse stables is excellent for the purpose. Where Peas are grown in light soils, resting, as they often do, on gravel, they suffer severely in dry seasons from lack of moisture in the soil, causing the lower leaves on the stem to decay, and the top leaves become of a pale colour, and the result is, that the crop is a poor one; and to avoid this, I think it best to trench the ground 18 inches deep, placing a layer of cow-shed manure at the bottom of each trench, and another about 9 inches below the surface. This method of manuring the ground encourages the roots to grow down-

wards, and seldom fails in any season to be productive of good crops. This system of trenching and manuring is better adapted for mid-season and late Peas than for early ones, for the dry weather seldom sets in before June. We must trust also to good mulchings to keep the moisture in the land, and in this way lengthen the Pea season, and improve the quality of the produce. Of varieties, I find American Wonder an excellent Pea, of dwarf growth, and fit to sow on narrow borders fronting fruit walls, where tall varieties would be unsuited on account of the shade they would throw on to the wall. J. Douglas, *Lford*.

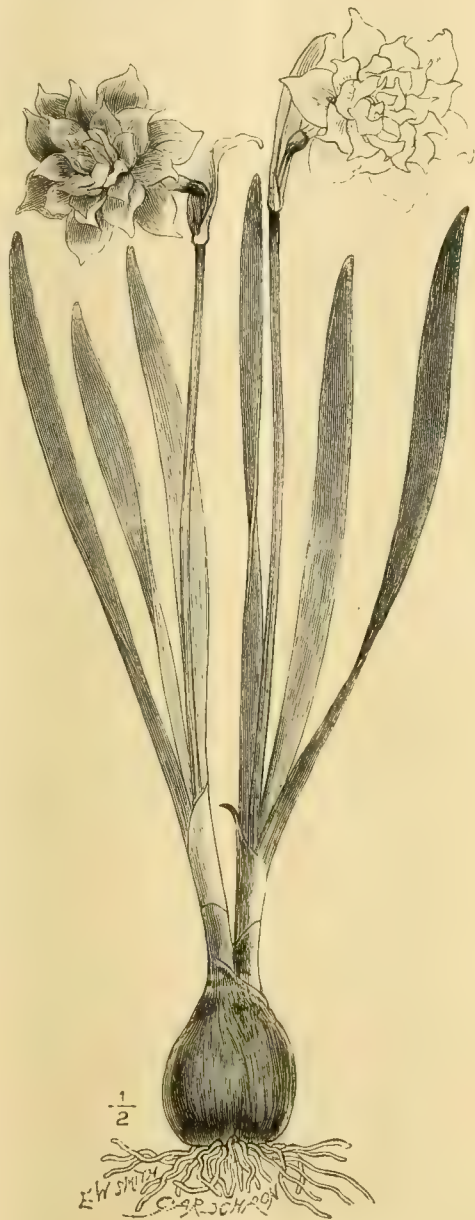


FIG. 23.—SPORT IN NARCIS-SUS: TWO VARIETIES FROM ONE BULB. (SEE P. 108.)

ROSES.

NEW ROSES.

SHALL I buy the new set or not? This question will soon be a weighty matter with amateurs having a special weakness for the Rose. It speaks well for the dogged perseverance of Rose growers, that they strain every point to possess the new varieties; often to be sadly disappointed in their bargain. It would be strange were it otherwise, for while all fresh introductions are described in such grand terms, clearly implying that each is the rosarian's ideal, there must naturally be many disappointments. Old hands say very little about a new Rose until

they have tried it a few seasons, and many of our largest amateur growers will not purchase a new variety until it has been under their notice for at least a couple of summers. This is, no doubt, the wisest plan, as you have the chance of spending your money upon the three or four varieties that are really good, and likely to hold their own for some years to come. I propose to name the twelve Hybrid Perpetuals and twelve best Tea-scented and Noisettes, introduced between the years 1883 and 1889. These twenty-four may be thoroughly depended on, and are, in my opinion, the best of some 200 varieties purchased during those years.

During the last ten years, Teas and Noisettes have taken a high place in public favour, and many of the very choicest in these classes have been given us quite recently. I do not give the colours and descriptions of these twenty-four, as they may be found in any good catalogue; and however highly these few are praised, the descriptions may be depended on as being fairly correct:—

Hybrid Perpetuals.—Duchess of Albany, Sir Roland Hill, Duchess of Leeds, Mrs. John Laing, Earl of Dufferin, Augustine Guinoisseau, Gloire de Margottin, Comte Henri Rignon, Souvenir de Rosieriste, Gounod, Queen of Queens, Gustave Pigureau, and Lady Arthur Hill.

Teas and Noisettes.—Luciole, The Bride, Mrs. James Wilson, Climbing Niphetos, Cleopatra, L'Idéale, Madame de Watteville, Madame Pierre Guillot, Madame Joseph Godier, Ethel Brownlow, Madame d'Etienne, and The Queen.

It would be easy to choose another dozen fairly good Teas, but I could not strongly recommend half-a-dozen more hybrid perpetuals of recent introduction. P.

JAMS AT MESSRS. BEACH AND SON'S.

AFROPOS of "B.'s" remarks (p. 757 of our last volume) respecting this new industrial enterprise, I would beg to supplement them by saying that a visit to this celebrated factory would remove a good deal of the old notions held by gardeners and others about the dryness of the fruit, the time of boiling, and other fallacious theories.

In the summer of 1889, when the Strawberry season was in full swing, by the courtesy of Mr. Beach, I was allowed to inspect the various operations which are carried on at Toddington on such a gigantic scale. My previous experience with jam-making consisted of that made at gentlemen's houses, and doubtless many a gardener has experienced the same difficulties which befell me when trying to keep on friendly terms with the autocrats of the still-room and the kitchen in matters relating to the picking, kind, and state of the fruit sent in. One particular instance remains impressed on my memory, where it was insisted that every Strawberry for preserving (and a huge quantity too) should be laid out singly on tea-trays, and woe to me, or him who carried in those trays, if one fruit was found to touch another upon arrival; whilst any mishap that occurred afterwards by fermentation, &c., was attributed to the condition of the fruit, rightly or wrongly. My visit to Messrs. Beach's factory scattered these ill-conceived notions to the winds, and although it may be unfair were I to publish all that I observed, I may yet state that, previous to boiling them, the Strawberries were placed, as soon as received from the pickers, under taps of clean water, by a staff of women-washers, in order to remove splashes of dirt, the fruit being laid out thinly on sloping tables, and all unripe, inferior, or damaged fruits were picked out; hence the excellent samples of whole fruit sent out by Mr. Beach. From thence the dripping fruit is received in a specially constructed room—by a staff of men, dressed in similar fashion to French cooks—fitted up with modern, bright, copper apparatus, easy of manipulation, and heated at will by steam from a powerful boiler near by. The time occupied in charging with syrup and the boiling is very much less than most good housewives

would think necessary; but everything here is carried out on scientific and modern principles, followed by certain and satisfactory results. By an elaborate arrangement of light tramways, the fruit is conveyed to the cooling-room, which is constructed on the refrigerator system; thence, as required, to other parts of the building for bottling, &c. Stirling Castle is the favourite variety of Strawberry here, and it is gathered in "half-sieves," and sent into the factory by the ton. Some hundreds of pickers are employed in the busy season, and a very large staff of workers is employed in the various processes.

Besides Strawberries, Currants and Raspberries, Plums, and immense quantities of green Gooseberries are done in this wholesale manner. The candying and crystallising of fruits is likewise carried on, and I observe some large evaporating machines for the drying of fruit. Very eloquent of business done were the immense piles of sugar in bags and the great stacks of bottles. *W. Crump, Madresfield.*

EUPHORBIA JACQUINIÆFLORA.

This belongs to an extensive group of plants, of wide geographical distribution, comprising plants, or trees of lofty stature, as well as many others which are mere weeds. The singular, but very useful substance, called Caoutchouc, is, however, one of the products of the order Euphorbiaceæ.

The juice of most of the family is of a milky, acrid, and poisonous character, and the flowers are generally inconspicuous. But the plant in question is in this respect, a decided exception, as its flowers are probably among the most brilliant of our winter-flowering plants, being in colour of the most intense scarlet, and whether cut and placed in water, or allowed to remain upon the plants, continuous for a long time in good condition. The leaves are lanceolate in form, and of a delicate, transparent, green colour, so that the plant is, in all respects, of the greatest value in furnishing material for the formation of bouquets, for mixing with other flowers in vases, or glasses of water; and for the purpose of forming wreaths for the hair, &c. It is, however, quite a stove plant, and requires a minimum temperature not under 60°, and its time of flowering is during the depth of winter.

PROPAGATION.

It is readily increased by cuttings of the ripened wood, which should be taken off when the plants have ceased flowering, or about the end of February. The cuttings should be made some 3 inches in length, and should be put into a pot of dryish soil, butt-ends upwards, and somewhat exposed, and there allowed to remain for a day before being inserted in well-drained 6-inch pots, in a compost formed of about equal parts sifted leaf soil and sharp silver sand. The pots should be plunged, or placed upon a brisk bottom heat of some 80° more or less, and in a close moist atmosphere they will speedily strike root, and when this is found to be the case, they should be potted off singly into 3-inch pots, from which in due time they should be shifted into pots of larger diameter, and finally into their flowering pots, which, unless large specimens are desired, need not exceed 6 or 8 inches in diameter. In all cases ample drainage is necessary, and the soil used should be composed of about two parts rich turfy loam, and one part peat, a small portion of leaf mould and a little sand if the loam is at all stiff.

Euphorbia jacquiniæflora is not a plant which readily forms itself into what are known as specimens, its habit of growth being free and somewhat straggling, the stopping and twisting of its shoots, necessary to secure this object, are apt to give the plant a constrained and unnatural appearance, and the fact of its being a winter-flowering plant, and its great value being that of furnishing flowers for cutting rather than as a plant for exhibition, its habit of growth is hardly to be regretted. A few stakes being all that is really necessary for the support of the plants, anything like formal training

is better avoided. The acknowledged rule which prohibits plants intended for exhibition, or, at least, for competition, from consisting of more than a single plant, does not, we will assume, apply to this plant. An excellent method of securing bushy and well-furnished specimens, in as short a time as possible, may be carried out as follows, viz.:—Fill as many small, or 3-inch pots as plants are likely to be required, with a compost similar to what has been recommended, and with a small setting-stick make a hole in the centre of each pot, and four similar holes close to the sides of the pot, and into each hole pour a pinch of silver sand, and insert a cutting, pressing the soil gently so as to keep them in their position. Each pot will thus contain five cuttings, all of which will be almost sure to strike root if they are placed under a hand-glass upon a mild bottom-heat. And when the pots have become well filled with roots, without separating the rooted cuttings, shift them into 6 inch pots, and afterwards into pots some 8 or 9 inches in diameter, which will generally be found large enough to allow them to flower in.

As soon as the plants have become fairly established in their pots, it will generally be found that a few strong shoots appear determined to take the lead of all the others, and these ought now to be stopped, or cut back to within five or six buds of their base. This will give increased vigour to the weaker shoots, while from the base of those cut down several young ones may be expected to start, and a sufficient foundation of a fair specimen will as it were, be at once established, and any further stopping will be unnecessary. Soon after this, or, say, about the middle or end of June, the plants should be placed in a cold pit or frame, stood upon or plunged in cinder ashes, or any similar material. Old tan is objectionable, as it generally contains small earthworms, which are likely to enter the pots and derange the drainage, &c. Abundance of air should be admitted to the plants during the day, when the weather is at all fine, and towards evening the plants should be slightly syringed, and the pit closed, or nearly so, during the night. The pots should be frequently turned round, so that all sides of the plants should have the benefit of full exposure to light, and also to prevent their roots from passing from the pots into the material in which they are plunged, while a slight shade will be necessary during fierce sunshine.

Treated thus, the foliage will soon assume a healthy and darker green colour, and the plants will keep more dwarf and robust in their habit of growth than would be the case if kept in a higher temperature and at a greater distance from the glass. Should the plants become large in comparison with the dimensions of the pots in which they are growing, occasional waterings with well-diluted liquid manure of any kind may with advantage be given; but this will seldom be found necessary during the first season of their existence.

The plants may be allowed to occupy their summer quarters until the beginning of September, if the weather is favourable, when they should be placed in the plant stove, or where they are intended to bloom, and this they will commence to do early in November, and will generally continue to do so until the beginning of March, or even later than this. But if the plants are intended to be retained for the second season, which is advisable, they should be allowed about this time to become somewhat dry, previous to being cut down; and when this is done, each shoot should be cut to within 2 or 3 inches of its base, while the plants should be retained in a temperature not under 55° or 60°. As soon as the young shoots, which are generally produced in abundance, are an inch or more in length, the plants should be shook out of their pots, and the balls of earth should be somewhat reduced, and again repotted into pots of the same size, or, in cases where the roots may not be found in good order, into pots of lesser dimensions. They should then be plunged in a bottom-heat of about 80°, in a moist growing atmosphere, and in a short time they will be ready

for transferring to their flowering pots, which may, during the second season be pots of some ten inches in diameter. Some time after having their final shift, when the roots have reached the sides of the pots, the plants may be removed to a cold pit, and treated in all respects the same as was recommended for the previous year. Those plants being so easily raised from cuttings, it is hardly worth while to retain them for a third season; although this may very well be done if it is desired, as the plant is singularly free from the attacks of insect pests of all kinds, and it is only upon old plants that the "brown scale" will sometimes obtain a footing, and this is generally easily removed with soap and water, and well syringing the plants after the operation with rain water.

In cases where it may be desirable to have the flowers of this plant in quantity for the purpose of cutting during winter, some situation should, if possible, be selected where a few plants can be turned out of pots, and planted against, and trained to a back wall or pillar of some sort, and in a structure where the necessary degree of warmth is maintained. Under such circumstances the quantity of flowering shoots produced is something remarkable. A striking illustration of this was to be seen some time ago in a garden near to this, where in a lean-to structure used as a plant stove, an unused fire flue, the entire length of the house, was situated close to the back wall, at a considerable elevation above the level of the floor of the house, and had long been used as the top step of the plant stage. But the covers were now removed, and the flue (a somewhat large one), after the necessary arrangement as to drainage had been made, was filled with properly-prepared soil, in a rough turfy condition; and its entire length, some 30 feet, was planted early in June, with healthy young plants of this *Euphorbia*, and the result was certainly all that could have been expected or desired, as the entire trellis, which is placed in front of the wall, and to which the shoots were secured, was speedily covered, some of the shoots being of considerable length, and all densely clothed with its bright scarlet flowers, presenting an exceedingly lively appearance during the depth of winter, as well as a cut-and-come-again aspect, as far as cut flowers were concerned. The foliage of the plants was also of the richest possible green, and it is possible that the soot, with which the inside of the old flue was encrusted, may have had something to do with this result.

Early in the March following the plants were cut down to within 2 or 3 inches of the surface of the soil, and the response to this was a forest of young shoots which promised during the ensuing winter to present even an improvement upon that of the first. *P. Grieve, Bury St. Edmunds.*

BURNT EARTH.

This material is very useful to the cultivator who has a cold or stiff soil to deal with, as it promotes the drainage, and is especially useful where liquid manure is applied, the noxious substances inimical to plant life being eliminated, and the soil made much warmer and richer in potash, lime, phosphoric acid, carbon, &c., ingredients which increase greatly the fertility of the land. Burnt earth dressing will prevent the cracking of the surface during dry weather, by rendering it less adhesive, and therefore not so liable to cake. We use a large quantity of it here for mixing in the Vine and Peach borders, for Roses, &c., under glass, and outside for herbaceous plants, and it is found to be useful for all of these; in fact, I have not the least doubt that it would prove beneficial to all kinds of plants here, and also wherever the soil is stiff and cold. If used in the proportion of one part burnt earth to six parts soil, and well mixed, it makes a great difference at once in the working of the latter, and is, in fact, the best thing that can be applied for the purpose; other materials that are often used for keeping soils open, such as sand, coal-ashes, lime rubbish, &c., do not

give such good results, because they tend to impoverish instead of enriching the soil. A good instance of its utility is to be seen here at the present time; the borders are being renewed in our large Peach-house, because they were not properly made when the house was built, and some four years ago I had a quantity of burnt earth worked in amongst the roots of the trees on the coldest side of the house. These trees now lift with a nice lot of fibrous roots; the soil comes away cleanly, and in good condition. The soil of the opposite border, which has not been treated in the same manner, has become sour in many places, and the tree-roots have not many fibrous roots.

I have not had the opportunity of trying its effects on light soils, but imagine that it would benefit them also if used in a smaller quantity; it would certainly improve any that might be overcharged with nitrogen through excessive manuring, &c., and during dry weather it acts as a reservoir for moisture when placed beneath the surface.

The best time of year for preparing it is during a spell of warm, dry weather, everything burning freely when dry, and earth being no exception to the rule; but it is possible to burn it under any circumstances by using a larger quantity of fuel.

In this, as in all other operations, very much depends upon getting a good start. We generally

weather rainy, some coal dust or old pieces of timber should be added occasionally so as to keep the fire well alight. The best soil for burning is a rather light loam from a pasture, cut in turves about 4 inches thick, but this is not easily obtained by many persons, and the best that can be had must therefore suffice; clayey soils will not do, as they burn too lumpy and require screening afterwards, and very sandy soils would most likely run down too fine to be of much benefit; old fruit borders that have got sour or worn out will answer well for burning, and refuse from the potting benches, if free from crotches, prunings of fruit trees, &c., make first-rate ashes if burned up in this manner, but this is properly speaking charred refuse, and does not come under the heading of burnt earth. *W. H. Divers, Ketton Hall, Stamford.*

A PEEP AT ALGERIA.

(Continued from p. 41.)

Our next trip was about 15 miles to the west of the town of Algiers, some distance beyond Pointe Pescade; here we left our fleet Arab horses to rest, and climbing the hills, left the Mediterranean behind us. The brushwood met with was in full flower, and consisted of *Cistus*, *Erica arborea*, *Globularia*

some cases there are as many as three different labels on one specimen. The garden was planted, in the first instance, with great skill and care, all plants of the same class and order being planted in groups.

Palms are grown here by the company in tens of thousands, and chiefly for sale in Europe and the United States of America. These are grown under a shading of split *Arundo donax* canes laced together with fine wire, placed so as to form a flat roof about 7 feet high, so that the attendants can walk under and attend to the plants. The Palms and other plants are plunged in beds about 6 feet wide, and when water is necessary, it is turned on from a tank at a higher level than the beds, flowing between the beds, and watering every plant in its course. The covering is most useful in breaking the sun's rays and preventing evaporation in summer, as well as assisting to break the force of the winds in winter. Water is very scarce here, and has to be pumped from deep wells, so that it is necessary to devise the best means to prevent waste.

Ficus elastica, *Grevillea robusta*, *Aspidistra lurida*—strange to say, the variegated form loses its variegation, and, I may say, that no plant in Algeria, except *Agave mexicana variegata*, had any distinct variegation; even the few *Crotons*, which I noticed were quite devoid of the beautiful markings we have at home. These plants are grown also in large numbers, and are treated, as regards water, much in the same manner as the Palms, all being protected with the stems of *Arundo*, which grows in abundance on the north side of the garden on the seashore, where the plants flower and seed profusely, and form hedges 10 or 12 feet high. The canes have many uses.

The principal entrance to this garden is on the south side, and tram-cars pass every few minutes, which is most convenient to visitors from Algiers. The avenue, which runs from the entrance-gate, is 18 feet wide, and is planted with *Platanus orientalis* and *P. occidentalis* alternately on each side of the walk.

These Plane trees are about 80 feet high, and form an agreeable shady road which leads to the north side of the garden, and about the centre of the walk these lines of trees are intersected with an avenue 18 feet wide and 460 yards long, planted thickly on each side with *Bambusa arundinacea*, about 60 feet high, and each cane about 16 inches in circumference at base, bending over the walk and interlacing at the top. A third walk which runs parallel to, and about 200 yards distant from the Planes is, perhaps, the most beautiful walk in the garden. It is hardly so wide as the others, and on each side are planted *Phoenix dactylifera*, 40 feet high, with *Dracæna draco*, and *Latania borbonica* alternately, the latter were covered with long racemes of fruit, and the stems of the Date Palms were covered with *Ipomœas* all in flower. A fourth avenue from north to south is planted on each side with *Ficus macrophylla* and *Magnolia grandiflora*. The greedy *Ficus* has overgrown the *Magnolias*, which look unhealthy. The squares between these walks are where the nursery stock is grown for sale. The groups of trees and shrubs had doubtless been planted with care, and a few of the names may not be out of place.

Agaves are planted on a hill side, the strongest growing at the back. *A. gigantea* was in flower, with stems from 30 to 35 feet high; near these were a group of *Agave mexicana picta*, these had leaves 10 feet in length, and richly coloured; *A. elongata*, *Miradorenensis*, *coccinea*, *attenuata*, *latifolia*; *ferox*, this had the thickest leaf in the collection, with very strong spines on point and sides; *A. applanata*, a beautiful light-coloured leaf; *A. Salmiana*, flower spikes 30 feet high. There were numerous other species of Aloe and Agave in this group, all looking remarkably well, and showing how well the climate suited them. Near this group is another of *Strelitzia*—specimens of *Strelitzia angusta* being 17 feet high, with dwarfer species around them; *S. spathulata*, *regina*, *juncæa*, and several others which were all in flower, making it a most interesting group. Only a few yards from these was a group of *Yuccas*,



FIG. 29.—SPORT IN CHRYSANTHEMUM: SHOWING HALF THE FLORETS OF ONE COLOUR, THE REMAINDER OF ANOTHER. (SEE P. 108)

get some large tree-roots, or "butts," which have been sawn off, or some large logs cut into lengths of 3 to 4 feet, and a small quantity of sticks and straw to get a good body of fire as quickly as possible. The small stuff soon burns out, but when the larger pieces get well alight, some bush prunings, &c., are thrown on it in order to keep the soil from settling down too close to the large logs, and as soon as the fire burns partly through this covering, some soil may be put on. This should be done gradually at first, so as not to overload the fire; but when all the heap has had one good covering of soil, and the fire is seen to be making its way through it, some coal-dust should be scattered all over, and another lot of soil put on; after this is burnt through, the heap should be ready to "draw" by opening out the middle, so as to spread the fire, and get a good base of ashes. This is best done by what is called a "muck drag" in this part—an iron tool with two or three prongs about 9 inches long, shaped like a Canterbury hoe; after the fire is well opened out, another old log should be put in the centre to keep a body of fire going on, some more garden refuse placed over this, and then more soil added.

The heap by this time should be a large one, and in dry weather will burn almost anything with little further assistance; but if the soil is wet and the

Alypum, *Genista tricuspidata*, *G. spinosa*, *G. linifolia*, *Lotus biflora*, *L. tetragonolobus*, *Lupinus angustifolius*, *Phillyrea media*, *Cupressus sempervirens*, *Myrtus communis*, and others. Here was found one poor specimen of our *Arbutus unedo*, and in every open spot hundreds of a very pretty *Iris*, about 5 inches high. As we reached the top of the hill, a quantity of *Chrysanthemum Myconis*, a bright yellow annual, about 4 inches high, was observed, and I regret that my visit was not a little later, so that I might have gathered some of the seed.

After crossing some fine vineyards, in which were several ancient tombs, we returned to the spot where we had left our horses—many of us laden with choice wild flowers—and all pleased with the day's excursion. The principal public garden near Algiers is about 4 miles from the town, and is owned by the French Republic; but is now let to a company for the nominal sum of £40 per year. It was let on lease for sixty years; it was taken with the understanding that all specimens should be preserved, but I need hardly say that where £ s. d. are in question, the unprofitable plants will get but little attention. Many of the fine specimens are so crowded together that their character and beauty are destroyed; the labels, too, have fallen off many of the plants, and are attached to the nearest tree or shrub, so that in

Yucca canaliculata, 30 feet high, circumference of stem near the ground, 7 feet. This species is not much known; also *Yucca filifera*. There were several other species, one with large stems, flat near the base, and about 14 feet high, the name of which I did not learn. Close at hand was a small pond covered with the sweet-scented *Aponogeton distachyon*, with clumps of *Papyrus* near the margin. Owing to the want of a good supply of water, Aquatics are not well represented. On the north side of this pond was a very large group of Bananas, which, at the time of my visit, were not looking healthy, the high winds from the north having torn the leaves. A little to the west of these was an extensive group of Palms and Cycas. A few of the largest were *Jubæa spectabilis*, with a circumference of stem of 10 feet, and height 12 feet, and an immense crown of fronds 3 feet high; *Phoenix farinifera* with a stem 9 feet in circumference, and a spread of fronds of 30 feet, and 20 feet high; this was a noble specimen. *Cocos flexuosa* was 60 feet high; *C. dactylifera*, 40 feet; *Arenga saccharifera*, 30 feet; *Livistona australis* was a very fine plant; *Cocos excelsa*, *Chamerops excelsa*, tall and thin in stem, and not so healthy-looking as those grown at home. There were many fine specimens of Cycas, many of which had clusters of fruit around the stem near the crown. The next group was one of a fine specimen *Dasylium*, surrounded by high trees of *Ficus macrophylla*, but far enough away from them not to injure them. There are other interesting groups, such as *Aralias*, *Gardenias*, *Mimosas*, *Acacias*, *Rondeletias*, and hundreds of single specimens. In one corner was found a beautiful Creeper, with white flowers, overgrowing a deciduous tree, and flowering most profusely, which was named *Oxera pulchella*, a plant not much known in Europe; but, judging from its free growth and freeness of flowering, it would be well worth a place in our stoves. I brought a small plant home, and hope one day to be able to say more in its favour (see figure in *Gardeners' Chronicle*, 1888, February 18, p. 209).

Sapindus Saponaria (Soap tree).—A large spreading tree, with numerous berries, the pulp of which is used as soap, but with warm water only; *Ficus coronata*, 60 feet high, with a trunk 10 feet in circumference, the naked stems of which were covered with small Figs; *Ficus nitida*, *macrophylla*, *Roxburghii*, and *rubiginosa*, are wide-spreading trees and about 50 feet high, with numerous roots from the branches which root into the ground. Another large *Ficus* *egyptiaca*, with a trunk 12 feet in circumference, and 80 feet high, *Erythrina umbrosa*, 60 feet high; *Carolina alba*, and others were flowering from their naked branches, these were about 50 feet high and deciduous.

Near the entrance, and hidden from view by plantations of *Eucalyptus* and Palms, are the seed stores and packing sheds of the Company, the walls of which were covered with *Hexacentris coccinea*, 30 feet high and full of flower. On the south side of the public road is a part of the garden which the Company gets but little profit from, except as a seed ground. This is filled with numerous trees and shrubs, *Aracarias* being the most prominent of the former; *A. excelsa* was the finest and best furnished, and some of them were more than 80 feet high and perfect in shape. Around these were many young ones, self sown. *A. Cookii* is also very fine, and several other species go to make up the group. Near these, but a little higher up the hill, was a group of graceful *Casuarinas*, laden with their pretty cones, and clumps of *Ficus elastica*, but these looked sickly and contrasted unfavourably with those in the lower part of the grounds. In this part was a collection of *Hakeas* which were doing well, *H. saligna* was 20 feet high. Near these stood a collection of *Metrosideros*, *Acacias*, *longiflora* and *magnifica*; these were a sheet of gold, and were spreading in all directions from self-sown seed. At the north side of this part of the garden was a fine avenue consisting of healthy young *Grevillea robusta* about 40 feet high, with thousands of seedlings from fallen seeds. I was much interested by what I saw in this garden, and regretted that I was unable to spend more time in inspecting its many plant treasures. *W. O. Fota.*

BUD-VARIATIONS OR SPORTS.

WHAT THEY ARE AND WHAT THEY ARE NOT.

(Continued from p. 76.)

SEPARATION OF MIXED ELEMENTS.—CONTINUED.

IN addition to the cases given at p. 76, we may here cite a few more which have come under our notice, such as a *Chrysanthemum*, half the florets of which are of one colour, half of another (fig. 29, p. 107). A hybrid *Calanthe*, showing a similar piebald variation, was figured in our columns in 1887, Jan. 8. A very curious case was that of the *Narcissus* (fig. 28) received from Mr. Walker, and in which flowers of two distinct varieties sprang from the same bulb. Grapes not uncommonly show their crossed origin by presenting a striped appearance, one stripe being of one colour, one of another, as may also be seen in the Orange, Lemon, and Currant (fig. 30, p. 109). Red and white Roses on one stem, and buds destitute of moss produced on a Moss Rose, have often been recorded.

The illustrations above given are instances of the results of cross-fertilisation, in some of which the whole process of mixing and un-mixing, has taken place under our own eyes. But for how many centuries has the *Chrysanthemum*, we will say, been crossed and recrossed, and crossed again? This process of crossing seems, however, destined to come to an end, because the flowers, after a time, become sterile, owing to the fact that the stamens and pistils, one or both, are imperfectly or not at all developed. Seedling variations in such cases must become more and more rare, as the process of sterilisation becomes more and more marked. If new seedlings are desired, raisers will have to go back to less highly modified flowers; to flowers, that is, which are more nearly in their original condition. But although the production of varieties in the *Chrysanthemum* by fertilisation may be thus limited, the development of sports by bud-variation may, and probably will, still go on, to the delight of the grower and the interest of the student. It must, however, be said, that at least in the case of the *Chrysanthemum*, the change is sometimes very slight, depending solely on the presence of colouring matter in some cases and on its absence in others. The form of the flower and of the foliage in many of these *Chrysanthemum*-sports is in no wise different from that of the parent plant. This is only an illustration of the fact that all degrees of combination or of dissociation, as the case may be, may be expected to occur.

If the theory of unmixing be true, we ought to find "sports" more prevalent among those plants which are the outcome of repeated hybridisation or cross fertilisation, and among which have been longest in cultivation, than among those which are self-fertilised or pure bred, or which have been only a relatively short time in cultivation, and it certainly is so. What plants are most subject to bud-variation? Roses and *Chrysanthemums*, we should be inclined to answer. Now, both these plants, as we see them in gardens, are the outcome of crosses innumerable carried on for many generations. The same may be said of the Orange, which is very sportive, and of the *Pelargoniums*, which are the offspring of many crosses, and present many bud-variations.

The crossing need not necessarily be between species (true hybridisation), it may be between varieties of the same species. The Vine often produces sports, although there is in Europe but the one species, *Vitis vinifera*, most of the myriad forms of cultivated Grape having originated as seedling varieties of it. So also with Indian *Azaleas*, *Camellias*, *Tulips*, and *Hyacinths*, which have been in cultivation for many centuries, and of which the varieties have intercrossed; a long list of similar instances might be cited.

On the other hand, *Heaths* (*Erica*), and *Rhododendrons*, though much crossed, have not yet yielded many bud-variations, and must, therefore, be considered as exceptions to the rule, probably because the time during which they have been

under cultivation is short in comparison with those plants before mentioned. Tuberous *Begonias*, again, which are the descendants of numerous species, though often presenting monstrous flowers, have not been up to this time remarkable for producing sports even from their tubers, but these *Begonias* are the products of our own generation. The hybrid Orchids, especially hybrid *Cypripediums*, like the hybrid Aroids originating from *Anthurium Andreanum* and *A. Scherzerianum*, crossed with other species, have not yet yielded sports apart from malformations (which latter in hybrid *Cypripediums* are very common). From all these plants, if the theory be true, we may expect to see bud-variation in future, and one reason why we do not see them already, is, as has been said, probably the relatively short time they have been in cultivation. A hundred years is but a spot on the vast dial of Nature's time. In any case, the negative evidence they afford is of little weight as compared with the overwhelming testimony of an opposite character, presented by Roses, *Chrysanthemums*, and *Pelargoniums*.

Negative testimony is moreover by no means without weight; take for instance the case of the Chinese Primroses, or the Persian Cyclamen—all the varieties have been obtained by selection from the seedlings. There has been no crossing with other species, and no bud-sports have made their appearance.

Carnations and Picotees, again, which originate from one species, vary from seed but not from buds; and the same may be said of the *Cineraria*, the offspring of one species.

(To be continued.)

PLANT NOTES.

OXERA PULCHELLA.

This charming plant was figured in the *Gardeners' Chronicle* in 1888. Its special province will be to bridge over the dull period of the last and first months of the year. It is a native of New Caledonia, and therefore requires more warmth than that of an ordinary greenhouse to enable it to flower at that time of the year. Notwithstanding, it will live and grow in an ordinary greenhouse. To flower it well, the plant should have a temperature of 60°, and a position near the glass. Being a climber of rapid growth, a considerable amount of space should be allowed, to do it justice, as well as liberal treatment, to produce its large sessile white cymes of flowers. These are somewhat funnel-shaped, axillary, and pendulous, on slender, branching pedicels. The style and the two stamens are protruding, and form a conspicuous character of the plant. Being an evergreen, it is well adapted for tall conservatories, or a position where an effective screen is an object of moment, provided the position is warm enough in winter. A good loamy compost suits it well, and any thinning or pruning that are required should be done immediately after flowering. It is not subject to blight, or insect pests of any kind. *F. R.*

CYANOPHYLLUM MAGNIFICUM.

This beautiful Mexican plant is fairly well known in gardens, and deservedly so, where space can be spared for it. As its name implies, it is a fine plant, when well grown. A strong plant will produce leaves 2 and even 3 feet in length, and the width being about one-third of the length. We grow our plants in a moist stove in light fibrous peat and silver sand, with very satisfactory results; some growers add leaf mould to the foregoing, but on no account should any loam be employed.

Dryness at the root at any season is often fatal to this plant, and it is rather sensitive to changes in the temperature and humidity of the house, and consequently it is of no great value for the decoration of apartments. We have used it for furnishing for one night now and again, and without any ill effects being apparent, but this cannot be done with impunity. In summer the plant needs to be

shaded, direct sunshine spoiling the beautiful velvety-green texture of its leaves. Usually it is propagated from eyes, and when increased in this manner it is desirable to preserve a leaf or part of a leaf attached to the bud, as in *Ficus elastica* and other plants—this greatly facilitates the formation of roots. It may also be propagated by means of cuttings, where a sufficiently roomy propagating case exists. *W. R. Williams, Great Marlow.*

ANTIRRHINUM MONT BLANC.

This is a very useful little dwarf white variety of this showy genus, and should be included in every list of herbaceous plants; it has a very compact habit of growth, seldom attaining more than 9 inches in height, and branching freely, gives a succession of pure white flowers which are very useful for cutting. A bed of this makes a fine show, and its dwarf habit would recommend it as a general bedding plant. *J. A.*

THE SEED TRADE.

PEAS AND BEANS.—A visit to one of the large London wholesale seed warehouses at Christmas time enables the visitor to gain some idea of what a great industry the seed trade is, giving employment all the year round to an immense number of persons who are engaged in growing the seeds, in harvesting them, in threshing them out and preparing for the market, in cleaning, sorting, and parcelling in the seed warehouses; and in transmitting them almost to every part of the world. Employment is also given to thousands in a hundred other ways that is little dreamed of by outsiders. Autumn is one of the busiest periods of the year. Seeds are being received from the growers; and then prepared for the sales which have already commenced. A very large staff is required to prepare and pack orders, and altogether a seed warehouse is a veritable hive of industry.

Peas.—The moist character of the summer proved detrimental to many samples. The early round varieties are decidedly the best, such as Sangster's No. 1 and other types; and on the whole a fair yield has resulted. The early wrinkled Peas show a very short crop, owing to the thinning of the plants. This was one of the incidences to the unfavourable character of the season. Main crop Peas proved under the average in bulk, and the samples very indifferent in many cases, rendering hard picking necessary. Late varieties are of bad samples also; the best have come from Bedfordshire and Lincolnshire, where better weather seems to have been enjoyed than in Essex and Kent, where the samples are very bad, and the pickings large.

As far as the trade demand is concerned, the most popular of the early Peas are Sangster's No. 1, Harrison's Eclipse, an extra early round blue; and William the First. Of early wrinkled varieties, William the First (Chelsea Gem being of the same character, differing only in the colour of the seed), and American Wonder. Of the second early round varieties, Telegraph appears to be taking the place of Laxton's Supreme. The old Beck's Pricetaker, with its record of nearly fifty years, is still in considerable demand as a good hardy variety for early sowings; this variety is also well known as Leicester Defiance. Veitch's Gladiator, an improved Fillbasket, is a coming popular variety; and, notwithstanding the introduction of so many new varieties of late years, the old Harrison's Glory still holds its own as a market gardeners' Pea.

The most popular of the second early Wrinkled Peas are Prince of Wales, the ancient Champion of England, still famous for its table quality; Duke of Albany, and Telephone. Into this group comes a new aspirant, namely, Horsford's Market Garden, which Messrs. Hurst & Son say is an improved Advancer, and certain to make a great reputation.

Of Main Crop round varieties, Pride of the Market is decidedly in the ascendant. Sharpe's Invincible, a variety of the Scimitar type, is an excellent garden Pea, but scarce as yet. The old Bishop's Longpod is still somewhat largely grown, but the bulk of the

seed goes to France. Of Main crop wrinkled varieties, the following are decidedly popular, as evidenced by the demand for them, viz., Yorkshire Hero, Yorkshire Gem, Sharpe's Queen, a dwarf-growing variety; Stratagem, which, with Pride of the Market, appear to have realised all the good qualities predicted of them by Messrs. Carter & Co. when first sent out; and Fortyfold.

Of Late round varieties, there is a large demand for the Paradise and Victoria Marrows, and also for Laxton's Evolution, a late variety, with large green round seed, which, to all appearance, is likely to be much grown. Of late wrinkled varieties, British Queen, Ne Plus Ultra, and Omega, which may be said to be a dwarf form of Ne Plus Ultra, still hold their own; but a coming late Pea seems to be Veitch's Autocrat, a strong-growing form of Omega, reaching to a height of 3 to 4 feet, an excellent bearer, and of fine quality.

Beans.—Of Longpod types, there is a fair average supply, but the samples are stained owing to the prevalence of wet weather, and especially is this the case with seeds grown in the Kentish districts. Of all the finer selections of the Longpod Beans, Bunyard's Exhibition is a remarkably fine one; it has the character in plant and growth of the Early Longpod, but with a very fine long pod of the Seville type, and it is strongly recommended for exhibition. It was sent out by Messrs. George Bunyard & Co., of Maidstone; but the whole stock is in the hands of Messrs. Hurst & Son for distribution. Of the Broad Windsor varieties there is a fair yield of



FIG. 31.—SPORT IN CURRANTS: VARIOUSLY COLOURED BERRIES IN ONE CLUSTER. (SEE P. 103.)

average quality, but the samples are better than those of the Longpods, on account of being later, and having better weather in which to mature. One main reason for the Longpods being harvested so much earlier than the Windsor types, is because they are frequently sown in autumn.

Of the Dwarf Kidney Beans the yield is certainly below the average. The varieties for which there is the largest demand are Canadian Wonder and Monster Negro for general crops; for early forcing purposes Ne Plus Ultra and Williams' Prolific Runner Beans appear to be very plentiful, the Scarlet especially, the fine autumn greatly favoured the harvest, and the samples are good. Neal's Ne Plus Ultra among the scarlet-flowered varieties, and Laxton's Czar among the white-flowered, are the finest for exhibition purposes. The long, symmetrical, well-filled pods of Ne Plus Ultra, in particular, tell on the exhibition stage. *R. D.*

FORESTRY.

ABSENCE OF SEEDLINGS IN SCOTS FIR WOODS.

ALTHOUGH a dense leaf-canopy usually prevents the seed of any species of tree from developing into plants in a thick wood, yet in more open woods it is not uncommon to find a good proportion of seedlings thriving wherever light can reach them. This is especially noticeable in deciduous woods, from which cattle and sheep are excluded, and where

ground game is kept down; and although little in the way of natural regeneration is attempted in this country, the spontaneous growth of seedlings is often sufficient to maintain a succession of trees in many woods in the South. But while this would naturally be expected in all indigenous woods, we find that one of our most widely distributed forest trees, the Scots Pine, rarely reproduces itself in this way. This appears more remarkable when we consider its enormous seed-producing powers, and the rapidity with which a piece of moorland adjoining a Pine-wood is covered with seedlings. When, however, a thick Pine-wood is thinned, the crop of seedlings which might be expected to follow the operation rarely appears, or, rather, the seedlings rarely develop into plants. The seeds germinate freely, so that no proof is wanting as to the quality or quantity of the seed, but they invariably die off a few days after germination takes place. The surface of the ground in thick Pine woods consists of a layer of dry needles, and upon removing this top layer, a fungus-infested stratum is reached, formed of partially decomposed needles, twigs, &c. It is this latter layer that the radicle of a seedling first encounters in its downward course, and I have frequently observed that it damps off almost immediately after coming in contact with it. This is only what might be expected when the character of such dry fungoid matter is considered, but the most noteworthy point in connection with it is that the seedlings of other trees appear to be unaffected by it. The Larch, for instance, may often be found coming up under the shade of Scots Pines in a thin wood, although one would suppose seedlings of that tree were the more susceptible of the two to any objectionable matter. Seedlings of other species may also be found thriving in the decaying matter, although the Pine seedlings may be dying off by the hundred in the vicinity. I have noticed, however, that when a Pine seed happens to germinate upon an old root, or a rift in the bark near the ground, it will often succeed in existing for several years according to its position, &c. It seems highly probable, therefore, that the presence of some fungus in the decaying matter is the cause of the mortality among the seedlings, for whenever a cleared space in a wood is left untouched for a few years, seedlings invariably make their appearance as soon as the decaying matter is thoroughly decomposed into humus, and the natural vegetation of grass or heather commenced to grow. The presence of a species of fungus in the decomposing matter, and its absence after decomposition is effected, renders it extremely probable that this saprophyte may be connected with the death of the seedlings.

Whatever the true cause may be, however, I have almost invariably found the mortality most pronounced in those places where the decomposing matter was present in most abundance, and least observable where any agencies effecting its removal had been at work. *A. C. F.*

AMERICAN NOTES.

MR. H. H. HUNNEWELL'S GREENHOUSES IN WINTER.

THE splendid country residence where Mr. Hunnewell resides in summer is situated at Wellesley, about 15 miles from Boston, Massachusetts, whose grounds are laid out in a very artistic way, and contain many fine specimens. The collection of Orchids contains some capital plants, although Mr. Hunnewell does not aim at securing all the latest introductions. A large plant of *Cymbidium Lowi* has five flower-spikes with twenty blooms on each, and *C. eburneum*, with five spikes; *Phalenopsis grandiflora*, the handsomest of all the *Phalenopsis*, with fourteen flowers; *P. Schilleriana*, with stalks 4 feet, carrying about forty blooms; *Lælia anceps*, *Sophronitis grandiflora* has twenty-five blooms; and there is *Cœlogyne cristata*, large-flowering variety, with thirty-five spikes.

Among other interesting plants there is *Acacia pubescens*, 7 feet high and 10 feet across; and *Crotons*

grown in pyramidal form, 7 feet high and 5 feet through, embrace nobilis, Queen Victoria, Williamsii, Sunset, fasciatus, and variabilis, in fine specimens.

Dieffenbachia magnifica is represented by a plant 7 feet high and 5 feet through; there are also *D. imperator*, which Mr. Harris considers to be a better one than *D. Busei*, also the new *D. Jenmanni*, which is not liked so well as the others; and there is a large *Anthurium crystallinum*, 5 feet through and 4 feet high, with leaves 22 inches long and 18 inches in breadth.

Of *Dracenas* there is a large collection. Mr. Harris has been very successful in hybridising these plants, and has some ten varieties under name—the colours are brighter and the plants more vigorous than some of the older varieties. *Monstrosa*, one of his seedlings, has very large, pendulous leaves, and very vigorous young growths of a dark metallic hue, and as it becomes older, the edge of the leaf assumes a crimson margin one-eighth of an inch wide. *Harrisii*, one of the white varieties, is very vigorous, and has a better colour than *terminalis alba*. Mrs. Walter Hannevell is of vigorous growth, with a bronze leaf, the edge of which is margined with bright crimson, 1 inch in width. There are also fine specimens of *D. Massangeana*, 3 feet high; *D. Lindenii*, 4 feet; and many others. They have a fine plant of *Psychotria (Gloneria) jasminiflora*, 4 feet high, and 2 feet through; in March it is one mass of white. Growing in a tub, there is one of the finest specimens of *Stevensonia sechellarum* to be found in this country; it has nine leaves, 4 feet in diameter, and 9 feet long. In the same house are seven species of Tree Ferns, 10 to 12 feet high; also a fine pair of *Phoenix reclinata*. This is considered the best Palm for outside work, because it stands our dry atmosphere, and is not injured by the wind. *Bugainvillea spectabilis* covers 350 square feet of glass, and makes one mass of bloom. In a cellar, 63 feet square, heated by a fire, are stored 200 specimen *Azaleas*, which flower about the middle of May under an awning out-of-doors.

Trachelospermum jasminoides, 7 feet high, and 4 feet through, trained on trellises, are also stored in this cellar. Here, too, may be found large Orange trees grown in tubs. The Himalayan *Rhododendrons*, such as *Sesterianum*, *Dalhousieanum*, *Gibsonii*, and many others, are grown. The temperature in this cellar is not allowed to fall below 33°, and is kept as near that point as possible.

We also notice several cool cellars, in which are stored many hundreds of *Rhododendrons* for protection, as the thermometer in February sometimes falls to 23° below freezing point. *D. M., Boston.*

THE WEEK'S WORK.

PLANTS UNDER GLASS.

SEEDS OF GLOXINIAS AND BEGONIAS.—Seeds may now be sown of tuberous Begonias and Gloxinias, using fine soil consisting of loam and peat, or failing peat, leaf soil, with sufficient silver sand to keep it porous, having the same run through a fine sieve, and the seed-pans thoroughly well drained, a layer of moss being placed over the drainage, and afterwards filling up the pans to within an inch of the top with the prepared soil. Before sowing the seed, the soil should be watered sufficiently to moisten the whole of it, and letting the pans wait until the surface has dried somewhat; the seed may then be sown evenly over the surface of the pans, covering them with a sheet of glass, and a little damp moss on the glass. As soon as the seed germinates, the moss must be removed, and the glass tilted for a few days to gradually inure the seedlings to the air before taking it off altogether. Great care must be taken in affording water to these plants at this stage. After the seedlings have made two or three true leaves, prick them off into pans or pots half an inch apart, and shade them during bright sunshine till the roots have taken to the soil.

PROPAGATION BY CUTTINGS AND DIVISION.—At this date plants of *Isolepis gracilis* may be divided and potted; cuttings put in of *Panicum*

variegatum and *P. sulcatum*, *Tradescantia* in variety, *Ficus repens*, and *Selaginellas*, *Linum trigynum*, and other decorative plants for the fronts of plant-stages and for planting borders. *Pandanus Veitchii* may be propagated by suckers taken from the old plants, putting them in 60's, and placing them in the propagating-box, or under hand-glasses. Cuttings of the more useful varieties of *Crotons* for table-decoration may also be put in. The pieces of stems of *Dracena* which were getting too large, and were cut down in the autumn, and as they inserted in sandy soil, should be ready for potting off. These plants, if grown in the stove nurse-pit, or on shelves where they are not crowded or shaded by other plants, will rapidly make nice little specimens. Large *Crotons*, which have been cut back, should be syringed daily, to help the old wood to break freely, keeping them at the warmer end of the house.

EPACRIS.—Considering the season of the year when these useful plants come into flower, it is a matter for wonder that they are so little grown at the present day, as by a judicious selection of varieties, *Epacris* may be had in bloom throughout the winter and early spring months. The most suitable soil for them is a good turfy peat, with sufficient sand mixed with it to keep it open, but the drainage of the pots must be very good; in fact, one-fourth of their depth may be taken up by the same. When repotting, see that the old ball is moist, and, after loosening some of the roots at the sides, pack the new soil in small quantities at a time firmly round it, using for the purpose a tapering wooden rammer. Finish off smoothly, and be careful not to place the ball deeper than it was before, or to leave insufficient space for water. The water used should always be rain-water. Varieties which may have finished flowering may be cut back at this season, but before doing so see that the soil is not in a very moist state, *Epacris* being very impatient of an excess of moisture at the root at this time. It is essential to cut back the plants every year to within 2 or 3 inches of last year's wood, and as the majority of them are of an erect habit of growth, any neglect in this respect will cause them to get tall and unsightly, with much display of bare stems at the bottom. When cut down, stand the plants until they break in the closest part of the greenhouse, or better, in a pit where the temperature can be kept at 40° to 45°. The following are some of the varieties that bloom in succession for a long period:—*alba odorata*, *delicata*, *densiflora*, *grandiflora*, *racemosa*, *hyacinthiflora*, *hyacinthiflora candidissima*, *impressa alba*, *Lady Alice Peel*, *Lady Panmure*, *magnifica*, and *miniata splendens*.

GREENHOUSE.—The present is a good time for putting in cuttings of zonal *Pelargoniums*, to bloom during the autumn and winter, choosing for the purpose the best ripened shoots, inserting them singly in small 60's, in sandy loam with a small quantity of leaf-mould, and placing them in bottom-heat; zonals quickly root at this season. Should the collection of show and fancy *Pelargoniums* not have had their final shift, no time should be lost in pushing it forward, using two parts good loam, one of leaf-soil, and sand in quantity sufficient to keep it open; the soil round about the old balls should be made very firm. It is very desirable to have a portion of the stock of *Pelargoniums* grown in small pots, these smaller plants being very useful for all decorative purposes, often more so than the larger plants. After they are potted, place them in well-ventilated pits, or on shelves in the greenhouse, so as to ensure sturdy growth, keeping a sharp outlook for aphids, and on their first appearance fumigate the plants. Temperature at night from 45° to 50°, with a rise by day of from 5° to 10°.

Plants of *Primulas*, early *Cinerarias*, and *Cyclamens*, which are in bloom, should be occasionally supplied with weak manure-water once or twice a week, according to their requirements; and keep them free of decayed blooms and leaves, giving air on all favourable occasions. Look daily over *Chrysanthemum* cuttings, seeing that they do not suffer from damp. Some of the cuttings earliest made will be rooted, and may be placed, undisturbed, on a shelf near the glass in a Peach-house or vinery, great care being taken not to allow the pots to become dry. *R. Milner, Penrice Castle, Swansea.*

THE ORCHID HOUSES.

THE ODONTOGLOSSUMS.—These should now be looked over to see if any that were left over from September require repotting. It usually will occur that some plants will have flower-spikes too far advanced at

that time to allow of the repotting being done without risk to the plants, and more especially is this the case with *O. crispum*. In repotting, care should be taken to use peat and sphagnum moss of the very best quality, and clean pots and crocks, these being important factors in the successful cultivation of all Orchids. Opportunity should now be taken to have the Orchid pots and floors scrubbed clean, the walls whitewashed, and the stages cleaned, operations which will greatly aid in reducing the number of slugs and insects. The house should have the walls and paths well syringed in the morning when the temperature has reached 48°, but do not use the syringe freely on the plants until the temperature reaches 50°, at the least; but it is not advisable at this season, as the heat would have to be artificially supplied, and it then would do as much harm when raised to 50° as the syringing would do good. The temperature may range from 42° to 45° at night, with a rise of 5° during the day.

THE CATTLEYA-HOUSE.—Where a good collection of *Lælia* accepts varieties is grown, plenty of flowers should now be found in the house. The flowers which expanded here late in December, were badly injured by fog and want of sunlight, but with the return of bright weather the flowers are opening well. Among white varieties, *L. a. Schroderiana* is certainly the best. My experience is that *Lælias* do the best when grown in baskets in a very light position near the roof, with the lightest possible shade at any time. I use a mixture of milk, whiting, and a little size, made very thin, putting it on about the middle of May. In re-basking the plants, a good number of crocks and a considerable quantity of sphagnum moss should be employed, the roots revelling in the latter when fresh and growing. *Cattleya Percivaliana* and *C. Trianae* are now coming into flower very slowly, owing to the lower temperatures of the past few weeks—our house has on two or three occasions been down to 45°, but the plants received no injury. Slow a temperature for *Cattleyas* is not desirable, 50° at night being a safer figure in hard weather. Very little atmospheric moisture is now necessary, and if the floors and walls are syringed once only in the morning, that will be found in all but very dry houses sufficient for twenty-four hours. Where many plants of *Cattleya Sanderiana* and *C. gigas* are grown, the present is a proper time to introduce a plant or two into a warmer house. If a plant stove is at command, no better place can be found for them; and in the temperature of this house they will quickly start into growth, and no water should be afforded the plants at the root before the growth is sufficiently advanced to show the flower-sheath. *C. labiata Warnerii*, and *Dendrobiums* coming into flower, should also be watered with care, or the young growths will be injured.

THE EAST INDIAN-HOUSE.—With the likelihood of a continuance of the cold weather, it will not be advisable to continue the repotting of the plants in this house in great numbers, especially any plants that require a large quantity of sphagnum moss around the roots, the new sphagnum gathering and retaining too much moisture for the plants at this unseasonable period of the year. *Cypripediums* may be repotted safely; but what I mostly refer to are *Aërides*, *Saccolabiums*, and *Vandas*. The temperature of this house should remain as in my previous calendar directions. *A. G. Catt, Parkfield, Hallow, Worcester.*

FRUITS UNDER GLASS.

THE FIG HOUSE.—The best mode of getting early fruits is to grow the trees in pots, as Figs forced yearly start readily into growth, and some few dishes are thus secured without forcing those in borders. The trees should have been started a few weeks ago, and if not started at that time, there should be no longer delay in doing so. Where there is no proper Fig house, a bed of mild fermenting materials may be put together in a deep pit or small house. This bed should have a steady warmth of 75° to 80°, the bed being refreshed with prepared new materials when it declines below these figures. The day temperature should at starting be 50° to 60°, and 5° to 10° lower at night; the minimum being best in hard weather or whilst cold winds blow. If the weather be bright, syringing the trees may be done twice a day, damping the walls and floors at the same time. Air may be afforded on favourable occasions. Figs started early may now be pinched back at the fourth or fifth joint beyond the fruits, or even closer if the trees are large and space limited. Watering must be done with care, as any check at this stage will cause fruit dropping, and the moisture present in the heating material will

keep the soil moist to a certain degree; still, some will be required, and it should be of the same temperature as that of the warm bed. The trees should not be much syringed in dull weather when the fruit is formed, allowing them to get dry before nightfall. Some of the best varieties for early work have not the largest fruits—at least such is my experience; but after this date most of the best Figs will force readily. A house may also be started to succeed the pot-plants; and as Fig-trees are subject to scale insects, they should have had a thorough cleaning in the manner of Peach trees, the mixture used being thoroughly worked into every crevice of the bark; and before using other means, brush the old bark with warm water and soft-soap, also the wood-work of the house. The surface soil of the border may be removed, and if the trees are not growing too strongly, it may be replaced with some decayed cow-manure mixed with loam, laid on 3 inches deep, but omitting the manure if the trees grow too much to wood. It assists the trees to break if a covering of tree leaves can be placed over the roots; but as this is not always practicable, the border at starting should be examined, and if dry, thoroughly watered with warm water. Now is a good time to examine the drainage, and remedy it if defective. Figs in narrow borders require more moisture than those in wide ones, and I prefer a narrow and shallow border, where the roots can be restricted, as with a wide root run the fruits are not so good. Negro Largo is a variety that does no good if the roots are not curtailed, and I prefer to have it and other similar varieties in a narrow and shallow border, or else in pots. The house started at this date will give ripe fruits in May.

POT FRUIT TREES.—Where fruit trees are grown in pots, the repotting, top-dressing, and attending to the proper drainage, should demand the gardener's care. Much will depend upon the date the fruit is desired, but as early varieties of Peaches in the orchard-house come in before those from walls outside if the orchard-house is heated, a date early next month will be soon enough to start it. In some gardens this house contains a variety of fruits, and is unheated, and it is best in such case to defer the starting of the trees to a rather later period. The best Cherries and Plums which I ever observed, grew on the back wall of an orchard-house with but little heat afforded. Cherries and Plums will not stand hard forcing, so that when these are grown in the same house with Peaches and Nectarines a temperature of 40° at night, or less in severe weather, with 5° to 8° rise during the day is sufficiently high. The trees in fine weather may be syringed twice daily. In mild weather fire-heat will not be necessary to start with, and the atmospheric moisture should be applied in greater or lesser amount according to the state of the weather, but always allowing the trees to get dry before repeating the syringing. *G. Wythes, Syon House, Brentford.*

THE KITCHEN GARDEN.

EARLY SOWINGS IN HEAT.—It is very apparent that much loss will be found amongst autumn-sown Cauliflowers, Lettuces, Cabbages, and Onions, owing to the severe frost of the past few weeks; and such being the case, provision should be made to meet it by sowing seeds in boxes in gentle heat of early varieties of Cauliflower, Lettuce, Cabbage, &c.; the seedlings to be hardened off, and afterwards pricked out on beds or boxes of rich soil.

PEAS.—Sowings should be made thinly in long narrow boxes of the following tried varieties, the Duchess, or Duke of Albany, and Telephone, placing them in gentle heat, and when they are about an inch high, removing them to a pit or frame, standing them near the glass. Here the plants should be gradually hardened off previous to planting out. By this method, good dishes of Green Peas may be picked about June 20. I rely more upon these sowings than on out-of-door sowings, and if early varieties are sown only a few days later than those, the quality and quantity are much superior.

A few remarks may be of interest with regard to the treatment I afford these early sowings. The boxes, shallow ones, are filled with turfy loam and leaf-mould, thoroughly mixed together. The Peas are put in rows 1 inch apart each way, and covered with half an inch of fine soil, and placed in gentle heat. The frames the boxes are placed in after sprouting should be covered with mats or litter, air being given freely by day when the weather is mild,

increasing the amount afforded until they are gradually hardened off. How to plant will be given later.

SEED POTATOS.—Some of the earliest varieties for planting in frames should now be put into shallow boxes, and placed upon a shelf in a vinery or Peach-house that has just been started. I find the following are suitable for early work, Sutton's Ringleader, Sharpe's Victor, and Myatt's Ashleaf.

FORCING.—Put more roots of Seakale in the Mushroom-house, or other forcing quarters, in quantity, according to the demand. Roots that were taken up and safely housed some time since in prospect of frost, will force more readily than those taken direct from the ground, and placed in warmth.

RHUBARB.—The forcing of this plant will now be an easy matter, and it is therefore advisable to force the crowns on the ground by covering them with large pots or boxes, and surrounding them with leaves and litter, previously thrown together and heated. Unless much is required, a renewal of the fermenting material will not be required, for once the ground has got warmed through by the heat of the manure when it subsides, the bulk of materials retains the heat, and the growth, if slower, is continued. *C. J. Waite, Glenhurst, Essex.*

THE HARDY FRUIT GARDEN.

ALPINE STRAWBERRIES.—These plants are usually increased by runners, although a variety exists which makes none, and must be raised from seed. The runners are taken in late summer, and grown on in nursery-beds in a partly shaded spot, and when established planted at 1 foot apart in properly prepared land. These fruit the first year after planting, and for four or five years afterwards. Plants of the common alpine Strawberry may be raised from seed like the runnerless variety, and the seedlings fruit the first year; but for them to do this, the seed should be sown early and in heat. Sow now and onward to March in well-crooked pans filled with sandy soil made firm and smooth. Water the soil an hour before sowing, and scatter the seed evenly and thinly over the soil, not covering it more than one-eighth of an inch; and place the pans in a newly-started vinery or mild hotbed, with a square of glass over each. If a gentle bottom-heat is used, the seed germinates quickly. Inure the plants in a week's time to a lower temperature than that of the frame, and when four leaves are made prick them off into other pans, &c., and keep them gently moving in a growing warmth. When grown so that they touch each other, transplant them into a frame where the heating material has declined, and by the beginning of May, if duly hardened, they will be fit to plant out-of-doors, either in double rows 8 inches from plant to plant, and 18 inches apart, or 1 foot all ways.

BEDS OF STRAWBERRY PLANTS.—As soon as the frost leaves the ground, all the beds should be overhauled, and more especially those planted late in the autumn, as many plants will be found partly thrown out of the ground by the action of frost, and these should be trodden and made firm by treading the soil, of course at a time when it does not cling to the shoes.

GOOSEBERRY CUTTINGS.—These may yet be made and heeled in for the present, as also Black and Red and White Currants; and in making them, do not let them remain for a long time with the ends out of the soil, as once shrivelling begins, the cuttings will not root. The usual practice is to bundle up the shoots, and put them aside until bad weather begins, but October is by far the best month in which to make and plant them; in fact, in addition to a better strike, there is almost a season gained in growth. *H. Markham, Mereworth Castle, Maidstone.*

THE FLOWER GARDEN.

CUTTING BACK SHRUBS.—Inactivity still reigns in so far as regards outdoor operations. One of the things that may be done, even under present conditions, is the thinning out and regulating overgrown shrubs, especially Laurels, which will bear, and in most cases be all the better for having some of the branches or stems cut out, so as to let light and air into the heads, as it is only in that way they can be kept thick to act as screens, and well furnished below. The same remarks apply to such as are near the sides of walks, which often get cut in such a manner as to give them a wall-like appearance. If these are cut back hard, which is the best

way, they will be covered with shoots by mid-summer. Hollies, green and variegated, will bear just the same kind of treatment, and anyone who has large plants that are getting or have got overgrown, may cut them into any desired shape, as though they may look naked for a time, young shoots will break forth in abundance in April. Rhododendrons are likewise as amenable to hard pruning and thinning, and though it does not often happen that the choice sorts require that kind of treatment, it frequently occurs that the common kinds planted as nurses, encroach on their neighbours, and need some amount of pruning. Rhododendron plants break freely in all parts, even the main trunk, but the work should be done early and before growth has commenced. *J. Sheppard, Woolverstone Park, Ipswich.*

THE APIARY.

The severe frosty weather will have set bee-keepers wondering how their bees will survive its severity. There can be no doubt that strong stocks that have been well provisioned and packed up will take no harm even if hives, entrances, and all have been covered with snow. Damp is their great enemy. When bees are wintered under enamel cloth quilts, it is generally advised that the entrance be left open 6 inches or more to compensate for the loss of upward ventilation when porous ones are used, but a preferable plan is to place a shallow body underneath the broad chamber, so that the entrance may be reduced to half an inch or less. This gives ample ventilation without draught, ensures dryness, and has also the advantage of doing away with the necessity for giving winter passages over the tops of the frames, or cutting them through the combs, the latter a most objectionable practice. The small entrance is not likely to get choked with dead bees that drop from the cluster, as there is so much space beneath the frames. After the thaw, it will be of assistance to the bees to rake out any dead ones that can be reached with a bent wire, and advantage may be taken of putting candy on any stock that is known to be short of stores. Candy is easily made, the chief thing to bear in mind being that it must be kept stirred all the time it is on the fire, or it will get burned, and be useless. The following, partly taken from the *British Bee Journal*, gives full directions for turning out an excellent preparation: "Use preferably a brass preserving-pan, otherwise an enamelled tin, or plain iron one. Put in 10 lb. white granulated sugar, 2 pints of cold water, and half a teaspoonful of cream of tartar. Set or hang over a brisk fire, and stir gently till the sugar is all melted. This should require about fifteen minutes. Almost immediately afterwards it will reach the boiling-point, at first throwing up a deal of froth. The fire may be moderated, or the pan withdrawn a little at this stage, when the foaming boil will settle down to a clear crackling one, which boiling should only occupy about two minutes. Now try a drop by letting it fall on a cold plate, and if it at once begins to set so that in a few seconds it will draw out as a thread when touched with the finger, it is cooked enough. Remove the pan from the fire, and set it in a trough of cold water, where it may be left for a few minutes; then commence and continue to stir briskly until the mass begins to get dim in colour from incipient granulation, and then to thicken to the consistency of thin porridge. Now pour it into moulds, square collar-boxes being as good as anything, as they fit well when inverted over the feed-hole. The candy should set within an hour, and when quite cold should still be soft enough to be easily scratched into with the finger-nail." *Expert.*

ODDEYPOR.—We have received a copy of the annual report of the gardens of H.H. the Maharana of Odeypore, which are under the charge of Mr. Storey. All English vegetables do well during the cold season, but in March hot winds set in which blast the leaves as a severe frost in England would do. After the great heat and rains of summer, the growths of weeds is phenomenal, but the gardener knows that where weeds will grow other plants will do so also. Great attention is being paid to raising and distributing the better varieties of Mango, Oranges, Limes, and Liqueurs. The Victoria Hall, erected by the present Maharana in commemoration of the Jubilee of the Empress, is now open. It contains a library, reading-room, and museum, which are a great boon to the inhabitants.

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be written on one side only of the paper, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Advertisements should not be sent to the Editor, but to the Publisher.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are solicited.

NEWSPAPERS.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	JAN. 25	Lilies and Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	JAN. 28	Roses, Fruit Trees, Japanese Lilies, &c., at Stevens' Rooms. Japanese Lilies, &c., at Protheroe & Morris' Rooms.
FRIDAY,	JAN. 30	Imported Lilies, at Protheroe & Morris' Rooms.
SATURDAY,	JAN. 31	Roses, Fruit Trees, Japanese Lilies, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—38°·7.

Removal of Leaves from Strawberries. The old question as to the propriety of removing the leaves from Strawberry plants has been revived in a recent issue. Many excellent practitioners advocated the process in the past, some still do so. On the other hand, the physiologists, or plant-doctors, as we may call them, protest against the barbarity of the proceeding, which, to them, seems wilful waste, and running in the face of Nature. Both parties, in our opinion, are right from their own point of view. We cannot gainsay the practice, we know the theory is correct; but, as Captain Cuttle is said to have remarked, "The bearings of this observation lays in the application on it." As a matter of abstract science, the plant-doctors are right, but the gardener has to consider not only what is best for the plant, but what will be best for him as a cultivator. A plant growing wild in a hedgerow is one thing, a plant growing in a Strawberry bed, or a forcing-house, is placed under widely different conditions and serves widely different purposes. A Strawberry grower, as a rule, is not anxious about the ripening of the seed, and as to the formation of runners, that is accomplished before the removal of the foliage.

Again, plants are very pliable and accommodating, so that conditions which appear very unfavourable, are not in actual practice nearly so detrimental as they seem to be. The actual harm that ensues may be so limited that for practical purposes it may be disregarded.

The more nearly a plant can be brought into the condition of, or treated as, an annual, the

more satisfactory are the results culturally. The Chinese Primrose and the Cyclamen, though both perennials, give more satisfactory results when grown as annuals. Mr. WARREN told his hearers the other day at the Horticultural Society that he discarded the old tubers after flowering, and relied on seedling plants for his flowers, and this practice is now universal among growers of that kind of Cyclamen. That from a doctor's point of view would be both cruel and extravagant. From a cultivator's standpoint, it is proved by experience to be the best thing to do.

Reverting to the Strawberry, Nature herself gives us the hint in the production of runners. The old crowns remain, it is true, but they throw off runners to feed on "pastures new," and these runners are the main objects of the gardener's solicitude.

The object of the gardener is not to preserve the individual parent or ensure its reproduction from seed, but to secure a good crop alike of fruit and of runners. Of course, to ensure these results, healthy leaf-action is essential, and if anyone proposed to remove the leaves while still in full operation, he would lay himself open to the condemnation of cultivators and thinkers alike. On the other hand, little harm is likely to accrue from the removal of the old foliage after it has done its work. The plant would "go to rest" the more perfectly; and when the growing time came naturally, or when it was stimulated by the forcing-house, the young leaves would do far better service than the old ones could do. So that the propriety of removing the leaves seems to resolve itself into a question of time—effected at one period, it would mean ruin; carried out at another, the results would not be materially injurious.

Whether the practice would actually be beneficial, and to what extent, are matters that can only be tested by actual comparative experiment, such as might be carried out at Chiswick. If done at all, it should be done in early autumn, after the ripening of the fruit. Advocates of the plan say that light and air are thereby admitted to the crown; but this benefit would be counteracted by the removal of the protection afforded by the old leaves. The want of natural protection, again, might be compensated for by mulching with litter or leaves. In any case, where gardeners like Mr. TEMPLE, in our last issue, advocate the plan of cutting off the old leaves, we may be sure it has some advantages to counterbalance the evil which those who only look at one side of the matter think is sure to accrue.

THE GARDENERS' ROYAL BENEVOLENT.

The annual meeting was held on the 15th inst., under the Presidency of Baron SCHRODER, as our issue was passing through the Press, so that our report was confined to a short account of the proceedings, and to the publication of the names of the successful candidates. In the evening a dinner was held under the Presidency of N. SHERWOOD, Esq., who narrated how the Society began in 1839, and in 1840 had one pensioner; whilst in 1891 the pensioners were 156 in number, the amount paid was £2648, and the sum invested was £25,000. One pensioner was 103 years of age, and had received during the thirty-three years he had been a pensioner the sum of £510 in return for the £18 18s. which he had subscribed in the days of his prosperity. An interesting feature in the dinner was the presentation to Mr. HARRY VEITCH of an illuminated address, subscribed for by a few friends in recognition of the generosity and steadfast aid given by that gentleman to the Institution on all occasions, and especially on the occasion of the annual dinner last year. When Mr.

CUTLER's health was proposed on the occasion of his having been elected Secretary for the fiftieth time, the interest of so notable a circumstance was enhanced by the presentation to him of a purse of money amounting to £675 9s. 9d., which had been contributed by various friends in amounts varying from 1s. 6d. to £50.

THE ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The QUEEN has forwarded to the Secretary of this Institution, of which Her Majesty has long been the patron and generous supporter, a further contribution of £100.

"KEW BULLETIN."—The January number comprises articles on the West African Bass Fibre, the produce of a Palm, *Raphia vinifera*. Chinese ginger, the preserved ginger of commerce, is, it appears, not a ginger at all, but the produce of *Alpinia galanga*, which is said never to flower in China, but which has been obliging enough to do so at the Hong Kong Botanic Garden, as well as at Dominica. The remainder of the number is taken up with correspondence relating to the production of seed in the sugar-cane, and the consequent possibilities of new varieties being originated.

GOSSIP FROM THE SALE ROOMS.—The problem as to what becomes of all the Lilies imported annually is far from being solved. Thousands are sold every week at fair prices, according to quality. Recently, at Messrs. PROTHEROE & MORRIS', a few lots of *L. auratum platyphyllum* fetched over 30s. for ten, and really large bulbs of other varieties obtained quite the usual rate. The long-continued cold weather has affected the Orchid sales; *Cattleya Warocqueana* and other good things, although catalogued, did not come up. Some of the things sent, of course, were not of the best quality, and buying at sight was almost the only business done. The auctioneers never work their commissions on bad stuff. On Friday, January 16, Messrs. CHARLES-WORTH, SHUTTLEWORTH & Co. sold some really fine *Oncidium Marshallianum*, *O. crispum*, *O. certum*, &c., most of the things being for cool-house, and, consequently, not liable to injury if carefully packed. It would be interesting to have a record of the Orchids sold in flower each week at the Sale rooms. January 9 was one of the flattest for flowering Orchids at Messrs. PROTHEROE & MORRIS', only a good *Odontoglossum Humeanum* and a white *Laelia anceps* being of any interest. Friday, the 16th there was a fair show of nice things; among them a grand form of *Cypripedium Boxalli*, *C. melanophthalmum*, *Laelia anceps Sanderiana*, *L. a. Stella*, *Madevallia cucullata*, *M. hieroglyphica*, *Bulbophyllum Egertonianum*, *Oncidium Phalenopsis*, *Odontoglossum mirandum*, a fine form of *O. Coradinei*, and some good *Lycaste Skinnerii*.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual general meeting of the members of the above Society will take place at Anderton's Hotel, Fleet Street, E.C., on Thursday, January 29, at 7 o'clock.

THE WEATHER AND THE WORK.—The prolonged frost has naturally been a serious interruption to business. Nurserymen have been unable to lift their plants, and out-door business of all kinds has been at a standstill. In many cases the labourers have been retained at their full wages, but have not been able to do anything in return. In several other cases, a reduced rate has been paid; while in some cases the unfortunate men have been thrown out of employment. With the thaw, which it is to be hoped will be permanent this time, business will recommence, orders will flow in freely, and planting will be resumed. Spring planting, of course, is not so good as autumn planting in most cases, but after such a season as the present, there will be time to do much planting before vegetation again becomes active; and it is very desirable that no time should be lost, else a season will be wasted. We hope shortly to hear that planting is going on merrily.

SYNDICAL CHAMBER OF GHENT.—The meetings of this Association take place monthly, in co-operation with the Royal Society of Agriculture and Botany. In future it is decided to display on these occasions plants and horticultural objects of all descriptions. In other words, instead of a committee-meeting for the assessment of the value of certain plants submitted for examination, the meetings will assume the character of general exhibitions, in which æsthetic as well as commercial considerations will be held in view. The meetings will be held on Sundays, January 11, February 1, March 1, April 5, May 10 to 12, general exhibition; June 7, July 5, August 2, September 13, October 4, November 15 to 17, general exhibition; December 6. The jury will

beset at the margins with short spines, and with loose pendulous racemes of blue flowers subtended by rose-pink, boat-shaped bracts. *B. nutans* is similar, but has rosy-crimson bracts. *Echmea fasciata* has its grey leaves irregularly banded transversely with white, and finely spine-toothed at the margins. The flowers are borne on erect stalks in dense pyramidal heads, the closely packed bracts being lance-shaped, spiny-edged, and of a delicate pink colour, surrounding the long tubular flowers which are greenish at the base, blue at the tips. *Æ. calyculata* has its yellow flowers in dense cylindrical heads, truncated at the end.

DRYOPHLOEUS OLIVIFORMIS.—This is not a pretty name, certainly, but the Palm to which it is

the most modest character, for it is growing on a stick no bigger than a pen-holder. As for leaves, practically it has none; but it has some roots, and these suffice for its requirements. Air and water, and not much in them, are what it lives on, the process being stimulated by heat and such light as Kew has been blessed with of late.

CLOSE PLANTING OF VINES.—That the practice of planting the Vine much closer together than $3\frac{1}{2}$ to 4 feet is not always a failure, is shown in a photograph of a vinery with Vines in bearing (not suitable for reproduction), sent us by Mr. RICHARDSON, gardener, Wood House, Stansted, Essex. The house is 50 feet long, and contains twenty-one canes of Black Alicante and Lady Downe's Seedling,

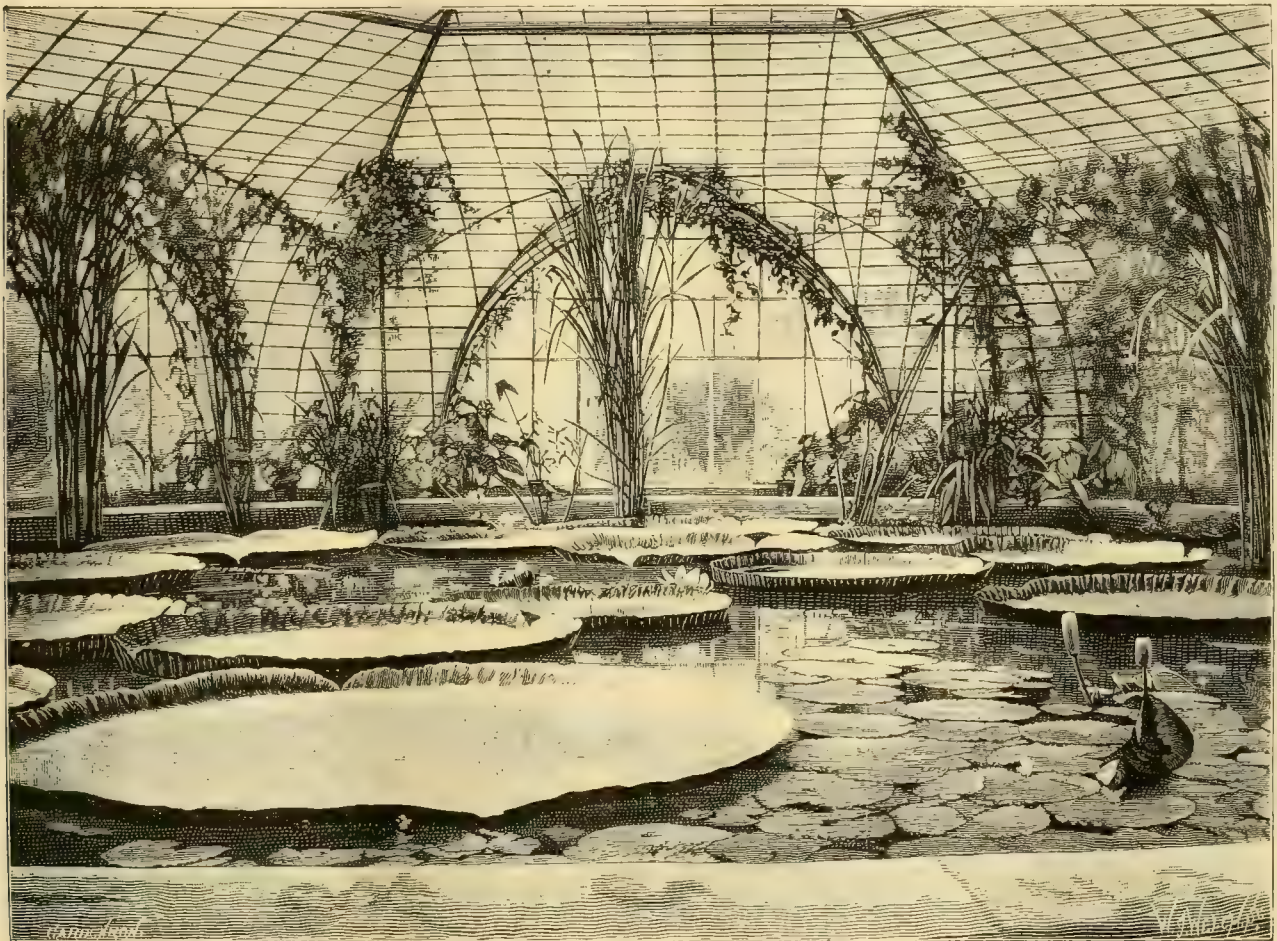


FIG. 31.—VICTORIA-HOUSE IN THE BRUSSELS BOTANIC GARDEN. (SEE P. 115.)

meet at 10 A.M., the public will be admitted at 11 A.M.; and concerts will be given in connection with these meetings.

FIRE AT MESSRS. HURST & SON, 152, HOUNSDITCH.—We are glad to hear that the fire which occurred on the 17th inst. was a slight one, but would probably have proved serious had it not been promptly discovered and extinguished. The damage done was slight, and confined to a very small space. It occurred in the basement of one of the shops, and quite apart from the warehouses, and has in no way interfered with the conduct of the business.

BROMELIADS.—Some very beautiful species are now in bloom at Kew, and as winter-flowering plants are always desirable, it is well to note them. *Bilbergia Sanderiana* has oblong obtuse leaves, thinly

applied is good-looking enough to deserve stove-culture—the more so as its stature is not such as to make great demands on limited space. The leaves are pinnate, the pinnæ wedge-shaped, irregularly jagged at the margin like those of a *Caryota*. The flowers are borne on a branched spike, which issues from the stem beneath the crown of leaves, and are succeeded by berries of the size and form of small Olives, but crimson in colour. A plant is now to be seen in fruit in the centre of the T range at Kew, where it is very attractive.

CAN A PLANT LIVE WITHOUT LEAVES?—Yes, if it can avail itself of somebody else's leaves—as in the case of a parasite, or if it be provided with something that will act as a substitute. There is, for instance, just now, at Kew, a *Sarcochilus* in flower which has no leaves. Its requirements are of

planted at 2 feet apart. The crop seems, from the view taken in October, to have been a heavy one. In the long run we think that close planting would end in inferior crops for very obvious reasons. The weakening of the Vines would commence and go on with the exhaustion of the border, the yearly lessening size of the foliage, and the size of the annual wood.

FONDNESS OF THE ENGLISH FOR FLOWERS.—We cull the following bit of startling information from a German (Berlin) gardening periodical recently to hand:—"The following facts speak forcibly for the almost sporting tastes of the English in the matter of cut blooms. The information was furnished by a German gardener, Herr OBERGÄRTNER WEIDLICH. At a dinner recently given by the Duke of SOUTH KENSINGTON! a sum of not less than £1000 was expended in decorating the dining-room with

cut flowers. In a florist shop, H. W. saw an assistant engaged in bunching up *Adiantum* fronds and he was assured that the assistant had been so engaged for three days, and that the purchaser willingly paid such a high price for the plant, that a handsome profit was made by the florist. The extent of the fancy for flowers of *Chrysanthemums* is scarcely credible. In every shop, every restaurant, every dwelling, and in every theatre, these flowers are to be met with in their season. Ladies and gentlemen wear them for personal adornment. In Covent Garden, the centre of the London flower trade, there came so many *Chrysanthemums* for sale on one day, as are probably not be found in the whole of the German Empire, and yet the prices were by no means low, 3s. for one flower being a not uncommon price."

GARDENS AND PAINTING.—Mr. G. S. ELGOOD will, it is stated, shortly exhibit at the apartments of the Fine Art Society a series of pictures of old-fashioned gardens in various parts of England.

SYMPHYTUM.—Prof. E. HEINRICHER describes and figures a malformation of *Symphytum officinale*, in which the corolla is furnished with external projections similar to those which are sometimes met with in *Gloxinias*, and which form an outer corolla.

THE TOWN GARDENING MOVEMENT.—At a committee meeting of the town gardening section of the Manchester Field Naturalists' Society, Dr. G. H. BAILEY (Owens College) read a preliminary statement from the Investigation Committee of the Air and Fog of Manchester. "From an examination of snow, collected in different districts of the city during the recent fog, the sub-committee have been able to give some estimate of the character of the impurities carried down by the snow from the air and accumulating from the fog. As the results are not yet complete, the committee have no intention at present of going into details, but already it appears from their results that, in addition to the data obtained from the snow, being strongly acid, it contains constituents such as occur in sewage; and, notwithstanding that the recent fogs were very widely distributed, it appears that the fog is much more objectionable in those parts of the towns where the population is the densest. The analyses have also been made of the different deposits on the leaves of plants in Albert Square, Infirmary Esplanade, Hulme, Harpurhey, Owens College, Alexandra Park, Victoria Park, &c., which leads to the conclusion that in Hulme and Albert Square, for instance, the amount of acid vapours is greater than those found in Harpurhey in the immediate vicinity of a large number of works. From observations made at Owens College during the last fog, it was estimated that on an average at least 2 tons of 'blacks' and 3 cwt. of sulphuric acid, were carried down per square mile in one day."

FERTILIZER CULTIVATION.—It is stated that the Mercers' Company intends to endow one of its estates with £3000 per annum as a school of gardening, &c.

"THE DICTIONARY OF GARDENING."—We hear that arrangements are being made for the issue of a French edition of this useful book. It would be a great advantage if the translator would incorporate the supplements into the body of the work.

AMERICAN BLIGHT AND CANKER.—We have received another reputed remedy for American blight from Mr. SMYTHE, Basing Park, Hampshire:—If these two evils are taken in time, they can be destroyed, or rather prevented. This is the proper time to do so, by using this lotion as prescribed: 7 lb. fresh lime, 4 lb. sulphur, 7 lb. soot, 2 pints paraffin, 4 pints boiled oil, 1 oz. nux vomica, put into a tub and well stirred in boiling water to the thickness of paint, and allowed to stand until cold. Paint the tree all over where the blight is, and see that the mixture penetrates into the cracks. It is advisable to keep this through the season, and use at any appearance of the blight. The canker requires

a sharp knife to clean out all the dead bark, until the appearance of the green and healthy wood, and a mixture of cow manure and sulphur with a little boiled oil to place over the cuts. This prescription I used some years ago, and cleared the orchard at the Wick, Hove, in less than two years.

THE METROPOLITAN PUBLIC GARDEN ASSOCIATION.—This Society affords an interesting example of the tendency in this country to effect great reforms, and to institute great works of utility and even necessity, by means of private enterprise rather than by official agency. The report of the Society above mentioned is very satisfactory, as showing how much may be done at very moderate cost. As suburban London is relatively well off with its great parks and girdle of suburban commons, it seems specially necessary that the number of open areas in the centre of the town, small in extent though they must needs be, should be jealously preserved, and as far as possible extended. The population here is densest, and the requirements of fresh air and space for recreation most urgent. A glance at the map issued with the report will show that these considerations are not overlooked by the Association.

ADVERTISEMENTS IN 1841 AND 1891.—In our comments on the Jubilee year of the *Gardeners' Chronicle*, we had occasion to notice the paucity of advertisements at its foundation in comparison with their numbers now, and we showed how, in those days, a moderate circulation at a high price contributed to the success of the paper, whilst now a very much larger circulation at a cheaper rate would not cover expenses were it not for the advertisements. We did not, however, say what had produced such a change in the condition of things. This was mainly the repeal of the advertisement duty, originally 4s. 6d. for each advertisement, however short! This was gradually reduced, till in 1853 the duty was entirely taken off. Previous to that time, it was practically impossible for a gardener to advertise for a situation.

VICTOR LEMOINE.—The current number of *Le Jardin* contains a portrait of this distinguished hybridist, together with a list of the principal productions with which he has enriched our gardens from 1851, when he raised double flowers of *Portulacca*, to 1890, when *Clematis La Nanceienne*, *Begonias Baumannii* × *Triomphe de Lemoine*, and *Lilac Madame Lemoine* were added to the list. LEMOINE, it appears, was born in Lorraine in 1823. Long may we have the pleasure of recording his successes!

CEYLON TEA.—The *Times* reports that a consignment of Tea from Ceylon, recently sold at Mincing Lane, was, in the opinion of experts, the finest Tea ever grown. It was ultimately sold for no less a sum than 87s. a pound! and again changed hands at £5 10s.—a price never before approached in the Tea trade. Bravo, Ceylon! Honour to the memory of the botanists in India, whose labours and discoveries more than half a century ago rendered such things possible.

"THE STUDENT'S HANDBOOK OF THE NEW ZEALAND FLORA."—Professor KIRK, of Wellington, New Zealand, has in the press a work with the above title. It comprises analytical keys to the determination of the species, as well as sufficient descriptions and indications of localities. It will be most useful to students of New Zealand botany.

"LINDENIA."—An English edition of this is to be published monthly, commencing on February 1. The work will consist, like the Belgian original, of coloured plates and descriptions of Orchids.

FERN.—A classified list of the Ferns in the Saharanpur Herbarium, has been published by the authority of the Agricultural Department of the Government of India. The localities are also mentioned. The list will be useful to botanists.

DAVALLIA MOOREANA.—Some correspondents of the *Garden* record the fact that this Fern produces considerable irritation of the skin to those

who handle it. This is a new occurrence in Ferns so far as we know. We should be glad to have the fact either refuted or corroborated, and the reason explained.

DISEASES OF PLANTS.—Dr. CHARLES B. FLOWRIGHT will give a course of three lectures at the Royal College of Surgeons, Lincoln's Inn Fields on February 16, 18, 20, on "Fungi in relation to Plant Disease."

THE GRAND YORKSHIRE GALA.—The annual meeting of the members of the Council, together with the guarantors of the Grand Yorkshire Gala, was held at "Harker's Hotel" recently, Sir JOSEPH TERRY presiding. The Chairman said that the Bootham Asylum field in which the annual fête is held had been secured. The gala had now, said Sir Joseph, existed for a great number of years, and on the last occasion it was an unprecedented success. It was very gratifying that the original objects of the gala were fulfilled, and that in consequence of their annual successes, the committee were in a position to contribute handsome sums to local charities. Doubtless much of their popularity was due to the fact that these donations were always forthcoming, and he hoped that in the coming year the public would support them with equal liberality. All present would agree with him that in a great measure their success was due to the untiring labours of the secretary (Mr. C. W. Simmonds), and the committee who had so ably supported him. The Lord Mayor (Alderman Williams), was elected president of the gala, and Sir Joseph Terry chairman of the committee. The following gentlemen were also re-elected: treasurer, Mr. Joseph Wilkinson; secretary, Mr. C. W. Simmonds; and auditor, Mr. Pearson. Grants in all amounting to £880 were made towards the various sections of the gala.

GARDENERS' ORPHAN FUND.—On Friday evening, January 9, a skating benefit was given for this fund at The Elms, Acton, W., by the kindness of R. SCOTT, Esq. The ice was illuminated by the electric light, and the attendance was fairly good.

WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—At a meeting of this Society, held on the 20th inst, the President, STANLEY GRAY, Esq., in the chair, there was a good muster of members, and ten new members were elected. A paper was read by Mr. G. FULFORD, on *Chrysanthemums*.

THE WEATHER OF 1890.—There have been but few years of late in which the weather was more unseasonable, and yet, on the whole, when considered from a strictly agricultural point of view, the result has proved fairly satisfactory. The fickleness of our weather is an essential feature, and certainly in this respect 1890 fully maintained its character. 1889 was especially seasonable throughout, and some sharp winter weather was experienced at the close of the year. 1890 opened with rather a severe frost over England, but after the first day or two it had entirely disappeared, and the remainder of January was unusually warm, and probably outstrips for its mildness any January during the last half-century; whilst the rainfall was heavy, except in the south and east of England. At the end of the month the crops were in a more satisfactory condition than is usual at this period. February was cold and dry, and very different in character to the weather of the preceding month; there was, however, an almost complete absence of sunshine. At the commencement of March there was an exceptionally sharp frost over nearly the whole of England, with heavy falls of snow in some parts of the country; the weather for the month was, however, generally mild, with a rainfall in excess of the average, except in some of the English districts. The very heavy rainfall towards the end of the month hindered somewhat the spring sowing, but the weather was very favourable to autumn-sown crops. April was cold, but this was due to the absence of warm and bright days, and not to the occurrence of exceptional cold at night; the month

was also generally dry, although there was an excess of rainfall in the south and south-west of England. May was warm and showery, and rather severe thunderstorms occurred in the south-west of England towards the end of the month. At the close of spring, the crops were looking exceedingly well, and the outlook was in the highest degree satisfactory. June was wet and cold, and, according to the returns published by the Meteorological Office, 77° was not exceeded in any part of the British Islands; while the principal feature over the whole country was the almost entire absence of warm days, and at the end of the month the prospect for the farmer was less favourable than at the beginning. The same unseasonable weather continued during July, the month throughout was wet and cold, the rainfall at times being exceptionally heavy. At Sittingbourne 3.59 inches fell in fourteen hours on

autumn opened with exceptionally fine weather, and throughout September there was the most brilliant sunshine. The days were not only warmer and brighter at many places than at any time during the summer, but the weather was drier and exceptionally favourable to the farmer, allowing the harvesting operations to be brought to an end under highly satisfactory conditions, whilst the mean temperature for the whole of the British Islands was higher than for any of the three summer months. October was generally fine, warm, and dry, and although there were one or two sharp touches of cold, the weather was generally very warm for the season. The same mild weather continued until about the third week in November, some days being unseasonably warm, whilst several nights were warmer than during the summer. An exceptionally severe frost, however, occurred at the end of the month, accompanied by a

VICTORIA - HOUSE IN THE BRUSSELS BOTANIC GARDEN.

ONE of the principal features of the Botanic Garden of the Belgian capital, is the house (fig. 31) devoted to tropical aquatic plants, and especially to the *Victoria Regia*, so justly called "*La Reine des eaux*." We must say that, owing to judicious management, this Nymphæad is seen at Brussels in an exceptionally good state of health and vigour. Situated in the centre of the gardens, the Victoria-house reminds us in shape of the Winter-garden in the royal grounds at Laeken. It was built in the Zoological Gardens from the plans of Balat, the architect, about the year 1854. When this garden was taken over by the city, it was proposed to the State that it should be rebuilt, improved, and finally reinstated in 1879. The greatest width of the house is rather over 42 feet, and in shape it is octagonal. The width of the tank exceeds 35 feet, and the depth varies from 1 foot 6 inches to 2 feet 9 inches. The circular path surrounding it is over 3 feet wide. The angles of the polygon form corners, which are occupied by climbers, which lay hold and twine, or wind up the columns and arches which support the roof. The greatest height (in the centre) is 13 feet. The house is surmounted with an effective gilded regal crown. Four ventilators are placed in the walls which support the building, and four more in the top of the roof, and side windows are also provided. The heating apparatus consists of three tiers of 5-inch pipe, which run under the gratings, covering the pathway. An 8-inch pipe heats the mound on which the plant is placed, and another of the same capacity feeds the water-tank, which is supplied with rain-water, collected in a cistern in the highest part of the garden, and brought down by a special canal. It is evident that purity of the water is absolutely necessary to the health of the plants which are to live in it. The greatest care is necessary that no deleterious matter should become mixed with it. At first the waters were found to be contaminated, and it was not known to what cause this was attributable, but the disastrous effects on the plants and fish were soon seen. Upon analysis, it was found to contain salts of copper, arising from the oxidised roof of the central dome, and which were brought down by rain into the cistern.

Another plan was tried, and from that time the vegetation improved in health. We may add that the gold fish which in this water exist in a temperature of 25 C., multiply abundantly, and help to keep the water pure. In spite of an unfavourable season, the *Victoria* last year grew wonderfully well. Planted on April 15, it showed its first flower on July 21; after that time the blooms opened in succession every five days. It is well known that the time for expanding is towards evening; the pure white blossoms are closed on the next day, to reopen on the morrow. The petals are then of a bright pink colour, tinged with carmine. When fertilised, the flowers again sink under water to ripen the seed, which is produced in abundance. The structure of the leaves is too well known to need description; last year some of them measured 7 feet across. We will not repeat all which has been said as to the force of resistance offered by these leaves, but we have proved that they will bear a weight of 150 or 155 lb. without giving way.

Besides the rich collection of Nymphæas which surrounds the *Victoria*, and bear numerous flowers which decorate the surface of the water, we noticed *Euryale ferox*, which seems to be a small-sized *Victoria*; a *Sagittaria*, with large white flowers; *Pontederia cordata* and *crassipes*, *Pistia stratiotes*, *Myriophyllum Proserpinæ*, *Trianea bogotensis*, &c. *Saccharum officinarum* and *violaceum*, *Cyperus*, *Papyrus*, *Oryza sativa* here grow to a great size, *Ceratopteris thalictroides*, a curious aquatic Fern; *Pholidocarpus Thun*, a Japanese Palm, the roots of which dip into the water, are seen in full vigour. *Cochlostema Jacobianum*, *Hedysarum gyrans*, *Mimosa pudica*, specimens of *Caladium*, *Alocasia*, and the curious *Lasia spinosa*, an aquatic Aroid, all do

WINTERS 1850-89. MONTHS: NOV - MAR. (INCL.)
1850 = 1850-'51. &c

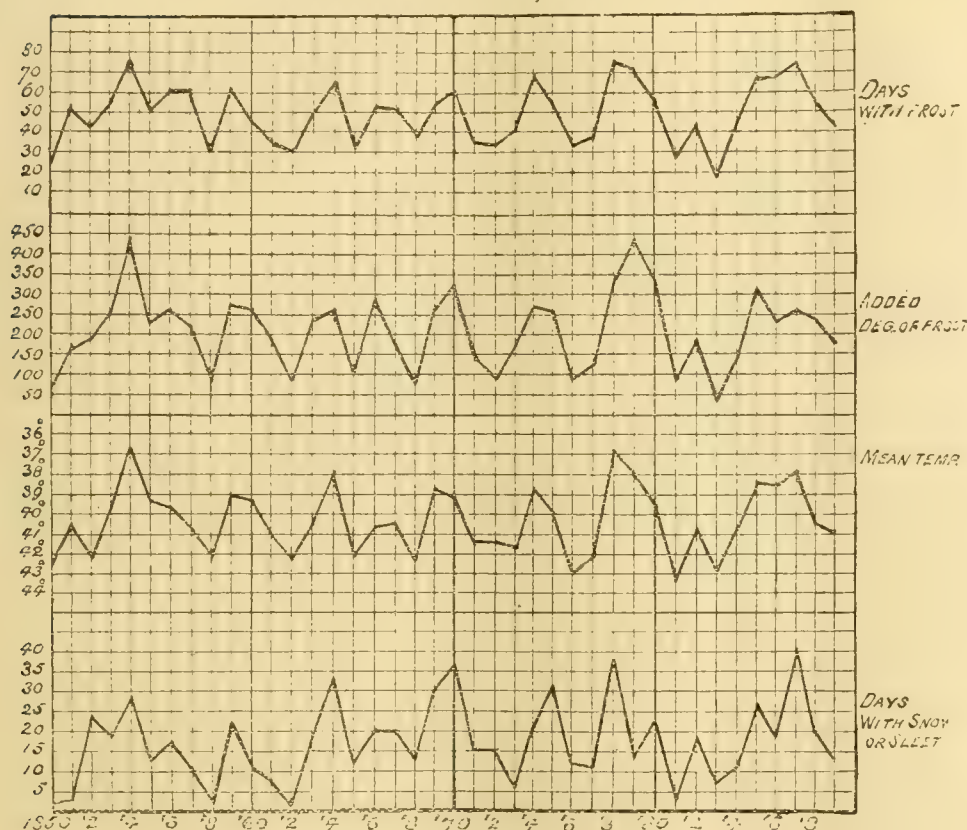


FIG. 32.—SEVERE WINTERS DIAGRAM. (SEE P. 118)

the 4th and 5th, and at Rickmansworth 4.19 inches fell in twelve hours on the 17th, whilst on the same day the fall exceeded 3 inches in parts of Middlesex, Buckinghamshire, Berks, and Surrey. At Greenwich 70° was only exceeded on nine days, and some days the weather was cooler than in January. August was also wet and cold, and, with the exception of one or two days in the early part of the month, the weather was very unseasonable. For thirteen days at the end of the month, 70° was not once reached in the neighbourhood of London, which is the longest period of cold in any August during the last twenty years. During the summer there was only one week in which the temperature was in excess of the average over the whole country, and that was the week ending August 9, but the excess nowhere exceeded 1°, excepting the east of Scotland, and the north-east of England. The

heavy fall of snow. The temperature in many parts of the country fell lower than any previous records in November, and in the neighbourhood of London such intense cold has not been observed in November during the last century. There was a fair amount of rain during the month, and the fall was excessive in many parts of the country. December opened with cold and seasonable weather, but heavy rains were experienced in places. The mean temperature for the year was in excess of the average over nearly the whole of the United Kingdom, especially in the more northern districts, and the rainfall was generally deficient over England, the defect being largest in the Midland Counties and in the south-west of England. By Charles Harding, Fellow of the Royal Meteorological Society, in "*Vinton's Agricultural Almanac*."

well in this atmosphere, which is saturated with heat and moisture. Among the climbing plants which contribute to the decoration of the house, we will mention *Passiflora racemosa*, *P. quadrangularis*, *P. kermesina*, *P. actinia*, *Aristolochia ciliosa*, *A. elegans*, *A. labiosa*, *Clerodendron Thomsoni*, several *Echites* and *Allamandas*, *Vitis congoensis*, a strong-growing species, with quadrilateral winged stems, which send out adventitious roots several yards long, and *Thunbergia Harrisii* in full beauty. *Ch. D. B.*

CULTURAL MEMORANDA.

LOBELIA [CARDINALIS] AND ITS VARIETIES.

SEED of this plant, if sown at any period from the present time to the end of next month, will produce plants large enough to bed out in June. It is necessary to sow thus early in the year, because the seed sometimes germinates very slowly. Sow thinly in pots well-drained and crocked in sandy compost; and place them in a frame having moderate warmth, the seeds germinating more regularly there than in great heat. Prick off the seedlings when big enough in pans, and subsequently put them into large 60's. Lobelias grow best in a deep well-manured soil, and it is best to prepare beds or stations for them. *H. Markham.*

CAPPARIS SPINOSA.

At the Cambridge Botanic Gardens a specimen of the above is growing on the south side of one of the houses at the foot of the wall in a light sandy soil. It is annually pruned closely in, and during severe weather is covered with a light. That Capers can be grown in many of the counties of England is without doubt; at present it is too early to state as to whether the plant will perfect its fruits. To those who are about to take up the growth of the Caper, I would give the advice to raise the plants from seeds in pots, getting them established before planting in the open.

The following extract from *Rural Cyclopædia* shows the method of cultivating it in the following countries:—"This species is cultivated in Spain, Italy, Sicily, and the south and centre of France, for supplying the market with Capers, and it requires little care, and is of very easy management. In autumn, the stems of the plants are cut down to within 6 inches of the ground, and are covered all over with soil from the intermediate spaces; and in spring, they are uncovered and trimmed, and are dressed and earthed up with soil to the points at which the new shoots are likely to be produced. In the latter part of the spring, they begin to bear flower-buds, and during the whole season, till the restraining of the flow of sap, or throughout a period of about six months, they continue to yield an unintermitted series of buds. A gathering of buds is made every morning, and immediately thrown into a tub of vinegar; gathering after gathering, throughout the season is thrown into the same tub; and a little common salt is dissolved in the vinegar, in order to prevent bad effects from a diluting of it with the watery portion of the buds. At the end of the season, Caper merchants, who travel through the country for the purpose, purchase the accumulations of gatherings in the tubs, and partly by sifting through sieves, partly by testing the quality of the vinegar, divide them into two sorts. The smallest are the most highly esteemed; the next in size are next in esteem, three other sizes are of gradually decreasing value; and all the fine sizes are completely separated from one another, disposed for sale in five distinct sets of bottles, jars, and barrels, and named respectively the Nonpareil, the Capucine, the Capote, the Secondes, and the Tierces." *W. Harrow, Botanic Gardens, Cambridge.*

SOLOMON'S SEAL AS A FORCING PLANT.

Those who are acquainted with this as a border plant, do not always recognise its value as a forcer.

It is very suitable, both for the decoration of rooms, conservatory, and greenhouses, seeing that it is easily grown, and not difficult to force into flower in late winter and early spring. If hardened off, after taking them from the forcing-pit, by placing them in a less warm pit, or at the warm end of the greenhouse, there are few plants which endure in condition such a long time as Solomon's Seal. In a cut state the flower-spikes are useful for vases, &c., and the plants when turned out of their pots, either singly or in masses of crowns, have a very nice effect. In old gardens, good stools are usually obtainable, and these may be pulled into pieces any time during March or April. Each piece should consist of three or four crowns. Choose a warm border open to full sunshine, give it a heavy dressing of well-rotted manure, plant the pieces in lines about 18 inches apart. If the crowns were good at starting they can be lifted in October, but as a rule, in one year more they would be better. The only treatment that the plants require is a mulching of manure 2 inches thick in the summer, and a watering once or twice if the ground should get dry. *A. Evans, Lythe Hill.*

HOME CORRESPONDENCE.

THE FROST OF 1890 AND 1891.—The winter of 1890 and 1891 will be a memorable one for its long continued and severe frosts. "Coming events are said to cast their shadows before them." So this frost, it gave us an early indication of its approach, for on August 30, we had 3° of frost, on September 1, 4°, on October 9, 6°, on the 13th, 7°, and on the 28th, 18°. Up to November 25 was, comparatively speaking, free from excessive frosts; after then, through December, and up till now (January 19), we have had hard frosts with scarcely any interruption. On December 22, the thermometer fell to zero in the kitchen garden here, and yesterday morning, January 18, it fell to 1° below zero, and to-day to 3° below zero. On the night of December 23, we had a heavy fall of snow, between 11 and 12 inches, which, however, quickly passed away. The next snow fell on December 19 (about 2 inches), and is with us still, having been supplemented by several light falls since. December has not only been a bitterly cold month, but also a peculiarly dull one, the sun only having been seen for a few minutes on thirteen days only. At present, I can see no indication of a change. When a thaw does come, I fear it will reveal some very lamentable consequences, as the outcome of the hard and long continued frost. *O. Thomas, Chatsworth.* [Here, in and around London, the wind commenced to blow from the south-west on Tuesday morning early. *Ed.*]

SEVERE FROST.—On Saturday, the 17th inst., at 11.50 p.m., the thermometer, at four feet from the surface, stood at 0°, or 32° of frost; at 12 midnight it had risen 2 degrees, some clouds having come over the sky; at 2.30 a.m., it was again down to 0°, and remained steady at that until 6.30 a.m. The thermometer in question was hanging outside of a Stevenson screen; the certificated instrument inside the screen registered 1° as a minimum. The difference is easily accounted for by the protection afforded by the screen. The minimum on the grass during the same time was 5°; this morning (19th) the minimum registered 3° as the lowest temperature for the past twenty-four hours. *W. H. Divers, Ketton Hall Gardens, Stamford.*

TEMPERATURE FOR THE DISA GRANDIFLORA.—I agree with Sir C. Strickland, that the *Disa grandiflora* will succeed admirably in a much lower temperature than Mr. Catt recommends. Here we grow many hundreds, and the minimum temperature in winter we find to suit the plant best is 40°, and I am not at all alarmed if the thermometer falls 3° or 4° below this. As showing the hardness of this Orchid, for an experiment I had a dozen plants placed in a small frame facing north a few years ago. The lights were taken off, and the plants exposed to the weather day and night as soon as danger from frost had disappeared. They were placed in the frame at the end of May, and remained there until October 2. On the night of October 1 we had

an unexpected hard frost (14°), to which the plants were exposed, with only the protection of the glass light. The foliage next morning was almost black, and the material in the pots was frozen quite hard, and I quite expected the plants were all killed. However, in a day or two they all recovered. Last year I had a few plants plunged (in their pots) in a bed outside, in a sunny position, exposed to all weathers, and they succeeded beyond my expectation. The flowers developed perfectly, not so fast as under glass, but the colours of the petals and hood were far more brilliant and deep than when developed under glass. *O. Thomas, January 19, 1891.*

PEACHES AND NECTARINES.—At p. 656 of the last volume of the *Gardeners' Chronicle*, Mr. Divers, writing of the above fruit, says that, notwithstanding the many new varieties now in commerce, a great number of gardeners are unacquainted with them, and who continue to plant only the older ones. Your correspondent himself, unconsciously, probably, doing the same thing. *Crimson Galande* is one that he brings under our notice. Now this variety, if my memory does not fail me, I have known for thirty years. *Dagmar* is another which he mentions, was introduced almost as far back; and *Early Albert*, another that is brought under notice, is older still, for if I mistake not, *Dagmar* was raised from it, but how long it had been in existence before giving issue, I know not, although its being named after the late Prince Consort will afford some idea of the time. The next brought forward is *Stirling Castle*, which I have had for at least twenty-five years, and the same tree is still standing that I planted at first. This I had from the Messrs. Osborn, who I believe sent it out; but I question if it is, or was, new, even then. It is, however, a good Peach, and one that is harder than many others, or at least it sets more freely, which is probably owing to the smallness and closeness of its flowers, and the immediate juxtaposition of its anthers with the stigmas, with which they are brought in close contact, and the stigmas must of necessity get some of the pollen. As to *Early Louise* and *Beatrice*, neither are worth growing, except for the sake of a few early fruits, as no one who knows anything of a Peach would be satisfied with either, and besides being poor, both are too small to be of much use. *Alexander* is better than the two last mentioned, and ripens quite as soon, and is therefore more valuable than they, for with us, outdoors, we generally gather fruit by the middle of July, and it is of fair size and flavour. I think that the general verdict on Peaches will be that, with one or two exceptions, there are none equal to the old ones, as what, I would ask, have we finer than *Grosse Mignonne*, *Royal George*, *Noblesse*, *Bellegarde*, *Barrington*, and *Walburton Admirable*? These I maintain are the cream, and I would counsel young beginners to start with them, and if they want further variety for late, and have plenty of wall, or house room, then they may add a *Sea Eagle* or *Princess of Wales*, which come in just after the *Walburton*. I do not take so much exception to the list of Nectarines, as, unquestionably, *Lord Napier* is the best of the earliest, but two are left out that ought to be in any list of six kinds, and they are *Violet Hative* and *Pitmaston Orange*, which take good ones to beat them. *Pine Apple* is much like the last named, but comes in later, and *Victoria* succeeds it, it being the last to ripen, except the *Stanwick*, which is so liable to split or crack that few grow it now. *J. Sheppard.*

COBBLER'S HEAL.—In searching for the above I have come across the mention of *Alheal*, *Selfheal* in a very old book, unfortunately without date, which belonged to my great-grandfather, printed in old English, and which is styled *A Table of Herbs, as also what Planet Governeth them*, which may be of interest to your correspondent. "It is called *Alheale*, *Hercules Alheal*, and *Hercules Woundwort*, because it is supposed that Hercules learned the herb and its virtues from Chyron, when he learned physick of him. Some call it *Panay*, and others *Opopanaxworth*. Description: Its root is long, thick, and exceeding full of juyce, of a hot and biting taste; the leaves are great and large, and winged almost like Ash-tree leaves, but that they are somewhat hairy, each leaf consisting of five or six pair of such wings, set one against the other upon foot-stalks, broad below, but narrow towards the end; one of the leaves is a little deeper at the bottom than the other, of a fair, yellowish-fresh green colour; they are of a bitterish taste, being chewed in the mouth. From amongst

these ariseth up a stalk green in colour, round in form, great and strong in magnitude, 5 or 6 feet high in altitude, with many joints, and some leaves thereat. Towards the top come forth umbels of small yellow flowers, after which are passed away, you may find whitish-yellow short flat seeds, bitter also in taste. Government and virtues: It is under the Dominion of Mars, hot, biting, and choleric, and remedies the evils Mars afflicts the body of man with by sympathy, as viper's flesh attracts poison, and the loadstone iron; it kills the worms, helps the gout, camp, and convulsions, and helps all joynt-aches, &c. It is also called Prunel, Carpenter's Herb, Hook-heal, and Sicklewort. Description: The common Self-heal is a small, low creeping herb, having many small roundish-pointed leaves, somewhat like the leaves of Wild Mint, of a dark green colour, without any dents on the edges; from among which rise divers square hairy stalks, scarce a foot high, which spread sometimes into branches, with divers small leaves set thereon, up to the top where stand brown

GIVING AIR IN WINTER.—Your correspondent, "T. B.," on p. 43, has treated this subject in his usual admirable style, and taking into consideration the long duration of excessive cold and sunless weather this winter, his remarks are most seasonable, and to the point. Although most of our hard-wooded plants in stove and greenhouse are at rest, yet, undoubtedly, they are greatly benefited by the admission of fresh air when it can be afforded them, if they do not come directly into contact with cold draughts. In most plant structures, at the present day, it is usual to use large squares of glass, and the amount of air admitted at the joints must necessarily be small, and these in a short time become filled up by the accumulation of dirt and vegetable matter. In the old-fashioned method of glazing with small panes, the ingress of air was provided for by the numerous joints. On p. 709, in your last volume, you were pleased to notice the method we are adopting in air-giving, and which, I find, answers very well. We are still going on with it, and

due, most likely to the constant and regular admission of fresh air into the houses in the manner described. But whatever some persons may think about air-giving in winter to stove and greenhouse plants, there is certainly no question at all about it when we come to fruit and vegetable forcing, when the plants are in active growth, and respiration and transpiration rapid and constant; and if we wish to compass strong sturdy growth, we must do so by means of a steady and constant admission of more fresh air than finds ingress by the door or through the laps of the glass, and at the bottom of the house in cold weather rather than the top, but always avoiding cold currents coming in contact with the plants. Every gardener who has to force Grapes, Strawberries, Cucumbers, and so forth, knows the value of fresh air, and where the hot-water apparatus is in good condition, and a good heat can be maintained, the efficacy of the method described does not admit of a doubt. *Alfred Gant Shrewsbury.*

IRISES.—Will you allow me to call attention to some of the newer Irises, as being valuable conservatory plants at this season. *Irish Bakeriana* is a perfect gem, the standards pale blue, the falls intense dark blue, with white centre, spotted with rich blue. *Irish reticulata* var. *Histrioides*, the standards bluish-lavender, the falls blue, with yellow and white markings; in different plants the lavender shade is more or less pronounced. I have planted bulbs out-of-doors, but rather fear their standing the frosts of this exceptional winter. I believe that we owe to my friend, Mr. Max Leichtlin, the bringing into commerce of both these Irises. *Geo. F. Wilson.*

THE CULTURE OF CYCLAMENS.—I was struck with "D.'s" concluding remarks in your issue of Dec. 20, that these valuable winter-blooming plants are now seldom met with, or grown to anything approaching perfection in private gardens—an undoubted fact. How can we account for it? Experience teaches me that gardeners, as a rule, are reluctant to get out of the old-fashioned modes of cultivation, and until the last few years Cyclamens were grown on year after year until worn out. Market growers, however, became alive to the fact, that one-year seedling plants, and those of two-year old, gave better results than these, but how few gardeners follow their example. I have visited many private gardens, and invariably found corms as large as a tea-cup were what they grew. These old stagers have abundance of foliage, but few flowers. Good results may be obtained from 3 or 4-yr. old corms, provided they are properly attended to, after blooming. Every gardener is not provided with the low span pits like a market grower, where he could place his plants after flowering; still, by a little planning, the fixing up of shelves, &c., the difficulty may be overcome. The trade establishments in and around London are worth a visit by gardeners, and sound information may be gleaned in them concerning improved methods of cultivation of our best decorative plants. *W. H. Aggett, Oakdene, Guildford.*

ORNITHOLOGY IN RELATION TO HORTICULTURE.—Last autumn I was staying at the vicarage of a remote parish in Somersetshire, the incumbent of which is a well-known entomologist, and a thorough field naturalist in every respect. In the garden I noticed that the Green Peas had been nearly all destroyed by birds. I accused the sparrows of being the depredators, though the manner in which the Peas had been extracted from the pods occurred to me as not precisely that usually seen in the work of sparrows, the holes being neater. On mentioning the matter to my host, he assured me that two kinds of titmice (the blue-tit and the marsh-tit), were the culprits, and that the greater part of the mischief was done early in the morning. As the Peas were remarkably free from grubs, it was useless to try to find an excuse for the birds in that direction, and I own that my respect for tits, as the gardeners' best friends, received a momentary shock, for scarcely a sound pod remained on several rows. The undoubted immense benefit derived from most birds (and from tits in particular), must be placed against an occasional inclination to vary their diet at the expense of the horticulturist. *R. McLachlan, Lewisham.*

FUMIGATING MATERIALS: A CORRECTION.—Our attention has been called to the remarks of your correspondent, "G. W.," upon fumigating



FIG. 33.—TREES SPLIT BY FROST.

spiked heads, of many small brownish leaves like scales and flowers set together, almost like the head of Cassidony, which flowers are gaping, and of a bluish-purple, or more pale blue, in some places sweet, but not so in others. The root consists of many strings or fibres downward, and spreadeth strings also whereby it increaseth. The small stalks with the leaves creeping up on the ground, shoot forth fibres, taking hold of the ground, whereby it is made a great tuft in a short time. Place: It is found in woods and fields everywhere. Time: It flowereth in May, sometimes in April. Government and virtues: There is another herb under Venus, Self Heal, whereby when you are hurt, you may heal yourself; 'tis a special herb for inward and outward wounds, take it inwardly in syrups for inward wounds, outwardly in unguents and plaisters for outward." I have given the above exactly as worded and printed in this old work, the spelling of some words being peculiar. *Alfred Outram, 7, Moore Park Road, Fulham, S.W.*

gradually extending the system through all our houses. Air-gratings of iron 9 inches square are placed at intervals along the outside walls at the ground-level, which may be closed with slides at will; and from these, 6-inch drain-pipes are laid up to the hot-water pipes, so that currents of fresh-air are constantly passing into the houses, and these being colder than the air of the house, and of greater density, do not immediately rise, but come into contact with the hot-water pipes, become warmer, and circulate through the house. Although we have experienced much frost—in one instance 28°—the caps have not been closed, and in walking through the houses, not a leaf or a flower can be found damping off; of course, there are no such fogs as in London. We have had occasionally lately to use large numbers of stove and greenhouse plants for decorative purposes, and although these had to be taken some distance in a covered conveyance, but with a good deal of cold draught, except in one instance—an *Acalypha*—not the least injury was caused to any plant,

materials, in your issue of the 17th. Amongst other things, he says:—"I have not used the sheets (McDougall's) he recommended, which largely consist of paper, in large sheets, and therefore more useful than the older tobacco papers." Your correspondent here falls into a mistake that anyone is liable to who writes on subjects upon which he is not thoroughly informed. If he had first taken the trouble to read the printed particulars issued with our patent self-acting tobacco-sheets, he would have learned that the two chief causes of damage to vegetation during fumigation are the employment of paper as a carrier for the tobacco juice, and the use of hot fuel. Both of these evils we entirely escape by the use of cellulose instead of paper, and in such a manner that it will fume when a match is applied to it. Instead of the ordinary tobacco-juice, we use a solution of nicotine of standard strength, and so are enabled to ensure efficient action. If "G. W." likes to make a trial of our sheets, and to report results to your columns, we shall be happy to place a few at his disposal for that purpose; and are sanguine they will confirm what is now being said of them by many of the chief horticultural firms. *McDougall Bros.*

FINE SPATHE OF CALLA ÆTHIOPICA.—Now and again we hear the question discussed as to whether *Calla æthiopica* should be planted out in the summer or dried after making its growth. In 1889, I planted ours out in good soil with plenty of manure, and potted them at the usual time with very good results. In 1890, I dried them off, resting them till the beginning of August, when I had all the soil shaken from the roots, which were washed clean and potted in 6-inch pots, and as soon as they were nicely rooted placed them in their flowering pots. We have, as the result, a lot of strong healthy plants showing well for bloom. I have enclosed a spathe, stem, and foliage for your inspection. Drying off being much less trouble than planting out, I shall not treat them in any other manner for the future. *L. Jordan, Holdenby.* [The spathe sent by our correspondent was 9½ inches long, and 8 inches wide; the stalk strong, and leaf about the average size, and of good substance. Ed.]

SEVERE WINTERS.

(See fig. 32, Diagram at p. 115).

IN much that is written in a popular way about severe winters, one can see that the ideas dealt with are somewhat vague. This winter is remembered as very severe, and that other as very mild; but there is apparently no adequate scale of measurement, or endeavour to fix the degree of severity or mildness. And while a more scientific treatment of the subject is not wanting, much obscurity remains to be cleared up. In this, and in the practical interest of a correct appreciation of winters, may be found, perhaps, some justification of the following attempt to gauge and set forth the relative intensity of a long series of those seasons.

One obvious way of roughly measuring a winter's severity is to find how many days of recorded frost it had. Examining thus the series of winters at Greenwich from 1850-51 to 1888-89 (the five months, November to March, being taken), we get the curve at the top of the diagram on p. 115; a curve ranging between seventy-six days in 1854-55 and in 1878-89 (say for brevity 1854 and 1878), and eighteen days in 1883-84 (say 1883). By this reckoning, we find, besides the two severe winters just indicated, those of 1879 (71 days), and of 1887 (74 days), conspicuous for their severity.

We may go further and ask: What was the severity of the frost in each case of recorded frost? Adding the degrees of frost (not of temperature), we get another measure of winter (second curve). This curve, it will be seen, roughly corresponds with the first, but there are some striking differences. The winter of 1879 is now raised above that which preceded it, while the winter of 1887, and others near it, are brought down to a lower relative position.

One can see how this method operates, by comparing the two winters 1878 and 1879. The former, with more days of frost (76 as against 71), yet gives, I find, for the average of the records, 27°·4; while the average for 1879 is 25°·7, i.e., 1°·7 lower.

Again, let us try the method of mean temperature, taking the mean of those five months in each case. This yields the third curve, which seems to be rather like the first curve than the second is, especially in the latter part. (The order of the figures at the side is here inverted for better comparison.)

A severe winter is naturally thought of as a very snowy winter, and I have, therefore added a curve showing the number of days in each year on which snow or sleet was observed at Greenwich (as stated in the "Weekly Return"). This curve, again, is roughly like the others, the coldest winter, as measured above, having generally more snow than the rest. But the relations of the maxima with each other, and of the minima with each other, are obviously different, and we sometimes find a very cold winter—e.g., 1879—with only a medium number of snowy days.

Once more, it may be useful to show the minimum temperature recorded in each of those winters. The numbers only are given:—

Minimum Temperatures at Greenwich in Winters 1850 to 1889.

	Deg.		Deg.		Deg.
1850 ...	23·7	1861 ...	15·5	1877 ...	21·3
1851 ...	21·3	1865 ...	22·5	1878 ...	12·2
1852 ...	20·5	1866 ...	6·6	1879 ...	13·7
1853 ...	13·5	1867 ...	21·2	1880 ...	12·7
1854 ...	11·1	1868 ...	26·1	1881 ...	21·6
1855 ...	16·9	1869 ...	19·4	1882 ...	21·6
1856 ...	18·5	1870 ...	9·8	1883 ...	27·3
1857 ...	20·9	1871 ...	18·6	1884 ...	22·3
1858 ...	20·5	1872 ...	25·0	1885 ...	16·5
1859 ...	14·0	1873 ...	21·0	1886 ...	17·3
1860 ...	8·0	1874 ...	18·2	1887 ...	18·4
1861 ...	20·4	1875 ...	17·4	1888 ...	18·7
1862 ...	24·8	1876 ...	23·5	1889 ...	18·1
1863 ...	14·3				

Here, again, there is a general correspondence of maxima and minima; while the relation of the maxima to each other, and of the minima to each other, is different. The lowest temperature recorded is 6°·6, in 1866; 1860 comes next, then 1870, and only then, one of our severest winters by previous reckoning, viz., 1854. This is followed by 1878, 1880, 1889, and 1879.

Do these curves throw any light on the question of periodicity? The general aspect of the three upper curves is that of a time of rather regular variation, bounded by times of irregular, or less regular, variation—a period of oscillation between narrow limits, preceded and followed by one of oscillation between wide limits, in which minima as well as maxima are intensified. Taking the two conspicuous severe years in the second curve, we have an interval of twenty-five years (1854 to 1879). Twenty-five years back from 1854 gives us 1829, when there was certainly a very severe winter; but judging by a curve of mean temperature from 1811, the winters of 1844, 1826, and 1813 were all more severe, the last-named being the most severe of the entire series (mean temperature, 39°·6). I may here note that according to Van Bebbler (*Lehrbuch*, p. 50), the average mean temperature of five years has in the last century or so been fluctuating in periods of about twenty-three years.

Now in the more moderate series of years between those perturbations, something like a periodicity appears. It is best seen in the third curve, where we have a maximum in 1854, then in 1859 (five years), then in 1864 (five years), then (if we may neglect a minor wave of the curve), in 1869 (five years), then in 1874 (five years). How is this approximate regularity to be explained?

It is right to add that in a corresponding curve for the preceding period (1811 to 1850), one does not find any such recurrence; indeed, the curve looks, on the whole, irregular. I may note, however, that a recurrence of minima at intervals of three years seems frequent. It will be seen that any power of prediction derivable from these data and curves is but limited.

We at least gain some idea of the limits within

which our winters vary. And taking these forty years and the first three curves, we see that winters are rare and unlikely (a) which have seventy-six (or more) days of frost, on the one hand, or eighteen (or less) on the other; (b) which have, on the one hand, 444 added degrees of frost (or more), or 36° (or less) on the other; (c) which have 43° (mean temperature of five months or more) on the one hand, or 37° (or less) on the other.

The maxima and minima are in general well defined, and judging by our present position in the curve, we may perhaps expect that the current winter (1890-91) would prove still milder than the last; but it seems likely to rank as a severe winter. Whether the five years' period above referred to will recur ere long it seems impossible to say. *A. B. Macdonald.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 13.—Dr. Masters in the chair. Present: Mr. McLachlan, Mr. Pascoe, Mr. Michael, Mr. H. Veitch, Prof. Marshall Ward, Prof. A. H. Church, Dr. Scott, Dr. Russell, Dr. F. Oliver, Dr. Bonavia.

Culture of Yeast.—Prof. Marshall Ward announced that he had succeeded in confirming Hansen's statement that yeast-cells might be made to produce their endo-spores by cultivation on dry gelatine at a temperature of 25° to 27° C. (say 80° F.).

Proliferous Oranges.—Two specimens from Mr. Tharpe and Dr. J. Harvey Gibson respectively, were shown, in which a second smaller Orange provided with its rind was enclosed within another. Dr. Bonavia, in commenting on these specimens, explained his views that the rind of the Orange is really the representative of an outer abortive row of carpels, and that the oil-cells of the rind are the modified equivalents of the pulp-cells.

Dr. Scott pointed out that, according to De Bary, the oil-glands of Citrus were "lysigenetic," or the result of the breaking down of certain transitory cells; these cells are smaller than those of the rest of the leaf-tissue and full of granular protoplasm, which is soon replaced by minute drops of ethereal oil. As the delicate partitions between these cells break down and disappear, the small oil-globules coalesce, so as to form one large drop.

Dr. Masters referred to Carnel's explanation of the analogy between the pulp-cells and epidermal hairs.

Dr. Bonavia further referred in support of his views to the disc or outgrowth from the axis which characterises the flowers of the Orange and its allies, as also of the Moutan Peony and other plants.

Professor Church commented on the development, in the absence of light, of the colouring matter as well as of the oily constituents as exemplified in these specimens.

Dr. Masters did not consider that the disc had anything to do with the carpellary whorl, though it was true that A. P. de Candolle had considered the rind of the Orange to arise from the development of the disc. An examination of the flower in the course of its development, and indeed, in the mature state, is sufficient to show that this explanation is not correct. The specimens on the table were instances of "intra-carpellary proliferation," and the formation of a second whorl of carpels above and within the first. As the inner carpels had as perfect rind as the outer ones, it was clear that the rind was neither a development of the disc, nor the representative of an outer and abortive row of carpels.

Cracking of Trees from Frost.—From Mr. C. Noble came a characteristic drawing, showing the effects of frost in splitting the bark and the young wood of the Spanish Chestnut. The fissure was longitudinal, and of considerable length, and occurred on the north side of the tree.

[We append an illustration (fig. 33) of trees ruptured by frost, with the following explanation as made by the late Dr. Caspary in our columns for March 15, 1856:—

No. 1.—Oak with a frost cleft *f* under a knot *a*; *w* border of over-growth.

No. 2.—Horse Chestnut with a frost cleft *f* which crosses an injury in the bark *r*, whence the decay had penetrated into the wood to the depth of half an inch.

No. 3.—Ash. The frost cleft $f-f'$ follows the direction of a cut previously made in the bark, $s-s'$, except in the upper part where it diverges to the left. In another cut s'' there is a second frost cleft f .

No. 4.—Flut of a Lime tree previously split by frost, but having an overgrowth. a , cavity of old cleft; u , old wood; u , young wood; R , bark; X , place where it has overgrown.

No. 5.—Plan of same tree as No. 4, after being re-split in a subsequent winter. R , u , u' , as in No. 4; f , f' , f'' , line of rupture of the bark; b , c , d , lines of rupture of the young wood; a , e , d , concave sides of cavity.]

Plant Diseases.—A letter from Professor Sorauer was read, suggesting the desirability of co-operation on the part of the committee with an Association lately inaugurated in Germany for the purpose of studying the diseases of plants grown for agricultural purposes, and of instituting conjoint action in the matter of prevention or remedy. Professor Sorauer's proposals received the sympathy of the members present.

The following is a list of the several standing committees of the Society, as arranged for the present year:—

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SCOTLAND.

EDINBURGH BOTANICAL SOCIETY.

"Extract from record of Temperature, Vegetation, &c., in the Botanic Garden, Glasgow." By R. Bullen, Curator.

Frost was registered on twenty-three nights during the month, with two or three exceptions the tem-perature on other nights was either at or near the freezing-point; the total readings for the month was 115°. The lowest readings were 14° and 15° of frost during the nights of the 20th and 21st respectively; 15° of frost is the lowest temperature registered here since December, 1886, when 17° of frost was recorded, and a total of 191° for twenty-eight nights. The very light frosts and fine days experienced during the first half of the month were very favourable to out-door work of all kinds; the latter half was more winter-like, with dark and foggy weather, but little rain or snow.

ABERDEEN FRUITERERS' AND GARDENERS' FIRST ANNUAL ASSEMBLY.

The first annual assembly of the Aberdeen Fruiterers and Gardeners was held on the 10th inst. There was a large gathering, and the chair was taken by Mr. William Mitchell, Trinity Quay, who proceeded to say that the fruit trade of Aber-deen had undergone considerable change within the last twenty or thirty years. Previous to the New Market being built, he understood that the pro-duce of the gardens round Aberdeen was sold at the Castle-gate by themselves—a very different trade from what it was at present. A more suitable build-ing than the New Market could not be got for the carrying on of the trade. At one time there were not more than half-a-dozen fruit shops out of the New Market in Aberdeen, but there were now upwards of thirty or thirty-five throughout the city.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

The monthly meeting of the members of this Association was held on the 17th inst., in the Music Hall Buildings, Aberdeen, Mr. D. M. Smith, President, in the chair. The Secretary read a paper by Mr. Harper, Duthie Public Park, Aberdeen, on "The Weather of 1890." The year, it stated, came in very mild, and continued all through the month as mild as in July. Only on three occasions did the thermometer go below

freezing-point, and the month was the mildest January since 1814. February was rough and blustering, but there was an almost entire absence of frost. The month of March came in more in the proverbial style, but there was very little frost, and crops were got in in fair condition. Grass-mowing had to be commenced before the month was out, which was earlier than the writer had ever experienced before. April was wet, but no frost occurred. May was gloomy up to the middle of the month, and more than the average of rain fell. Then a spell of the warmest weather on record set in, setting everything planted or sown into a very rapid growth, to which they might attribute the great prevalence of vermin which followed it and did a great deal of damage. To the unusual amount of rain in the first two weeks of May, Mr. Harper attributed the almost total failure of the Apple and Pear crops in the north of Scotland. June was very favourable for planting out bedding and other plants, although not nearly so warm as the latter half of May. The end of the month was cold and gloomy, and all through July this continued; July, indeed, proving the gloomiest and coldest July on record up to almost the last week, when the temperature became higher, and everything grew at an amazing rate. August proved favourable for the growth of plants, although not so favourable to the farmer, the want of sunshine retarding the ripening of their grain crops. In September there were alternate showers and sunshine. October came in with very bright and warm weather, and about the end of the month an inch or two of snow fell; but no frost occurred sufficient to kill Dahlias. November was the wettest month experienced for a great number of years. About the end of this month came the hardest frost of the year. December passed without any extremes of heat or cold, and only a few inches of snow, which fell between the 20th and 23rd; and the frost was moderate, only reaching a minimum of 18°, or 14° of frost. The month closed quite mild and fresh. The lessons to be gathered from the last twelve months were that the gardener should embrace every favourable opportunity for cultivating deeply and manuring liberally in the autumn.

Mr. Ross, Cranford, read an interesting and instructive paper on the cultivation of the Rose; and the concluding part of the paper dealt with plant pests. An instructive and animated discussion followed the reading of both papers, and at the close a hearty vote of thanks was awarded Mr. Harper and Mr. Ross. A similar compliment to the Chairman brought a very enjoyable evening to a close. W. K.

THE WEATHER IN SUTHERLANDSHIRE.

It is very curious to read of the severe frost and long-continued snowfalls experienced in the southern portion of the British Islands during December, while here, in Sutherlandshire, so much further north, we have so far had one of the most open winters we have experienced for several years. Up to the present date, January 3, 1891, the only snowfall we have had this winter was on November 28, when about 1 inch fell, which disappeared with the milder weather of November 30. The whole of December has been fairly open without snow, but with occasional light white frosts of a few degrees only, with mild days alternating.

The coldest days of the winter were December 18 and 19, with a steady southerly and south-easterly wind, which lasted till the 20th, when it veered round to the north and north-west, bringing a more genial temperature. On the 18th, the maximum never rose above 32°, by the 19th, ice had formed on the ponds from 1½ to 1¾ inch thick; an altogether unusual occurrence during a southerly wind, which I never remember observing here before—southerly winds almost invariably bringing a rise of temperature and breaking up frost. No doubt this reversal of the usual order of things was caused by the low temperature and severe weather prevailing in the south at the time.

As a contrast to the weather noted by your correspondents in the south for December, I find that the thermometer stood at or below 32° on thirteen nights during the month, mostly from 2° to 4°, the lowest being 25° on the 18th, or 7° of frost. The lowest maximum temperature for the month was 32°

on the 18th. The highest maximum occurred on the 1st, 56°. The maximum temperature stood at 40°, or over, on twenty-four days. Farmers in this district have been able to plough, with the exception of a few days, right up to the close of the year. Veronica Andersonii is still blooming here on the open wall, Violets, Christmas Roses, and East Lothian Stocks were gathered out-of-doors on Christmas Day.

I note in Mr. Crump's district the rainfall for the year has been 19.50 inches, or 8 inches below the average. Here the rainfall for 1890 was 35.4 inches, being nearly 4 inches over the average. Light showers of snow fell yesterday (the 4th), and the appearances are for severer weather, so we may yet have a share of what is going on in the south. D. Melville, Dunrobin Castle Gardens, Sutherland.

THE WEATHER IN ABERDEEN.

Writing from Aberdeen on Tuesday, the 13th inst., our Aberdeenshire correspondent says:—After an unusually protracted period of frosty weather, a marked change has taken place. Within the last day or two the air has gradually become warmer, and with the high wind and rain of Saturday night, all traces of snow and ice around the city have now disappeared. Yesterday the temperature reached a point which, compared with the intense cold of the last fortnight, may be truly characterised as a "heat wave." The phenomenon was attended by an almost entire absence of wind. Only the merest breath was stirring from the south-west, and, as showing the extremes of temperature, it has only to be mentioned that while yesterday morning at 8 o'clock the thermometer in the shade stood at 48°, the record in the early part of last week was as low as 21°. As the day advanced, the heat became positively oppressive, and in the early part of the afternoon the reading was as high as 54°, a circumstance which, in view of the rapid transition from cold to heat, is very unusual in these northern latitudes. In the city of Aberdeen the change was felt to be far from a pleasant one, the unseasonable character of the weather, coupled, as it is, with a damp, hazy, and unwholesome atmosphere, being the subject of general comment.

VEGETABLES.

ONIONS FOR EXHIBITION.

ALMOST every one can grow good usable Onions, provided he have fairly deep soil and plenty of manure; but where the bulb is to be grown for exhibition, something more is required to give great weight and size to them. The soil that suits best is a deep thick loam rather light than heavy, but almost any soil may be made to grow good bulbs by careful cultivation; the ground should be heavily dressed with manure, and well trenched in October or November. The seed should be sown in boxes about January 20 for southern shires. A compost of turfy loam, leaf mould, and decayed manure well mixed together and sifted, being used to fill the boxes. It is good practice to warm the seed before sowing it; sow thinly on the surface of the soil, after pressing it firmly, cover lightly, press it again, and place the boxes in a warm pit or vinery with a warmth of 50°, and near the glass. Should the soil be moist at sowing, no water will be needed until the seeds begin to grow, and the plants push up through the soil. When they have grown to a height of 2 inches, prick them off into boxes of similar soils at 3 inches apart, place in heat until they are re-established, and afford as much air as the weather will safely allow. About the end of the month of March, the boxes should be transferred to cold frames, after three or four days airing them freely. Here they should remain till the fourth week of April, when the lights may be removed entirely. The beds should have been dressed with soot and salt, and slightly pricked over. Onion beds may be made 7 feet wide, with 1½ feet alleys

between them. The soil should be evenly trodden to a moderate firmness, and raked to a fine tilth, the drills being 14 inches apart. Carefully lift the plants with some soil attached, and with a trowel insert the roots in the ground. If the weather be dry, a little water should be given to each plant with a fine rose can, and when bulbing begins a top-dressing an inch thick should be afforded them of decayed cow-dung, or spent Mushroom-bed manure, which will nourish the bulbs and prevent the drying up of the beds. In very dry weather, heavy soakings of manure-water or house-sewage should be given the beds, the latter I find suiting them well. By this treatment I have obtained bulbs of more than 2 lb. weight by August 20, the varieties being Anglo-Spanish, Rousham Park, Ailsa Craig, and Cocoa-nut. C. J. Waite. [The samples of Onions which came from our correspondent with the above, fully bore out his assertion. Ed.]

ON FORCING VEGETABLES.

This is a subject that demands the attention of most gardeners in a more or less degree during the winter months, and varied are the means employed to attain the end in view. In most gardens there exist hot-water pits for forcing and keeping up good supplies of seasonable vegetables in winter and spring. Usually these pits are arranged to run east and west, and are covered with well-glazed sashes, and sufficiently deep to allow of a well-trodden bed 3 feet deep of fermenting leaves being made in them, to furnish bottom-heat, the top-heat being supplied by one or two 4-inch hot-water pipes, fixed within a foot of the sash. The gardener who possesses this kind of accommodation, finds the forcing of vegetables an easy matter. Over the bed of leaves a layer of short dung, to the thickness of about 2 inches, should be spread, following this, if for Potatoes, Carrots, or French Beans, with 9 inches thick of light garden soil, mixing therewith a few shovelfuls of fresh soot; this, in addition to enriching the soil, preserves the roots from the attacks of wireworms and other insects.

Potatoes of the Early Ashleaf Kidney type are best for forcing, or yielding early supplies on warm borders in the open air. The earliest saved tubers of this or other approved varieties which were spread out on shelves for seed will now be pushing into growth, and should be planted with the setting-stick (after the soil has been in the pit a day or two) in rows 1 foot apart, and about 8 inches in the row. When the haulm is 2 or 3 inches high, mould them up by laying on between the rows soil of the same temperature and description as that in which they are growing. If the ordinary garden soil is not light, it may be made so by mixing with it one-third of sifted leaf-mould.

Carrots.—For forcing, the French Forcing or Early Scarlet Horn are the best. The seed should be sown thinly in shallow drills when the soil has become warm, and 1 foot apart, afterwards covering the seed and pressing down the soil with the back of the spade. The heat should not exceed 60° by day and 50° by night. Should the soil get dry, a slight watering may be given, but damp must be guarded against. It is good practice to cover the surface with mats till the seed comes up. When the plants have four leaves, thin them out to 1 inch apart, and later to 2 inches. Wood's Early Frame and the Early French Breakfast Radishes may be pressed into the soil with the finger and thumb between the Carrot rows.

French Beans may be sown in similar beds in holes made with the trowel 3 inches deep, 3 inches apart, and the lines 1½ foot asunder. Two rows of Radishes may be sown in the spaces between the rows of Beans. Ne Plus Ultra, Royal Dwarf White, and Sion House are dwarf productive Beans well adapted for forcing, the second named being as good as any. When the Beans have made a few inches of growth, a little soil should be drawn up to them on either side, pinching out the points of the stems when 1 foot high. Give tepid water at the roots when the soil becomes dry, and damp the plants overhead on sunny days.

Asparagus roots placed closely together on a sprinkling of soil, and covered with leaf-mould or other light soil to a depth of 6 inches, watered and kept close, will soon push into growth. In every case, sufficient fresh air should be admitted to ensure sturdy growth. Supplies of early Peas may also be obtained early in April by those provided with sufficient pit room, by sowing American Wonder in rows 18 inches apart, and afterwards maintaining a minimum night temperature of 50°—a degree of warmth which it should be the aim of the grower to maintain all round. All of the above-named vegetables may be well-grown in frames placed on mild hot-beds, but doing so involves more labour and watchfulness than hot-water pits.

Rhubarb, Seakale, and Chicory may be forced in the open ground by covering the crowns with pots or long narrow boxes made for the purpose, and then covering them with a couple of feet thick of leaves; or they may be taken up and forced in the Mushroom-house, vinery, or any place commanding a minimum temperature of 50°. The Seakale and Chicory roots, in that case, should be placed, say, three in a 9-inch pot, pressing the soil about them up to the "crowns" of the individual plants, watering to settle the soil about them, covering with inverted flower-pots of the same size. Rhubarb "stools" may be placed in boxes, or on a bed underneath the staging in a stove, working soil among and around the roots, and giving them tepid water when needed. *H. W. Ward.*

CAULIFLOWER LAING'S EARLY ADVANCE.

This comparatively new Cauliflower is a variety of much excellence, and should find a place in every garden. I have grown it for the past three seasons and am much pleased with it. It has close white heads of moderate size, which are well protected with many well-incurved leaves, and is ready for use about five months from the time of sowing the seed. *W. Cotterell, Yates Court, Maidstone.*

FORCING CARROTS.

Of the few varieties of these roots suitable for forcing by reason of the elegance of their shape, the paucity of their leaves, thinness of neck, and good colour, I would head the list with Early Scarlet Horn, a spindle-shaped root three or four times as long as broad, the neck often of a green or brown tinge; it is a fairly early variety. Early Nantes is another, with an almost cylindrical root and blunt rounded point, skin smooth, neck fine and hollowed out round the base of the leaf stalks, the leaves not numerous. The flesh is sweet and mild, and of an almost entirely red colour. This is a new variety, that has become distributed very generally here and abroad—a fact that is justified by its many good qualities. It is the earliest of the half-long varieties, and not inferior to them in productiveness; it has good colour, little heart, and is readily pulled out of the ground; it does best in a good rich, moist soil, free from stones. The French Horn has a half-transparent red-orange-coloured globular root, and very few short leaves; it is small and early, and of use for certain purposes. Early Scarlet Dutch Horn has roots nearly twice as long as thick, decidedly thicker at the neck than at the point; it is useful for late forcing, and may be made use of when half-grown. Early Carentan is an almost cylindrical root, with red flesh destitute of core; having few leaves and a narrow diameter, it may be grown pretty close together, either in frames or in beds in the open. It is almost of the shape of an Early Nantes, but is less in diameter in proportion to its length than that variety. *Non-Vegetarian.*

FORWARDING THE PEA CROP.

Now that the weather has been so unfavourable for sowing Peas for early crops out of doors, it may be useful to some of your readers to know of a way that I have adopted for the last four or five years to get early Peas. About the first week in March, I take some narrow strips of thin board about 3 inches wide and 6 feet long, and tack them together to form the two sides and the bottom (no ends are used);

a little soil is spread over the bottom, and the Peas are sown on it and covered with more soil, and placed in a warm vinery, and when well up they are hardened off gradually and planted out early in April by taking out drills and laying the Peas in the boards alongside. The sides are pulled off and the Peas slipped in the drill and filled around with soil; they form a perfect row. This I think is a better way than growing them in turves. *E. Sandford, Arundel.*

LIST OF GARDENING PERIODICALS, &C.

IN ENGLAND.

- 1787—Botanical Magazine. Monthly. Editor, Sir J. D. Hooker. (L. Reeve & Co.)
 1841—Gardeners' Chronicle. Weekly. Editor, Dr. Masters, F.R.S. Publisher, W. Richards, 41, Wellington Street, Covent Garden, London, W.C. Price 3d. Every Friday.
 1842—Gardeners' Magazine, Friday. Editor, G. Gordon. Publishers, W. H. and L. Collingridge, 148, 149, Aldersgate Street, E.C.
 1848—Journal of Horticulture. Thursday. Editor, Dr. Hogg, F.L.S. Publisher, E. H. May, 171, Fleet Street, London, E.C.
 1871—The Garden. Friday. Editor and Publisher, W. Robinson, 37, Southampton Street, W.C.
 1886—Horticultural Times, 127, Strand, W.C.
 1879—Gardening Illustrated. Editor and Publisher, W. Robinson, 37, Southampton Street, W.C.
 1884—Amateur Gardening. Editor, T. W. Sanders. Publishers, W. H. & C. Collingridge, 148 and 149, Aldersgate Street, E.C.
 Garden Work. Editor, J. Wright. Publisher, E. H. May, 171, Fleet Street, E.C.
 1884—Gardening World. Editor and Publisher, B. Wynne, 17, Catherine Street, Covent Garden, W.C.
 1887—Royal Gardens, Kew, Bulletin of Miscellaneous Information. Monthly. Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C.
 The Northern Gardener. Fountain Street, Manchester. Editor, Jas. Anderson. Weekly, 1d.
 Reichenbachia, devoted to the Illustration of Orchids. Monthly. F. Sander, St. Albans.
 Orchid Album. Monthly. B. S. Williams, Upper Holloway, London, N.
 Rosarians' Year Book. Annually. Bemrose & Sons.
 Garden Annual. Annually. Garden Office, 37, Southampton Street, Strand, W.C.
 Garden Oracle. Annually. London: Gardeners' Magazine Office, 4 and 5, Ave Maria Lane, E.C.
 Horticultural Directory. Annually. Journal of Horticulture Office, 171, Fleet Street, E.C.

PRINCIPAL FOREIGN AND COLONIAL HORTICULTURAL PUBLICATIONS.

U. S. OF AMERICA.

- The American Garden. Editor, E. H. Libby. New York.
 American Florist. Metropolitan Block, Chicago.
 California Florist and Gardener. 126, Kearny Street, San Francisco.
 Orchard and Garden. Published by J. T. Lovett, Little Silver, New Jersey.
 Vick's Monthly. Publisher and Editor, J. Vick, Rochester, New York.
 American Pomological Society's Reports.
 American Agriculturist, Broadway, New York.
 Massachusetts Horticultural Society's Reports. Boston, Mass.
 Garden and Forest. Editor, Professor Sargent, Tribune Buildings, New York.
 Popular Gardening, Buffalo, N.Y.

Agricultural Science. Editor, C. S. Plumb, Lafayette, Ind.

Botanical Gazette. Editor, Dr. J. M. Coulter, Crawfordsville, Indiana.

AUSTRIA.

Wiener Illustrierte Garten Zeitung. (Journal of the Imperial Horticultural Society, Vienna.)
 Casopis českých zahrádníků, Prague. Editor, J. T. Thomayer.

BAVARIA.

Illustrierte Monatshefte für des Gesamt-Interessen des Gartenbaues. Editor, Max. Kolb, Munich.

BELGIUM.

Lindenia. MM. Linden and Rodigas, Brussels.
 L'Illustration Horticole. MM. Linden and Rodigas, Brussels.
 L'Horticulteur, Mons. Editor, J. Wanavre.
 Revue de l'Horticulture Belge. Count de Kerchove and others, Ghent.
 Bulletin d'Arboriculture. Editors, M. Pynaert and others, Ghent.
 Journal des Orchidées. Editor, Lucien Linden, 100 Rue Belliard, Brussels.

CANADA.

Canadian Horticulturist. Grimsby, Ontario.

CEYLON.

Tropical Agriculturist, Ferguson. Colombo.

FRANCE.

Revue Horticole. Editors, MM. Carrière et André, Rue Jacob, 26, Paris.
 Le Jardin. Editor, M. Godefroy. Publisher, A. Picard, Argenteuil.
 L'Orchidophile. Editor, M. Godefroy - Lebeuf, Argenteuil.
 Journal des Roses. Editor, M. Bernardin. Publisher, M. Goin, Paris.
 Journal de l'Horticulture Pratique. Paris.
 Lyon Horticole. Editor, M. Viviani-Morel. Lyon.
 Journal de la Société Nationale d'Horticulture. Rue de Grenelle, 84, Paris.
 Le Moniteur d'Horticulture. Editor, M. J. Chauré, Rue de Sévres, 14, Paris. Bi-monthly.
 Bulletin de la Société d'Acclimatation de France, Paris.
 Annales Agronomiques. Editor, P. P. Dehérain. Boulevard St. Germain, 120, Paris.

GERMANY.

Gartenflora. Berlin. Editor, Professor Wittmack. (Paul Parey, Berlin.)
 Monatsschrift des Gartenbauvereins zu Darmstadt.
 Rosen Zeitung. Frankfurt-on-the-Maine.
 Deutsche Gärtnerzeitung.
 Hamburger Gärtnerzeitung. Editor, Dr. Klatt. (Hamburg.)
 Lebl Illustr. Gärtnerzeitung.

BRITISH GUIANA.

Garden, Field, and Forest, Demerara.

HOLLAND.

Sempervirens, Gronewegen. Amsterdam.
 Het Nederlandsche Tuinboublad. Arnhem.

ITALY.

Bulletino della Società Toscana di Orticultura. Florence.
 L'Orticultura. Editor, F. Roda, Turin.

JAPAN.

Journal of the Japanese Horticultural Society. S. Yoshida, Tokio.

POLAND.

Ogrodnik Polski. Warsaw.

PORTUGAL.

Jornal de Horticultura Practica. Oporto.

RUSSIA.

Westnik. St. Petersburg.

other material. It commonly sells at from £5 to £6 per ton, according to its quality, or the state in which it has been prepared. The price quoted by me for Birch timber was obtained from Mr. Mackinny, Belfast."

CORRECTION.—In referring to *Cypripedium Carnusianum* in the report of the Royal Horticultural Society's meeting in our last issue, one of the parents was accidentally given as *C. Henryanum*, instead of *Haynaldianum*.

CROTONS: *M. S.* The damage noticeable on the shoots seems to us to be due to a low temperature ruling in the stove—perhaps only for a short time; and in any case, 55° average temperature is too low for *Crotons* at any time, if they are to remain healthy.

FUNGI ON VARIOUS TREES: *J. F.* The specimens sent are all common British species, occurring upon wood already dead, or diseased; but not causing disease. The large group on Elm, is *Polyporus squamosus*, Fr. That on the Oak, is too old and dilapidated to determine. The pale-fleshed specimen is *Fomes ulmarius*. On Peach tree, is *Fomes fomentarius* in young state. On Apricot, *Fomes ignarius*, Fr. These fungi will not attack living wood, but occur upon spots already diseased or dead, and indicate the ultimate death of the tree. Healthy vigorous trees never exhibit them, or certainly I have never been able to find them upon such. *M.C.C.*

GERMAN GARDENER: *C. P.* There are too many natives of these islands following the business to make it worth your while to enter the lists with them.

HEDGE BETWEEN KITCHEN GARDEN AND ORCHARD: *E. W.* If the hedge is to be planted as a screen or ornament only, plant *Thuja siberica*, Privet, *Euonymus japonicus*; or put up rough poles, and cover them with Clematis in variety; Ives, Honeysuckle, Roses, or Jasmine. But if for defence against trespassers, plant Holly, Whitethorn, Beech, or Hornbeam.

INSECTS: *Rev. C. W. D.* Your small Mediterranean bulb was so smashed, dried up, and rotten, that we could not make out anything decided as to any parasite. *I. O. W.*—*W. M.* The "worms" sent, which have infested your Ives in your covered tennis-court are the looper caterpillars of a small geometrid moth. Try soap-suds with Quassia-water, or gas-tar-water. *I. O. W.*—*H. A.* Your small *Cattleya* bulbs are diseased at the base, and on carefully examining them by peeling off the scales, we found two very minute white larvæ, evidently of the *Cattleya-fly* in one bulb, and a pupa of the same in another. The uncut specimen had no parasite. More hereon hereafter. We also found a very minute circular coccus in one bulb. *I. O. W.*

LATE-FLOWERING CHRYSANTHEMUMS: *A. B.* There are several different methods of doing this. One is, when the young plants are rooted in the early spring, to stop them when growth has reached a height of 8 or 10 inches; half-a-dozen or fewer shoots will result from this, and these may be allowed to grow, till about June 20, when they should be cut-back to half their length. By doing this, a bushier and somewhat late growth is obtained, and instead of letting the terminal buds stand for bloom, take out these, and preserve the latest and smallest on the tops of the stems. By doing this, and retarding the plants as much as possible by cool treatment, you will obtain late blooms, but these will lack the fullness, size, and good form of those that come at the proper season. For small bushy plants, if you have a border, plant out some strong old plants 5 or 6 feet apart, and in July, when the stems, which should have been at an early date reduced to half-a-dozen, may be layered into 32s, filled with good loamy soil, and well crocked, and sunk into the soil of the border. The stems may be layered about 15 inches from the end, and in doing this, simply bend the shoot into the pot, fasten it with a peg, and cover with soil. Disbudding must be practised in the same manner as with plants struck from cuttings. When the layers have taken root, feed them with manure-water occasionally, and separate them from the mother plant early in September, removing them to a cool spot. No repotting is necessary for these small plants, and to prevent loss of foliage from drought, plunge the pots to the rim in coal-ashes. This is an easy way of getting small decorative

plants either early or late. The blooms will be of fair size if disbudding is done as soon as the buds can be seen.

NAMES OF FRUITS: *R. W.* Winter Bon Chrétien.—*F. S. D.* Pears: 1, Verulam; 2, too rotten to be recognised. Apples: 1, Northern Greening; 2, Yorkshire Beauty; others unknown.

NAMES OF PLANTS: *No Name.* Nos. 1 to 6 not found; 7, *Abies nobilis*, sometimes called *Picea*, California; 8, *Juniperus virginiana*, Southern United States; 9, *Abies* (or *Picea*), pinsapo, Spain; 10, a *Juniper*, we cannot tell which one; 11, *Thuja orientalis*, var., China; 12, *Thuiopsis borealis*, North West America.—*J. Hilyer.* 1, *Nephrolepis exaltata*; 2, *Sansaviera Zeylanica*; 3, *Tradescantia discolor*; 4, *Magnolia Campbelli*, probably, send when in flower.—*W. H. R.* 1, *Cymbidium sinense*; 2, 3, *Begonias*, next week; 4, *Cypripedium bellatulum*.—*Nemo.* 1, *Selaginella delicatissima*; 2, *S. convoluta*; 3, *S. Mertensii variegata*; 4, *Brownii*; 5, not recognised; 6, *S. denticulata*; 7, *S. d. variegata*; 8, *S. denticulata* var.

ORANGE CULTURE: *P.* We can only refer you to the Bulletin of the Department of Agriculture of New South Wales for October, 1890, where you will find some good practical papers on the subject.

PEACH BUDS DROPPING: *H. T. W.* If it be not caused by dryness of the soil, it is probably due to too low a temperature at starting, or from great deviations in the same. The wood sent is not too well ripened.

THE CORSICAN PINE AT KEW: *A.* The girth as recently measured at about 4 feet from the ground was 107 inches.

TROUBLESOME PIGEONS: *Constant Reader.* Summon owner to the County Court for the damage done by the birds.

UNITED HORTICULTURAL PROVIDENT AND BENEFIT SOCIETY: *T. D.* Mr. Collins, 2, Martindale Road, Balham, London, S.W.

CATALOGUES RECEIVED.

CHARLES SHARPE & Co., Sleaford, Lincolnshire—Seeds.

DANIELS BROS., Norwich—Amateurs' Guide.

CHARLES TURNER, Royal Nurseries, Slough—Garden and Farm Seeds.

TOOGOOD & FINLAYSON, 58, Above Bar, Southampton—Garden Seeds.

W. PIERCY, 89, West Road, Forest Hill, S.E.—Chrysanthemums.

T. S. WARE, Hale Farm Nurseries, Tottenham—Vegetable and Flower Seeds, Dahlias, and Chrysanthemums.

THOS. KENNEDY & Co., 106, 108, High Street, Dumfries, N.B.—Vegetable and Flower Seeds.

COLLINS, BROTHERS, & GABRIEL, 39, Waterloo Road, S.E.—Garden Seeds and Sundries.

JOHN FRASER, Lea Bridge Road Nurseries, Leyton—General List of Plants, Trees, Roses, &c.

JARMAN & Co., Chard, Somerset—Seed Manual for 1891.

PETER LAWSON & SON (Limited), George IV. Bridge, Edinburgh, N.B.—Trade Seed List.

JOHN LAING & SONS, Forest Hill, London, S.E.—Special Chrysanthemum List.

ARTHUR ROBINSON, 8, Leadenhall Street, London, E.C.—Vegetable and Flower Seeds, &c.

RICHARD CLEAVER, 47, Bore Street, Lichfield—Vegetable and Flower Seeds.

B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, N.—Seeds and Sundries.

AUSTIN & McASLAN, 89, Mitchell Street, Glasgow, N.B.—Vegetable and Flower Seeds, Roots, &c.

WM. CLIBRAN & SON, 10 and 12, Market Street, Manchester—Vegetable and Flower Seeds.

HENRY ECKFORD, Wem, Salop—Vegetable and Flower Seeds.

WOOD & INGRAM, Huntingdon—Vegetable and Flower Seeds.

SAMUEL YATES, 75, Shudehill, Manchester—Garden and Farm Seeds, &c.

RYDER & SON, Sale, Manchester—Vegetable and Flower Seeds.

COMMUNICATIONS RECEIVED.—*J. C. W.* Watson.—*J. J. W.*—*C. S.*—*J. D. R.*—*E. D.*—*H. W. W.*—*A. D.*—*H.*—*G. A. F.*—*R. A. R.*—*D. T. F.*—*A. D. W.*—*H. H. G.*—*W. A. C.*—*E. & Sons.*—*H. B. G.*—*J. O. W.*—*W. S.*—*E. C.*—*E. M. H.*—*W. E. G.* (next week).—*W. H. D.*—*Dr. B.*—*J. W.*—*E. J. B.*—*D. T. F.*—*C. B. P.*—*A. G. H.*, Sydney.—*S. M.*

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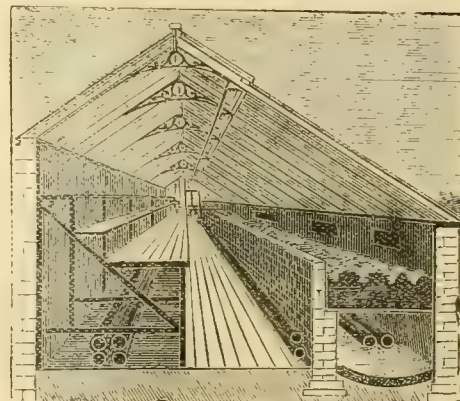
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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),
40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half
ton; 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO
CLOTH, RUSSIA MATS, &c. Write for Price LIST.—
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Lane (lately called 17A, Coal Yard), W.C.

ORCHID PEAT,

LEAF MOULD, &c.,

OF THE VERY FINEST QUALITY.

BEST selected Brown Fibrous PEAT, for
Orchids, at 4s. 6d. per sack; best Brown Fibrous PEAT,
for Rhododendrons, Azaleas, Heaths, Ferns, &c., 3s. 6d. per
sack; PEAT or LEAF-MOULD, 2s. 6d. per sack; all sacks
included. Send P.O. for sample sack. Particulars of other quali-
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D. CAMERON, Forester, Mount Mascal Estate, Joyden
Wood, Bexley S.O., Kent.



21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet
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English Glass, cut to buyers' sizes, at lowest prices, delivered
free and sound in the country, in quantity.

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GEORGE FARMILOE & SONS,
LEAD, GLASS, OIL, and COLOUR MERCHANTS,

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Stock Lists and Prices on application. Please quote *Chronicle*.

GENUINE GARDEN REQUISITES,
COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack; 10 for
12s., 20 for 20s., 30 for 28s. ORCHID PEAT, special, 8s. per
sack. SPHAGNUM MOSS, 7s. 6d. per sack. Horticultural
CHARCOAL, 8s. per sack. BONES, $\frac{1}{2}$ -inch, 10s. per cwt.;
DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER,
10d. per lb.; 28 lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 28s.;
CORD, 6d. per lb., 28 lb. for 12s. 6d. Brown Fibrous PEAT,
5s. per sack, 5 for 22s. 6d.; Black, 4s. 6d. per sack, 5 for 20s.
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each 3s. per sack. Prepared POTTING COMPOSTS, 5s. per
sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches
by 4 feet 6 inches, 16s. per dozen. PETERSBURG MATS,
12s. and 10s. per dozen. BAMBOO CANES, STICKS, and
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Quality, THE BEST in the Market. (All sacks included.)
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" 2, ...	7/6	17/-	65/-
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FOR PLANTS.
QUICK. LASTING. ECONOMICAL.

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DEAR SIR,—We have used your "INVIGORATOR" on all
kinds of plants, and have much pleasure in telling you it has
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upon your "INVIGORATOR" as the highest class manure
now being sent out to the public.—We remain, yours truly,
To Mr. S. C. Clay. J. & J. HAYES, F.R.H.S.

Sold by Seedsmen, Florists, and Nurserymen, or direct from the
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7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2s. 6d.	4s. 6d.	7s. 6d.	12s. 6d.	20s.

The above Trade Mark is printed on every Packet and Bag,
and also impressed on the Lead Seal attached to the mouth
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A SAMPLE PACKET will be sent post-free on receipt of
ONE SHILLING by the MANUFACTURER—

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MARSH ISLAND, STRATFORD NEW
TOWN, LONDON, E.
NO CONNECTION WITH ANY OTHER FIRM.

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EPPS AND CO. having now in store from their new grounds a
good stock of FIRST-CLASS PEAT, in good condition, are pre-
pared to execute orders forthwith. They invite their numerous
patrons to place their orders with them as soon as possible,
in order to receive the same in good condition. First-class
LOAM, very superior LEAF-MOULD, SAND (coarse and fine),
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The Old-established Peat Dépôt, RINGWOOD, HANTS.

BROWN FIBROUS PEAT FOR ORCHIDS,
31s. 6d. per Ton, or 12s. per Truck of 4 tons; Bags, 5s.
each; 10 Bags, 45s.

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£5 per Truck of 4 tons; Bags, 5s. each; 10 Bags, 45s.

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Beds, 21s. per Ton, or £4 4s. per Truck of 4 tons.

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"LE FRUITIER."—The Perfection of
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Growers for Profit and the Market have proved the value of
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20 per cent. The real basis for a Vine Border, contain-
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Every description of Agricultural and Horticultural
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All Garden Requisites of Best Quality only.

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An excellent substitute for oil paint, at one-third the cost.
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Price 1s. 6d. per gallon at the manufactory, or carriage-paid
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CAUTION.—Every Cask bears the above
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of cheap imitations.

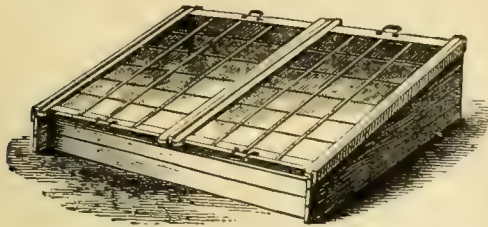
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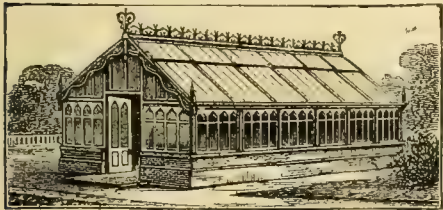
Prices, delivered free to any station in England:			£	s.	d.
1-light frame, 4 ft. by 6 ft.	Carriage and Packing Cases	FREE.	2	0	0
2-light frame, 8 ft. by 6 ft.			3	2	6
3-light frame, 12 ft. by 6 ft.			4	15	0
6-light frame, 24 ft. by 6 ft.			8	10	0

Larger sizes at proportionate prices.

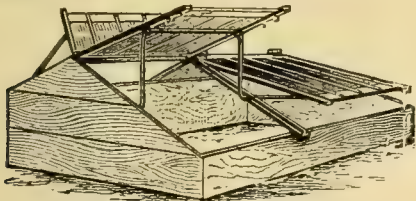
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This design makes a handsome addition to any garden, and will harmonise with many Villa Residences. Constructed on the most approved principle, all the materials and workmanship being of the very best. Prices, including Erecting, Glazing with 21-oz. English Glass, and Painting, four coats, &c., on application.



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A large stock always ready. The illustration shows a Two-light Frame, 8 by 6 feet; height at back 22 inches, front 11 inches, and at ridge 32 inches. Made of well-seasoned red-wood deal, with sides and ends 1½-inch thick. Lights 2-inch thick, glazed with 21-ounce glass, and fitted with Improved Set-opes, as shown above, of which we are original inventors.

Length.	Width.		£	s.	d.
1 Light Frame, 4 feet by 6 feet ...		Cash Prices,	2	15	0
2 " " 8 feet by 6 feet ...		Carriage Free,	4	7	6
3 " " 12 feet by 6 feet ...		Cases extra,	6	0	0
4 " " 16 feet by 6 feet ...		allowed	7	12	6
5 " " 20 feet by 6 feet ...		if returned,	9	5	0
6 " " 24 feet by 6 feet ...			10	17	6

Carriage Paid to all Goods Stations in England and Wales; also to Edinburgh, Glasgow, Dublin and Belfast.

Illustrated Catalogue of the Conservatories, Greenhouses, Garden Frames, Poultry Houses, Dog Kennels, &c., post-free.

Beware of inferior imitations.



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DIRECT TO
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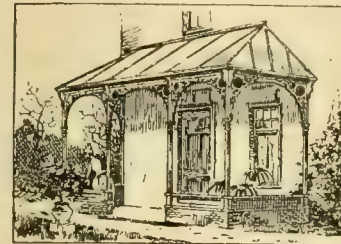
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HORTICULTURAL BUILDERS,

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WINTER GARDENS, CONSERVATORIES,
and GREENHOUSES of every Description.



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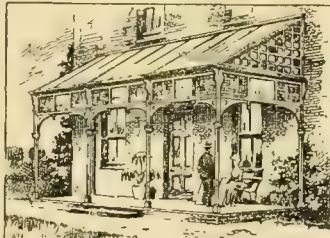
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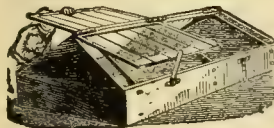
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PRESERVER.

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CARRIAGE PAID.

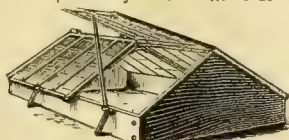
6 ft. by 3 ft. ...	£2 0 0	6 ft. by 4 ft. ...	£3 5 0
12 ft. by 3 ft. ...	3 2 0	12 ft. by 4 ft. ...	3 15 0

No. 73.

NEW SPAN-ROOF
GARDEN FRAME.

CASH PRICES.
CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 14 0	12 ft. by 6 ft. ...	£5 14 0
8 ft. by 6 ft. ...	4 4 0	16 ft. by 6 ft. ...	7 4 0

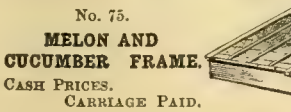


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SPAN
GARDEN FRAME.

CASH PRICES,
CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 14 0	12 ft. by 6 ft. ...	£5 17 0
8 ft. by 6 ft. ...	4 5 6	16 ft. by 6 ft. ...	7 8 6



No. 75.

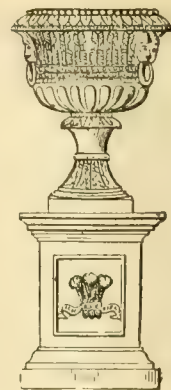
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CUCUMBER FRAME.

CASH PRICES.
CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 0 0	12 ft. by 6 ft. ...	£4 3 0
8 ft. by 6 ft. ...	3 0 0	16 ft. by 6 ft. ...	5 6 0

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(LATE MATTHEWS)
CELEBRATED WESTON
FLOWER POTS
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POTTERY.

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MR. G. W. HARBRON, until lately Foreman at
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MR. PETER WALKER, for eight years Gardener
and Orchid Grower to G. R. URE, Esq., Hope
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Gardener to T. R. HARDING, Esq., Ashton Gifford
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MR. W. COLE, for some time Foreman at
Dallam Tower Gardens, Milnthorpe, Westmore-
land, as Head Gardener to EDMUND FOSTER,
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in a London Nursery, all glass; long lease, low rent.
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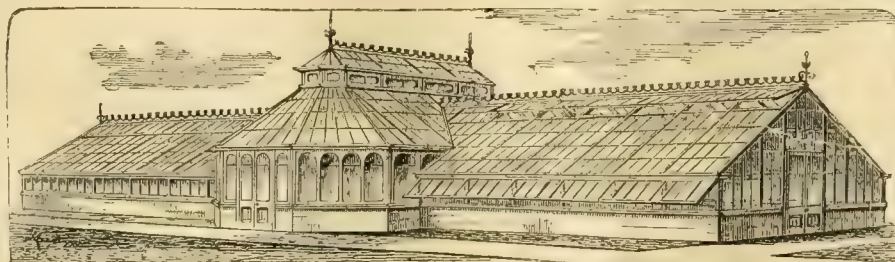
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THE WOLVERHAMPTON FLORAL FÊTE

JULY 14, 15, and 16, 1891.

OPEN CLASSES for PLANTS, ROSES, FRUIT, &c.

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GARDENERS' ROYAL BENEVOLENT INSTITUTE.—HENRY PRIMER begs to RETURN THANKS to Friends for his Success at the Election of the above Institution.—42, Sainsbury Road, Gipsy Hill, S.E.

GARDENERS' ROYAL BENEVOLENT INSTITUTE.—J. H. POOLE and FAMILY beg most sincerely to RETURN THANKS to all kind friends who assisted him at the Election on January 15, 1891.

THE CHINESE ARTICHOKE (Stachys tuberifera).—JAMES CARTER AND CO. have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An Illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers. Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

Raspberry Canes for Sale.

BAUMFORTH'S SEEDLINGS, 40s. per 1000; 6s. per 100. Cash with order. Free on rail, Wisbech. MANAGER, Osborne House Farm, Wisbech.

FOR SALE, 100 Bushels of SCARLET BEANS and PAINTED LADY, 10s. per bushel. Mr. F. DEEKS, The Hamlet, Little Coggeshall, Essex.

DALIAS.—Pot-roots, Double Pompones, Single, and Cactus, to name, 3s. per dozen, 18s. per 100. T. HOWARD, Cambridge Nursery, Walthamstow.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE. JAMES CYPHER, Exotic Nurseries, Cheltenham.

Standard Roses.

CHARLES TURNER can offer the above with tall stems and strong heads. The Royal Nurseries, Slough.

WILLIAMS' NEW PRIMULA, PRIMULA SINENSIS FIMBRIATA, "EMPRESS." Fine semi-double variety. The colour is a delicate pink, of a very pleasing tone. Per packet, 3s. 6d. B. S. WILLIAMS and SON, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Sterling Garden Seeds.

DICKSON AND ROBINSON'S Descriptive Priced CATALOGUE OF VEGETABLE and FLOWER SEEDS—including all Novelties of Merit, and Garden Requisites for 1891, is now ready, and will be forwarded, post-free, on application. Seed Warehouse, 12, Old Millgate, Manchester.

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H. AND F. SHARPE'S WHOLESALE LIST OF SEED POTATOS comprises all the best varieties under cultivation. They have been grown from selected stocks expressly for seed purposes, and the quality this season is exceptionally good. Seed Growing Establishment, Wisbech.

Cheap Offer.

MANETTI STOCKS, fine, 30s. per 1000. RHODODENDRON do., do., 70s. to 80s. per 1000. GRAY and SONS, Chertsey.

MANETTI STOCKS.—20,000 strong, clean, and well-rooted first-class stuff, 25s. per 1000. A. BARTLEMAN and SON, New Malden, Surrey.

J. W. BARNHAM Receives on Commission, J. GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found. Long Market, Covent Garden, W.C.

HENRY SQUELCH, North Row, Covent Garden, FRUIT SALESMAN and COMMISSION AGENT. Importer of Bananas, and all kinds of Madeira and Canary Island Produce. Bankers, London and County Bank, Henrietta Street. Warehouses and Banana House, James Street, Covent Garden, W.C.

WANTED, large KENTIAS, in EXCHANGE for PALMS, in 48's and 32's. G. PHIPPEN, F.R.H.S., Reading.

WANTED, Grifferie and Dwarf BRIAR STOCKS. State price per 1000 to C. H. GORRINGE, Roseland's Nursery, Eastbourne.

SUTTON'S FLOWERS ARE GROWN FROM SEED.

Full descriptions, with numerous Illustrations and Price List of upwards of 1500 varieties, see SUTTON'S AMATEUR'S GUIDE in HORTICULTURE for 1891. Price 1s., post-free; gratis to Customers ordering goods value 20s. SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, the Queen's Seedsmen, READING.

Gentlemen.

MY DWARF ROSES are the finest Plants I have ever grown. Many kinds are bushes 3 to 6 feet high. CHARLES NOBLE, Bagshot.

CHOICE GERMAN FLOWER and VEGETABLE SEEDS. CATALOGUES free on application. FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

Prize Cob Filberts.

MR. COOPER, F.R.H.S. (late of Calcut Gardens), is the largest grower in the kingdom of Prize Cob Filbert Trees for Sale. Descriptive and Price LISTS on application to Mr. COOPER, Western Elms, Reading, Berks.

CLEARANCE SALE of BULBS, all in fine condition. HYACINTHS, TULIPS, DAFFODILS, CROCUSES, SNOWDROPS, SCILLAS, CHIONODOXAS, and other BULBS, at REDUCED PRICES. Clearance LIST free on application to BARR AND SON, 12, King St., Covent Garden.

OWEN'S CHRYSANTHEMUMS.—The best Collection of proved Novelties and Select Varieties in commerce; awarded 5 Medals and 100 Certificates by National and other Societies. CATALOGUE free. R. OWEN, Floral Nursery, Maidenhead.

Special Trade Offer.

30,000 DWARF ROSES, grand plants, 25s. per 100 for Cash. List free. Evergreen and Oval Leaf PRIVET, all sizes, cheap. Price on application. A. J. AND C. ALLEN, Nurserymen, Florists, and Rose Growers, Heigham, Norwich.

Gladioli.

KELWAY'S GOLD MEDAL COLLECTION. Grand Bulbs, selected from a Stock of 25 Acres. Twenty large Exhibition sorts, in good variety, for 10s.; twenty good Border sorts for 5s.; or, select your own sorts (all prices), from a List of 400 varieties, gratis upon application. Gold Medal, Paris, 1889. KELWAY AND SON, Langport, Somerset.

Trade Price Current, 1891.

PETER LAWSON AND SON (Limited), Wholesale Seed Growers and Merchants, Edinburgh, have posted their ANNUAL CATALOGUE OF VEGETABLE and FLOWER SEEDS to their Customers. If not delivered in any case, another copy will be posted upon application. The ANNUAL CATALOGUE OF AGRICULTURAL SEEDS will be published later on, meanwhile Special Offers will be made, when requested.

Always Sow the Best.

J. E. DIXON'S President Carnot BRUSSELS SPROUTS. Hundreds of Testimonials. Lord Scarbrough's Gardener says:—"It is the hardest and best variety grown." Price 6d. and 1s. per packet; per oz., 1s. 6d.; per lb., on application. J. E. DIXON, Seed Merchant, Gainsborough.

Seeds.—Seeds.—Seeds.

CUCUMBER, Lockie's Perfection and Telegraph. CALCEOLARIA, BALSOM, BEGONIA (single), and GLOXINIA. Prices on application to—WILLIAM FINLAY, Primula Nursery, Earlswood, Redhill.

PEONIES (The noblest flower in the garden).—We have the largest collection and the greatest quantity of roots, 2 acres, 100 varieties; and will send twelve in splendid varied colours for 12s. Special prices for twenty-four and upwards. CATALOGUE on application. H. CANNELL and SONS, Swanley, Kent.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney. WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next.

SPECIAL SALE of 25,000 HARDY PLANTS, LILIES, and other BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, February 2, at half-past 12 o'clock, 25,000 HARDY PLANTS and BULBS, consisting of Carnations, Picotees, Paeonies, new French Cannas, and Dahlias; 10,000 Paeonies, Ismene, Narcissus, Calceolus, Tritelias, Muscari, Monbretias, Watsonias, Ixias, early-flowering Gladioli, Anemones, and many other beautiful varieties for outdoor planting. A magnificent collection of Iris, including all the best in cultivation, Germanica, Silberica, Pumila, Obiensis, Kempferi, and a host of varieties too numerous to mention. Many thousands of Berlin Crowns, Lily of the Valley and Gladioli; 500 Cypripedium spectabile, and other varieties; 1000 home-grown Lilies, consisting of Giganteum, Brownii, Humboldtii, Washingtonianum, Parryi, Cordifolium, Hansoni, Kretzeri, tigrinum, speciosum, longiflorum superbum, Pardalinum, Colchesteri canadensis, and many others. Also a collection of hardy Perennials, consisting of some of the best in cultivation, as Heuchera sanguinea, Senecio pulcher, Papaver orientale, Aquilegia, Chrysanthus, Anthericum, Hemerocallis, Campanulas, and many others.

On view morning of Sale, and Catalogues had.

Wednesday Next.

9000 Liliun auratum, grand bulb; 3000 L. speciosum rubrum bulb; 1500 L. Krameri; 400 Liliun auratum macranthum; 500 L. tigrinum; 1000 Cycas revoluta (plants); 1 case L. Sarrana Kamschatka; 2 cases Cycas revoluta leaves; 8 cases Euralia japonica, dessicated stems.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, on WEDNESDAY NEXT, February 4.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LARGE IMPORTATIONS OF LILIES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 4, at half-past 12 o'clock, 9000 LILIUM AURATUM (grand) bulbs; 3000 L. SPECIOSUM RUBRUM, 1500 L. KRAMERI, 500 L. TIGRINUM, 400 L. AURATUM MACRANTHUM, 1000 CYCAS REVOLUTA, 2 cases of CYCAS REVOLUTA LEAVES, 8 cases EURALIA JAPONICA, dessicated stems, all from Japan; 5 cases KENTIA SEEDS, 10 barrels American PEARL TUBEROSES, 500 Standard and Dwarf ROSES, a choice collection of named BEGONIAS, English-grown LILIES, HERBACEOUS PLANTS, and about 50 lots of FERNS, PALMS, and OTHER PLANTS, for Greenhouse and Conservatory.

On view morning of Sale, and Catalogues had.

Friday Next.

VANDA CERULEA.
VANDA KIMBALLIANA.
AERIDES JANSONII.
SACCOLABIUM BELLINUM.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, February 6, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a grand lot of imported plants of the lovely autumn-flowering VANDA CERULEA, from the locality whence came our recent importations out of which so many fine varieties have bloomed, amongst them many specially selected plants, all in fine healthy condition with good roots; also an extraordinary specimen, probably one of the largest ever imported, measuring 2½ feet by 2½ feet, with thirty-five stems, and evidently a specially free-flowering variety, the plant carrying over 200 old flower spikes. VANDA KIMBALLIANA, the new and rare AERIDES JANSONII, established plants of SACCOLABIUM BELLINUM showing flower, PHALLENOPSIS AMABILIS, P. SCHILLERIANA, &c.

On view morning of Sale, and Catalogues had.

Friday Next.—Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, and 213, Park Road, Clapham, S.W., to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY next, February 6, at half-past 12 o'clock, a selected COLLECTION of IMPORTED and WELL-ESTABLISHED ORCHIDS, comprising Odontoglossum citrosum, in spike, Maxillaria Sanderiana, Epidendrum dichromum, in spike, Oncidium macranthum, in spike, Lelia Dayana, Odontoglossum Phalanopsis, O. Rozili, Oncidium Marshallianum, Utricularia nelumbifolia and U. reniformis, Odontoglossum crispum, best Pacheco strain, &c.

On view morning of Sale, and Catalogues had.

Without Reserve.

Woodford Road, Essex, E., near Snaresbrook Station, S.E.Ry.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser (the Lease of this portion of his branch Nursery being about to terminate) to SELL by AUCTION, on the Premises, Woodford Road, Wanstead, on TUESDAY, February 17, and two following days, at 12 o'clock each day, the First Portion of the exceptionally well-grown NURSERY STOCK, containing an extensive assortment of Hardy Shrubs, 4000 Hollies, 2 to 8 feet, bushy, handsome plants, beautifully rooted; 2000 Rhododendrons, finest named sorts, probably one of the best collections in the country; 2000 Flowering and Ornamental Trees; 4000 Conifers, containing numerous good specimens; 3000 Evergreen Shrubs, a splendid lot of Rotundifolia and Common Laurels, Aucubas, &c.; 5000 Fruit Trees, consisting of Standard, Pyramidal, and Espalier Apples, Pears, Plums, Cherries, and Nuts, many in a forward state for fruiting; 4000 Standard and Dwarf Roses of the choicer sorts.

May be viewed. Catalogues had on the Premises, at the Lea Bridge Nurseries, Leyton, E., and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Sale of Nursery Stock and Greenhouse Plants from Sample.

MESSRS. PROTHEROE AND MORRIS desire to announce that their SALES of NURSERY STOCK and GREENHOUSE PLANTS from Sample will re-commence on THURSDAY, February 19.

Entries are solicited for the NEXT SALE, and should be sent in NOT LATER THAN FEBRUARY 7.

Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Preliminary Notice.

120,000 KENTIA SEEDS (KENTIA FORSTERIANA and BEL-MOREANA), in magnificent condition, probably one of the finest consignments ever received in this country.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL the above in their SALE on WEDNESDAY, February 11.

Wednesday and Saturday Next.

1000 Choice named Standard and Dwarf ROSES, Pyramid and Dwarf-trained FRUIT TREES, CARNATIONS, PICO-TEES, PINKS, and other BORDER PLANTS, Imported and Home-grown LILiums, LILY of the VALLEY crowns and clumps, SPIRÆA JAPONICA, DUTCH BULBS in quantity, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY and SATURDAY NEXT, February 4 and 7, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Thursday Next.

SPECIAL TO THE TRADE.

50,000 LILIUM AURATUM (many in cases as received), and other LILIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 5, at half-past 12 o'clock precisely, an Immense Importation of LILIES from Japan, comprising 50,000 LILIUM AURATUM (many in cases as received); 5000 L. LONGIFLORUM, 2000 L. SPECIOSUM RUBRUM, &c., &c., specially lotted for the Trade and other large buyers; 10,000 South African and Pearl TUBEROSES; an extensive Collection of Home-grown LILiums, LILY of the VALLEY Crowns and Clumps, SPIRÆAS, DAFFODILS, and many other Bulbs and Roots.

On view morning of Sale, and Catalogues had.

Thursday, February 12.

SPECIAL SALE OF ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his FIRST SPECIAL SALE of the SEASON of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 12 (instead of 19th, as previously advertised), at half-past 12 o'clock precisely, and he will be glad if Gentlemen Desirous of Entering Lots for this Sale will please send Lists NOT LATER THAN THURSDAY NEXT.

To Seedsmen, Nurserymen, &c.

FOR SALE, by Private Contract, as a going concern, the BUSINESS of SEEDSMEN, NURSERYMEN, FLORISTS, &c., carried on by Black & Co., at Malton. The business comprises Stocks in Shop and Warehouse at Malton; Stock in the Nurseries situate at York Road, Malton, and at Old Malton respectively, and certain Greenhouses thereon. Tenancies of the above Premises can be secured by the purchaser.

Apply to JOHN GORDON, jun., Chartered Accountant, 1, Bond Street, Leeds.

FOR SALE, FLORISTS' BUSINESSES, both in first-class positions, well-established, and on long leases.

For full particulars as to prices, &c., apply to the Agents, GREEN and GREEN, 23, Harrington Road, South Kensington, S.W.

To Nurserymen and Others.

WANTED to LET, Extensive Fruit and Vegetable Gardens, forming part of a Residential Property near East Sheen.—For particulars, apply by letter, to T., Street Brothers, 5, Serle Street, Lincoln's Inn, W.C.

WANTED.—GROUND near large Town for Horticulture; or Situation as IMPROVER, age 23; four years' good experience.—J. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Landscape Gardening.

B. MALLER AND SONS are prepared to Furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

THE TOWER FURNISHING COMPANY (Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

NOTICE.—CHANGE OF ADDRESS.

MR. H. E. MILNER begs to Notify that in Order to Meet the need for Increased Office Accommodation at DULWICH WOOD, as well as to ensure more convenience for Consultations, he has taken additional Offices at WESTMINSTER CHAMBERS, 7, VICTORIA STREET, S.W., which, henceforward, will be his Chief Office.

HENRY ERNEST MILNER, F.L.S., ASSOC. M. INST., C.E. LANDSCAPE GARDENER.

KENTIA FORSTERIANA.—Magnificent plant in perfect health, to be sold for want of room, 12ft. 6in. high from top of tub, and 11 feet wide, twelve fronds. Price on application to—

GARDENER, Highfield, Gainsborough.

CROSS between VALLOTA and AMARYLLIS. Young bulbs for sale or exchange. Apply to—GARDENER, Highfield, Gainsborough.

CHOICE FLOWERS.—CHOICE FLOWERS. Highest Market Prices guaranteed. Prompt cash. HENRY RIDES, Covent Garden, W.C.

RARE JAPANESE LILIES.

Just arrived, in magnificent condition.

BULBS of ENORMOUS SIZE.

Send for LIST, just published, containing many rare and beautiful varieties. WALLACE AND CO., St. John Street, Colchester.

CHRYSANTHEMUMS, strong cuttings, from 1s. 6d. per dozen, 10s. per 100. Buyer's selection. Many 1st Prizes, and Silver Cups and Medals have been taken by my customers in the last year. Plants from 2s. 6d. per dozen, 16s. per 100. CATALOGUE of WM. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

£5 LEEK COMPETITION.—Particulars on application. CUTHBERTSON'S NEW HYBRID LEEK won 1st prizes at Glasgow 1890. 6d. and 1s. per packet. F.X. CELSIOR UNION (can be grown 2½ lb.), 6d. and 1s. per packet. Prize PARSLEY, 6d. and 1s. per packet. "The Secret of Growing Leeks, Onions, and Parsley for Exhibition," 2½d. All interested should read this little book. Catalogues free. M. CUTHBERTSON, F.R.H.S., Seed Grower, Rothsay.

STANDARD PLUMS, DAMSONS, and Single ALMONDS, per 100 or 1000. Price on application. Also AUCUBAS, 1 to 3 feet, per 100 or 1000. FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

Seeds.

CHARLES TURNER'S Descriptive and Priced CATALOGUE of KITCHEN, FLOWER GARDEN, and FARM SEEDS, will be sent Free on application. The Royal Nurseries, Slough.

VINES.—Strong year-old Planting Canes—Gros Colmar and Muscat of Alexandria. Price, in 7-inch pots, 2s. 6d.; and 6-inch pots, 2s. each. Cash with Order.—BOULTON, Beechenlea Nursery, Swanley.

SEAKALE FOR FORCING.—Superior, selected, Large Crowns, 75s. per 1000; under 500, 8s. 6d. per 100. Cash with all orders. 3-yr. old Forcing ASPARAGUS and RHUBARB of all varieties. Price on application.

ALFRED ATWOOD, Grower, 21, Shillington Street, Battersea, S.W.

Dahlia Roots for Propagation.

H. CANNELL AND SONS have large quantities in the best possible condition, 8s., 12s., and 20s. per dozen; H. C. & S.'s selection. CATALOGUE on application. SWANLEY, KENT.

TOMATO, Brown's Grand "Prizetaker."

Description, large and handsome; colour, rich crimson; nearly all flesh, very few seeds; weighs well. Every Tomato-grower wishing to take first prize, please try this. 1s. 6d. and 2s. 6d. per packet.—W. and J. BROWN, Stamford, Peterboro or Grantham.

East Lothian Stocks.

THOMAS METHVEN & SONS offer their Choice Strain of the above Intermediate Stocks, in Six Varieties, viz., Scarlet, Purple, White, Crimson, White Wall-Leaved, and Crimson Wall-Leaved, at 1s., 2s. 6d., and 5s. each colour.

METHVEN'S JUNE BROCCOLI, in Sealed Packets only, per packet, 1s. 6d.

By Royal Warrant, Nurserymen and Seedsmen to the Queen, Edinburgh.

MESSRS. POPE & SONS, HORTICULTURAL AUCTIONEERS and VALUERS, 6, Philip's Street, Birmingham, hold SALES at their Rooms as follows:—CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday.)

MISCELLANEOUS PLANTS and BULBS every THURSDAY. NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense Stock of Orchids, And they are constantly receiving Importations from various parts of the world.

NEW DESCRIPTIVE PRICED CATALOGUE

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THE VINEYARD AND NURSERIES, GARSTON near LIVERPOOL.

FOR ORCHIDS, and GARDENERS
to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

Many Acres of Lilies of the Valley!
T. JANNOCH, Largest Grower of LILIES
OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.
BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.
BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.
GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.
DESCRIPTIVE CATALOGUE free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

ROSES. -- ROSES. -- ROSES,
Best and Cheapest in the Trade.
Strong Dwarf H.P.'s, 30s. per 100, sample dozen, 6s.; Standards 10s. per dozen. Cash with order.
CATALOGUE free on application.
C. H. GORRINGE, Roselands Nursery, Eastbourne.

32 ACRES OF RHODODENDRONS,
AND
170 ACRES OF OTHER NURSERY STOCK.
Per 100 Per 1000
RHODODENDRON PONTICUM, 9 to 12 inches, 12 0 90 0
" " " 12 to 18 inches, 17 0 150 0
" " " 18 to 24 inches, 26 0 240 0
" CATAWBIENSA hybrids, 9 to 12 inches, 12 0 100 0
" " " 12 to 18 inches, 18 0 160 0
" " " 18 to 24 inches, 30 0 260 0
For other Nursery Stock, see CATALOGUES, free.
Rhododendrons make grand cover for game. Hares or rabbits will not eat them; they will grow well under trees where many other trees perish. Smaller or larger sizes can be supplied if required.
JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

FRUIT TREES A SPECIALTY

STRAWBERRIES.—One of the best collections in the Trade, including Noble, and all the best and newest varieties. Descriptive List on application.

FRUIT TREES.—Apples, Pears, Plums, Bush Fruits, and all kinds of hardy fruit trees. New and rare sorts, not obtainable elsewhere. Special quotations for market varieties in quantity. Catalogues free. Descriptive List, one of the most complete in the Trade, giving much valuable information, 6d.
CABBAGE PLANTS.—Leading garden or field varieties, very cheap, in quantities.

JOHN WATKINS, Pomona Farm Nurseries, Withington, Hereford.

FORBES' EAST LOTHIAN STOCKS.

The superior excellence of my strain of these over all others is now universally acknowledged. It is altogether the best and most useful stock in cultivation, either for mixed borders, beds in the flower-garden, or pot-plants for the conservatory.

Of dwarf, compact, vigorous habit, producing immense Hyacinth-like spikes of clear distinct colours, with an extraordinary percentage of double flowers, which has uniformly given the most unqualified satisfaction to the large and ever-increasing circle of patrons, to whom I have the honour of supplying it annually.

Sown in heat in January or February, and grown on until ready for planting out, or in July or August, and wintered in a cool greenhouse or frame, and planted out early in spring in deep, well-manured soil, they may be had in bloom continuously from June to December, when they may be lifted and potted, to make a further display in spring and summer.

The magnificent beds of white and crimson Stocks in Hyde Park, London, last spring, were raised from seed supplied by me. In 5 distinct sorts—Crimson, Purple, Scarlet, White, and Wallflower-leaved White—each sort, 1s., 2s. 6d., and 5s. per pkt.
Mr. PAGE, Gardener to The Most Noble the Marquis of Lothian, K.T., Secretary of State for Scotland, says:—"East Lothian Stocks most remarkably fine; the admiration of his Lordship; and, in fact, of everyone." Mr. BAILLIE, The Gardens, Luton Hoo Park, Beds, says:—"Stocks were exceptionally fine, many spikes 18 inches long." Mr. YOUNG, Zoological Gardens, London, says:—"Much pleasure in bearing testimony to the excellence of your Stocks in all their colours." Mr. COMFORT, Knowle Hall, Birmingham, says:—"Your Stocks are the finest I have seen." Mr. HARKNESS, Australia, says:—"Your Stocks turned out splendidly; admired by all."

The best and most comprehensive CATALOGUE (120 pages) ever issued on all sections of Florists' Flowers; free on application.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At the Annual General Meeting of the Subscribers held on January 15, 1891, for the Election of Nine Pensioners, it was resolved: That in consequence of Two Vacancies having occurred in the List of Pensioners since the Voting Papers were issued, the number to be elected be increased from Nine to Eleven. The following was the Result of the Ballot:—

Votes.	NAME.	Result.
655	HENRY BARTHOLOMEW.	
1299	THOMAS BENNING.	
1710	WILLIAM BUNN	ELECTED.
593	JOHN BUTLER.	
883	JONAH DICKENSON.	
2376	JAMES GAGE	ELECTED.
1539	ISAAC GIBBONS	ELECTED.
1875	GEORGE HINXMAN	ELECTED.
2023	DAVID INNES	ELECTED.
1238	LOUISA JENNINGS.	
411	JANE ELIZA NICHOLS.	
1899	JOSEPH HENRY POOLE ...	ELECTED.
2657	HENRY PRIMMER	ELECTED.
224	ISAAC BROWN (Dead).	
183	WILLIAM COLEMAN.	
2127	SUSANNAH DAVISON ...	ELECTED.
1319	MARY ELIZABETH GRAY.	
1326	MARY ANN LANE	ELECTED.
1241	HENRY MARTIN.	
774	ELIZABETH MAY.	
963	GEORGE MEDLAND.	
125	JAMES MUNRO.	
1910	WILLIAM NEWCOMBE ...	ELECTED.
2509	THOMAS STEVENSON ...	ELECTED.
642	HARRIET WOOLFORD.	

The Meeting then declared Henry Primmer, Thomas Steven son, James Gage, Susannah Davison, David Innes, William Newcombe, George Hinxman, William Bunn, Joseph Henry Poole, Isaac Gibbons, and Mary Ann Lane, as having the greatest number of votes, duly Elected Pensioners from December 25, 1890.

EDWARD ROGER CUTLER, Secretary.

50, Parliament Street, S.W., January 16, 1891.

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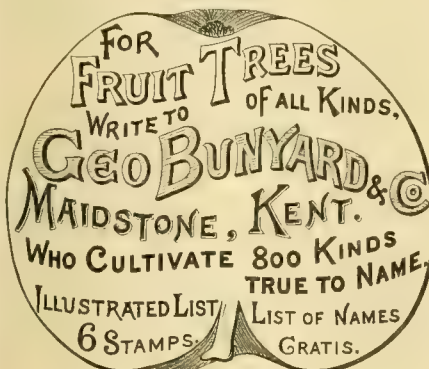
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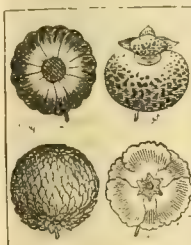


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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 31, 1891.

THE ROYAL HORTICULTURAL
SOCIETY.

[THE following extracts are taken from the report of the Council for the year 1890-91, to be presented to the annual meeting of Fellows, to be held at the Society's Offices, 117, Victoria Street, Westminster, on Tuesday, February 10, at 3 o'clock]:—

The year 1890 has been one of steady work and progress for our Society.

Five Conferences have been held at Chiswick, viz.: on Daffodils, on Carnations, on Ferns, on Dahlias, and on Grapes, and the attendance of Fellows and others at them, as also at the fortnightly lectures at the Drill Hall, has been decidedly more encouraging than in previous years. Fellows would greatly assist the Council by making these meetings and lectures better known among the general public. For this purpose, Fellows may obtain at the office, packets of tickets of admission for distribution among their friends at the following rates:—twelve 1s. tickets, 10s., or six for 5s.

Sixteen fruit and floral meetings have been held at the Drill Hall, besides those held at Chiswick, and lectures have been delivered at fourteen of them. The number of awards has been as follows:—On the recommendation of the Floral Committee, forty First-class Certificates, against fifty-four in 1889; 117 Awards of Merit against eighty-four; two Commendations against three last year. On the recommendation of the Orchid Committee, fifty-six First-class Certificates against twenty-seven last year. Forty-five Awards of Merit against seven, nine Botanical Certificates against twelve. On the recommendation of the Fruit and Vegetable Committee, six First-class Certificates against seven, and seven Awards of Merit against three last year.

The Society's great show, held (by the renewed kindness of the Treasurer and Benchers) in the Inner Temple Gardens, and opened by his Royal Highness the Prince of Wales, was a greater success than ever, alike in the number of visitors, the quantity and quality of the exhibits, the propitiousness of the elements, and the consequent pecuniary result. The best thanks of the Society are due to all who so kindly brought their plants for exhibition, or otherwise contributed to the success of this show.

The Society's general work of scientific experiment and investigation, and of the practical trial of various plants, has been going on steadily at Chiswick, under the superintendence of Mr. Barron. Trials have been made of 104 varieties of Lettuce, twenty-five of Endive, thirty-three of Celery, thirty-six of Leeks, and thirty of Broad Beans. Thirty-four new varieties of Potatoes, twenty-three new Peas, thirty new Tomatoes have been tested. In the Floral Department 415 varieties of Carnations and Picotees, 354 Dahlias, fifty-eight Ivy-leaved Pelargoniums, seventy Violas and bedding Pansies, 112 different strains of China Asters, and thirty-two of Stocks have been tried. A very large collection of perennial Asters (Michaelmas Daisies) and Sunflowers has been received, in view of the projected Conference upon them in October, which will prove of the greatest possible interest, and will, it is hoped, serve to clear away the great existing confusion in their nomenclature in different parts of the country.

The experiment of opening the gardens on Sundays, which was commenced in 1888 for the sole purpose of giving such Fellows as are fully occupied during the week an opportunity of visiting them for scientific or practical purposes, has again, as it did the year before, proved unsuccessful in that particular direction; it has therefore been decided to abandon it, as it not only throws additional work on the officials on their one rest day in the week, but also entails considerable expense on the Society, which can ill be spared from the general work of the Gardens.

The Society's *Journal* has been continued so as to enable Fellows at a distance to enter more fully into and reap the benefits of the study and work of those more actively engaged at the centre. Three parts, forming vol. xii., 707 pages, with forty-two plates of new plants, &c., have been published during the twelve months, and letters are constantly received from the most distant and diverse sources, testifying to the Fellows' appreciation of this renewed branch of the Society's work.

The Council wish to repeat *verbatim* one paragraph of their last year's report, which runs as follows:—

All these Conferences and meetings, and especially the work and maintenance of the Chiswick Gardens, and the publication of the *Journal*, have involved the Society in a very large outlay, and the Council take this opportunity of endeavouring to impress upon Fellows the absolute necessity there is for them all individually (as many as have the Society's welfare at heart) to endeavour to secure new Fellows to the Society if its work is not only to be continued at its present standard, but still more so if the ever-opening and extending opportunities of usefulness are to be embraced and accepted. The adoption of £1 ls. as one rate of subscription was, no doubt, a popular movement, but the Council desire to remind the Fellows that such a low rate of fellowship can only be self-supporting if it draws into the Society a very large number (far larger than at present exists) of additional Fellows. The Council, therefore, venture to express the hope that every Fellow of the Society will make an endeavour

to obtain at least one new Fellow during this present year. A statement of the privileges of Fellows, and of the aims and objects of the Society, together with a form of nomination to Fellowship, is for this purpose enclosed with this report.

The following will show the Society's progress in regard to numerical strength during the past year:—Deaths in 1890, 19; resignations, 41; total loss, 60. Fellows elected in 1890, 424; net increase in income, £465 13s. 6d.; increase in number of Fellows, 364.

The most notable feature in the past year's work has been the excellent commencement made for raising a fund for obtaining for the Society more suitable and worthy premises, and for building a horticultural hall, to meet the requirements with regard to light, and space, and position, not only of our own Society, but also of the numerous kindred associations of this great metropolis. A scheme for the purpose was put forth in the spring by which it was proposed to borrow, without interest, from those willing to so lend it, a sum of £40,000, part of which was to be expended on the buildings, and part placed in the hands of trustees to safeguard the annual ground rent, the principal being, it is hoped, gradually repaid to the lenders by annual drawings out of the assets accruing from the rent paid to the Trustees by the Society, and by other kindred associations using the building, and by occasional lettings. The trustees are Sir Trevor Lawrence, Bart., M.P.; Baron Henry Schroder (to whom we are indebted for the scheme), and Everard A. Hambro, Esq. The response made to the scheme was at first very promising, and half the amount required was promised during the ensuing summer, but owing to circumstances connected with the condition of financial matters generally, it was thought advisable in the autumn to allow the appeal to rest for at least six months, but it is hoped to resume active operations again as soon as the present spring is advanced.

In conjunction with the Lindley Library Trustees, the Society's Library has received considerable attention. All serial publications have been kept up to date, a large number of untidy but valuable volumes have been bound, and the following books amongst others added to the Library, viz.:—*Annales des Science Naturelles*, 6 vols.; *Nuovo Giornale Botanico Italiano*, 12 vols.; *Revue Horticole*, Köhler *Medizin. Pflanzen*, Nyman *Conspectus flore Europae*, *Pflanzen-Familien*, *Bailion Dict. Bot.*, *Archives Nouvelles du Muséum d'Histoire Naturelle*, *Icones Plantarum*, *Amaryllideae*, &c.

The best thanks of the Society are due to all those who, either at home or abroad, have so kindly and liberally presented books to the Library, or plants or seeds to the Gardens. Special thanks are due to those who have so kindly contributed perennial Asters and Sunflowers in view of a much-needed Conference on them in October.

The Council also wish to express, in their own name, and in that of all Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the Conferences and fortnightly meetings.

The hearty thanks of the Society are due to the Chiswick Board and to all the members of the Standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the most kind and patient attention which they have severally given to their departments; also to the exhibitors who have contributed to so great an extent to produce the magnificent results of the Daffodil, Carnation, Fern, Dahlia, and Grape Conferences.

The Council have the sad duty of recording the death of nineteen Fellows during the year, and amongst them they deeply regret to find the names of Messrs. Wildsmith, McIntosh, Haughton, Williams, Holmes, Deal, and Shirley Hibberd, Miss North and Miss Owen. The loss the Society has sustained in this manner has been unusually great, not in numbers, perhaps, but in the relative import-

ance of the gaps left in our ranks; Messrs. Wildsmith, Deal, and Hibberd, and especially the last-named, having been most energetic and loyal supporters of the Society, and themselves active workers in all its undertakings.

During the past three years the Council have, amongst other matters, been considering methods of interesting amateurs more in the Society and its work, and of rendering to them a greater personal return for their subscriptions. To this end they have already established the fortnightly lectures, and the great Temple Show; have promoted various Conferences on interesting horticultural subjects; and have revived the publication of the *Journal*. They have now further decided to revive the Society's ancient custom of offering prizes to amateurs, a long schedule of which has been already circulated in the "Arrangements for 1891." The Council cannot afford, with the very limited funds at their disposal, to embark on any very comprehensive scheme this year, but if this new departure should meet with general approval, they hope that the Fellows themselves will, by subscriptions to the "Prize Fund for 1892," enable them next year to set forth a much fuller schedule.

It has been decided to hold a Conference at Chiswick on Conifers during October, which it is hoped will prove unusually interesting, not only as drawing attention to the best of these trees and shrubs from a garden or landscape point of view, but also demonstrating the best varieties to plant for English-grown timber, as well as the different uses and suitabilities of the various foreign-grown timbers. The unusually hard winter through which we have just passed will prove a most practical commentary on the hardiness of the different varieties. The co-operation of landowners and others who may have planted these trees or shrubs in years past, or who take a present interest in them, is specially invited.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × BERENICE, n. *hyb.**

This is a really fine and handsome hybrid, raised by Captain Vipan, of Stibington Hall, Wansford, from *Cypripedium Rœbelenii* (really a form of *C. philippinense*), fertilised with the pollen of *C. Lowii*. It is the first hybrid I know of whose parents both belong to the racemose-flowered group. Captain Vipan writes that the leaves are dark green, and intermediate in shape between the two parent species, and that the spike bore three flowers, the lowest of which was 13 inches from its base. The dorsal sepal is quite intermediate, both in shape and colour, the petals with the shape and the spiral twist of the mother plant, but the colour of the pollen-parent; the base, however, being more spotted. The lip intermediate in shape and colour, and the staminode more closely reticulated than the seed-parent, but much like it in shape, with the addition of a strong apical notch as in *C. Lowii*. If it proves as free-flowering as are hybrids generally, it will doubtless prove a great acquisition. *C. × Vipani*, raised by the same gentleman, between *C. philippinense* and *C. niveum*, is a charming little plant, and thus we have a most promising commencement in the Wansford collection. *R. A. Rolfe*.

* *Cypripedium × Berenice*, n. *hyb.*.—Dorsal sepal elliptical-ovate, acute, margin reflexed at base, 2½ inches long by 1½ inch wide, base and centre pale bright green, rest white, a little suffused with blush, a blotch of dark purple at extreme base, then several distinct spots, and above this seven bands, all of the same colour, which rapidly thin out, and are soon lost above the middle. Petals drooping, over 5 inches long, ½ inch wide, spirally twisted, a little narrowed near apex; lower third pale bright green, with medium-sized purple-brown blotches, rest light maroon, a little deeper near margin. Lip sub-compressed, 2 inches long, pale yellow-green, a little veined and suffused with olive-green on front and sides, side lobes unspotted. Staminode obovate-oblong, palest whitish-green, closely reticulated all over with bright green nerves, convex margin hairy. Derived from *C. Rœbelenii* (a variety of *C. philippinense*) ♀ and *C. Lowii* ♂. *R. A. Rolfe*.

RESTREPIA STRIATA, n. sp.*

Several of the species of *Restrepia* are extremely difficult to discriminate satisfactorily, but the present one is a marked exception, being very distinct, and a most charming little plant. Instead of being spotted, as so many are, the lateral sepals are striped with seven sharply-defined maroon lines on a yellow ground, the lines being a little narrower than the intervening spaces. It has been known in gardens for some little time, though I do not think it has hitherto been described. As to its original introduction I am uncertain, but in January, 1890, Messrs. Hugh Low & Co., of Clapton, sent a good specimen, which they had introduced from the Cauca range, in New Granada. Eleven months earlier, however, a living flower was received from Glasnevin, the home of so many interesting rarities, kindly sent by Mr. F. W. Moore, and now comes a complete specimen from the same source. In March of last year it also flowered in the Kew collection. My first knowledge

ORCHID NOTES AND GLEANINGS.

PHALÆNOPSIS ESMERALDA VAR. CANDIDULA.

This species grows on damp rocks exposed to the sun in Cambodia, and the flowers vary in colour from deep amethyst purple to rose, and even white. In some forms the lateral lobes of the lip are more or less orange in colour. *Lindenia*, t. 263.

DENDROBIUM SUPERBUM VAR. ANOSMUM.

Introduced originally from the Philippines by Arming, who sent it to Messrs. Loddiges in 1839. The type has acuminate segments tinted with bright magenta-purple, the anterior part of the lip being more deeply coloured. The flowers have a perfume of Rhubarb. There are several varieties

TEA AND COFFEE SUBSTITUTES.

(Continued from p. 10.)

COMPOSITE.

44. *Helichrysum quinquenerve*, Lessing.—A sample of the dried leaves of this plant were shown in the Cape of Good Hope Court of the Colonial Exhibition, 1886, as Bushman tea, and said to be used as a substitute for China tea.

45. *Tarchonanthus camphoratus*, Linn.—A shrub, 6 to 8 feet high, native of the Cape of Good Hope, where it is known as Dagga. When fresh, the leaves have a peculiar camphor-like smell, hence the specific name; they are infused in the form of tea, and are supposed to have medicinal effects. They are also chewed by the Mahomedans, and smoked by the Hottentots. There is a sample of the leaves of this plant in the Kew Museum.

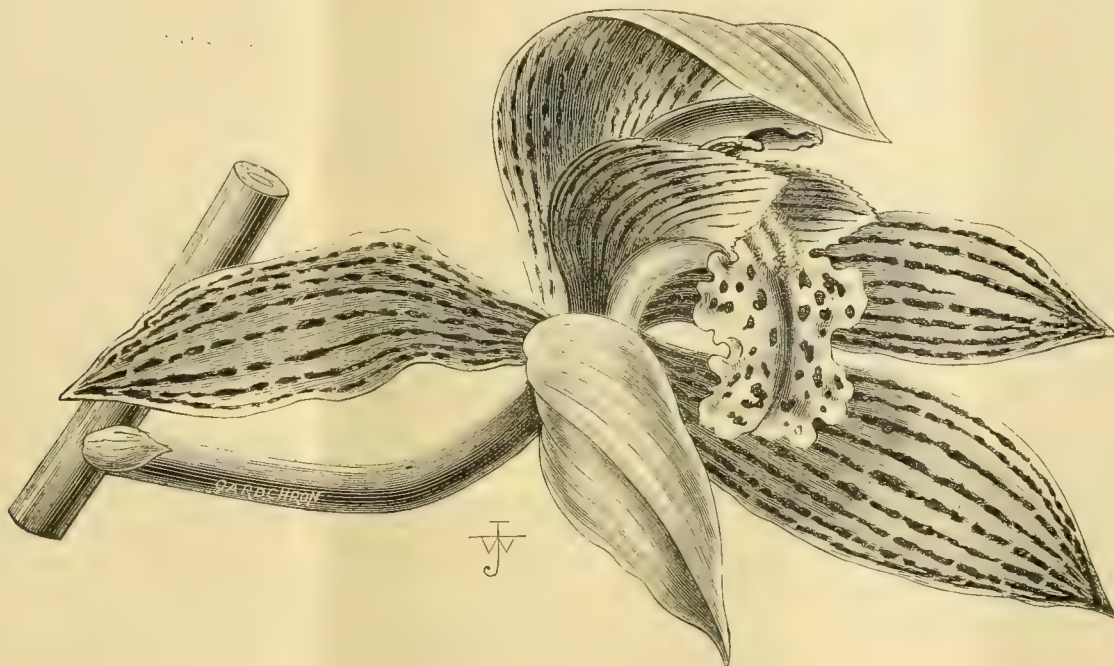


FIG. 34.—CYMBIDIUM TRACYANUM: SEPALS AND PETALS GREENISH-YELLOW WITH CRIMSON LINES, LIP CREAM COLOUR MARKED WITH RED. (FOR A DESCRIPTION OF THIS PLANT, SEE P. 718 OF OUR LAST VOLUME.)

of the plant was derived from an excellent painting of a single flower in the Kew Herbarium, labelled "Schlim, n. 68." Unfortunately, there is no evidence of date or locality, though both can be approximately guessed. I have hesitated to describe it before, suspecting it may already have been dealt with by Reichenbach, though after a long search I have failed to find any trace of this. It is a most distinct and very pretty species. *R. A. Rolfe*.

* *Restrepia striata*, n. sp.—Densely tufted. Stems 1 to 2½ inches high, with about three conduplicate, lanceolate, acute scales, ¾ to 1 inch long. Leaf elliptical ovate, sub-ovate, bidenticulate, 1½ to 2½ inches long, ¾ to 1½ inch broad. Peduncle slender, about 2½ inches long. Bract sheathing, acute, about ½ inch long. Dorsal sepal 1½ inch long, with lanceolate base and clavate apex, maroon, the base with a narrow maroon line on either side of the broad midrib. Lateral sepals united for over half their length, ¾ to 1½ inch long, subacute, yellow, each with seven maroon stripes. Petals ¾ inch long, much like dorsal sepal, but narrower at base. Lip subpandurate-linear, truncate, papillose-setose, yellow with three maroon stripes, and numerous paler spots; base broader, side lobes erect, and with a pair of slender falcate setae about a line long. Column curved, clavate, about 3 lines long. *R. A. Rolfe*.

among them, the scentless variety were figured, *Lindenia*, t. 264.

CYPRIPEDIUM SUPERBIENS.

A well-known and handsome species, with marbled foliage and large flowers. The dorsal sepal is greenish-white, striped with green, the lateral petals are oblong, greenish, with reddish-purple spots, and with hairy warts on the margin. The lip is somewhat cylindric, purplish, shining. It is a native of Malacca. *Lindenia*, t. 261.

CATTLEYA EL DORADO.

Introduced from Brazil in 1866, by M. Linden, and distinguished from all other Cattleyas of the same group (labiate group) by the form of the lip, which is more tubular at the base, and by the brilliant orange colouring of the disc, which is surrounded by a narrow white band, intervening between the disc and the purplish-red anterior part of the lip. *Lindenia*, t. 262.

VACCINIACEÆ.

46. *Vaccinium Arctostaphylos*, Linn.—Under the names of Thé de Bel Dagb, Trebizond tea, and Broussa tea, the dried leaves of this plant have been variously known. It was noticed in the *Pharmaceutical Journal* for January 17, 1885, pp. 573-4, and March 21, 1885, pp. 771-2. In 1877, Mr. George Maw brought for the Kew Museum from Asia Minor a small sample of a native tea obtained at Broussa in Anatolia, where it was sold for about 8d. per pound. In a report by Her Majesty's Consul "On the Town and Port of Samsoun, and on the Circassian Colony in the District," contained in the *Commercial Reports from Her Majesty's Consuls*, 1884, part 1, p. 147, reference is made to the production of a native tea which considerably interfered with the import of China tea into the country. The Vaccinium tea is in appearance very like coarsely-prepared black Indian or China tea, and has a similar aroma—so much so, indeed, that the Customs authorities demanded duty upon the samples sent to Kew by Her Majesty's Consul; the taste of the

infusion, however, has no resemblance to true tea. Upon submitting samples of the Trebizond tea for the opinion of a well-known firm of tea brokers, they remarked that common China tea showed a better value in every respect, so that the admixture of the Trebizond tea could hardly reduce the cost, while it would certainly not improve the flavour.

The following further notes on this subject are gathered from a memorandum by H. M. Vice-Consul at Samsoon. The tea in question became a commercial article so recently as 1880. At first its consumption was limited to the country, and particularly to those districts in which Circassian colonies had been founded. It is manufactured by Circassian planters in the neighbourhood of Amassia, Tokat, and Horek, all in the province of Roum, at a short distance from the forest, which clothes the mountain chain called Beldagh, and on which the plant which furnishes the tea in question grows in great abundance. The manufacture is carried on in the houses of the Circassian colonists who undertake this industry, and who appear to be pretty numerous. There are several gatherings of the tea; that which yields the best quality takes place in May. About 5000 ocques (an ocque equals 2½ lb.) are manufactured annually, but this quantity could be considerably augmented if there were occasion for it. The tea is sold on the spot at about 5 piastres per ocque. The cost of transport to Samsoon might amount to about 1 piastre, which brings the price per ocque to 6 piastres in that town.

The consumption is almost limited to the requirements of the vilayets of Sivaz (Roum) and Angora (Anatolia). It is to the town bearing the last-mentioned name that the greater part of the crop is sent. In 1881 a consignment was sent to France, but the transaction was not a profitable one. Some further consignments to Constantinople also do not appear to have been successful.

47. *Vaccinium hispidulum*, L.—A sample of the twigs of this plant is shown in the Kew Museum, under the name of Anise tea, from St. Pierre and Miquelon.

48. *Agapetes saligna*, Hook. f.—Described as a large epiphytic shrub of the Sikkim hills, at an elevation of from 1000 to 5000 feet. The leaves are said by Hooker to be used as a substitute for tea.

ERICACEÆ.

49. *Ledum palustre*, L.—An erect, small-leaved bushy shrub. Native of Canada and Labrador, where the leaves are used as tea under the name of Labrador tea.

50. *Ledum latifolium*, L.—The Cree Indians in the Hudson's Bay territory use the flowering tops of this plant as tea; they are gathered when in full flower, and dried, when they have an odour between that of Tansy and Camomile. The leaves are esteemed pectoral and tonic, and are said to have been used as a substitute for tea during the war of Independence. It is called Karkar-pukwa, or Country tea.

51. *Kalmia angustifolia*, L.—The twigs, with the leaves and flowers, are known by the Cree Indians in the Hudson's Bay territory as Bitter tea; the infusion is used more as a medicine than as a beverage.

52. *Gaultheria procumbens*, L.—A small, creeping, shrubby plant, native of shady woods in mountainous districts in Southern Canada and the Northern United States; it is known as Mountain Tea, Jersey Tea, or Tea-berry. The leaves have a pleasant aromatic flavour, and an infusion is used in some parts of North America as a substitute for China tea, under the name of Mountain or Salvador tea.

SYRACEÆ.

53. *Symplocos Alstonia*, L'Her.—A small tree of New Granada, described as having the habit of the tea plant. The leaves, which are of a pale green colour, are employed as tea on account of their slight astringency. It is known as tea of Santa Fé.

LOGANIACEÆ.

53A. *Gærtnera vaginata*, Lam.—The seeds of this plant were introduced to notice under the name of

Mussända borbonica, but were identified at Kew in 1889 as those of *Gærtnera vaginata*. The interest at first attached to the seeds was on account of their use as a substitute for coffee. It was made the subject of an article in the *Kew Bulletin* for December, 1889, from which the following notes are taken:—The plant is a native of Réunion, and in a letter from the Consul to the Foreign Office, it is described as a shrub found in the forests, but not plentiful, bearing fruit only at the extreme ends of the branches. "The berry, when gathered, is peeled, and then much resembles the coffee berry, though smaller. In fragrance, it is inferior to coffee, and in colour to chicory. The yield is far less than that of the coffee tree, and the picking more expensive, that is to say, about 1s. the pound. It is much doubted, by reason of its inferiority, that Mussända could ever compete with coffee and chicory, even if it were cultivated." From an examination made by Professor Dunstan, of the Pharmaceutical Society, it was proved that the seeds contain no caffeine, and that in consequence it cannot be regarded as a proper substitute for coffee. The result of Professor Dunstan's examination is printed in the *Pharmaceutical Journal* for November 16, 1889, p. 381. A sample of the seeds is contained in the Kew Museum.

BORAGINÆÆ.

54. *Lithospermum officinale*, L.—The Gromwell of our hedges and copses is found also in other parts of Europe, and in the Basse Pyrenees; the plant is used as a substitute for tea, under the name of Thé de Montagne. A sample of this tea is contained in the Kew Museum.

SCROPHULARINÆÆ.

55. *Veronica officinalis*, L.—A native of this country, and of other parts of Europe, as well as in North America. The leaves, which are astringent and bitter, are made into tea in Sweden and some parts of Germany, and used medicinally as a stimulant under the name of Thé d'Europe. Simon Paulli contended that this tea was identical with the true tea of China. A sample is contained in the Kew Museum.

56. *V. Allioni*, Villars.—A glabrous procumbent plant, native of Switzerland, Southern France, Italy, &c. A sample of the dried leaves in the Kew Museum is labelled "Thé de Mont Cenis, used as a beverage on Mont Cenis."

57. *Capraria biflora*, L.—It is known as the West Indian Tea plant, Lunan says, according to Long and Barham, the leaves not only resemble those of tea, but make an equally agreeable decoction, which is also recommended as an excellent febrifuge. The plant is very common everywhere in the Savannas.

Barham, writing of the plant, says: "A Frenchman, captain of a ship, affirmed to me as we were walking about the town of St. Jago de la Vega, and observing this plant growing so plentifully, that it was the same as the tea plant of China that he had used in that part of the world many years, had seen large fields of it, and the manner of cultivating it, and all the difference was that the Chinese plant was larger, which he ascribed to such care and cutting of it, and had no doubt but the Jamaica plant if it were set in rich ground and attended with equal care would improve in size." Barham further mentions the fact of "a gentleman who never drank any other than West Indian tea, and that although he could not coil up the leaves so dexterously as they do in China, yet he performed this operation tolerably well, and every person whom he regaled with it extolled it as the very best green tea they ever drank in their lives. It is certainly unknown to what perfection it might be brought if reclaimed from its wild state, and cultivated in the rich soil of gardens, and it well deserves the experiments of the curious." The plant is a shrub widely distributed in the West Indian Islands, extending into Mexico, Brazil, Peru, as well as in Tropical Africa. John R. Jackson, Museum, Kew.

(To be continued.)

TREES AND SHRUBS.

CRATÆGUS TANACETIFOLIA.

I NOTICED a good specimen of the Tansy-leaved Thorn in this neighbourhood lately, literally covered with its yellowish fruits. Its foliage is distinct, and very ornamental. The tree is stiff and formal in habit of growth, and it flowers late in the season, and the berries are the size of a Cherry. W. H. Aggett, Guildford.

NOTEWORTHY TREES.

I had lately the pleasure of inspecting and measuring some of the fine trees at Brookmans, Captain Gausson's residence, near Hatfield. The dimensions of three ought to be given in your columns:—A Wellingtonia (*Sequoia gigantea*), at 1 foot up, is 14½ feet in girth; and at 3 feet up, 11 feet 8 inches. In 1886, the measurements at the same altitudes were 13½ and 10 feet. This seems an extraordinary increase, but I can vouch for the accuracy of the figures. The tree was planted in 1852, in a position open to light and air on all sides, and has had two or three times a good top-dressing of road-scrappings. It is not by any means so tall as some other Wellingtonias in the country, but it would be interesting to know if it is surpassed in girth. The second tree is a Lucombe Oak; the height is 75 feet, and at 1 foot up, its girth is 16 feet; and at 3 feet, 13½ feet. It is one of the most imposing trees I ever remember to have seen, and surpasses the fine specimen at Kilterton Park. Mr. Archibald Gorrie, who has probably had more experience with evergreen Oaks than any other arborist, also told me he did not know of a finer specimen. The third tree is a *Cedrus atlantica*, which is 13 ft. 6 in. at 1 foot, and 10 ft. 10 in. at 5 feet. An uncommon tree for a lawn is a big Alder, but that it is not unsuited for such a position the lawn at Brookmans proves. The subsoil is the London clay. C. A. M. Carmichael.

LIGUSTRUM OVALIFOLIUM VARIEGATUM.

This is one of the best plants we have for enlivening the shrubberies during winter, and for filling flower-beds in autumn, and its equal would be hard to find. Its roundish leaves are of a beautiful rich, deep yellow, with a small blotch of green in the centre. It is readily increased by cuttings, made about 7 inches long, and dibbled in cocoa-nut fibre, and kept in a close case in a temperature of 60°, when they will emit roots in about three weeks. When rooted they may be potted or boxed, and grown on until wanted for the purpose named above, or planted outside in nursery rows. They will root very well if put in cold frames about September. It will be as well to pinch the tops of each plant so as to cause a sturdy growth.

GAULTHERIA PROCUMBENS.

At all times of the year this little favourite presents a beautiful appearance, and is well worth a place in all gardens. For rockwork it is very useful, as it rarely exceeds 5 or 6 inches in height, and for edging small borders, it is very pretty. To grow it properly, it ought to be planted in nice light peat, with plenty of good leaf-mould, as its roots delight to ramble in such. Its leaves are of a nice rich bronze colour, and it bears white drooping bells and rich red berries, which just peep through its foliage. It is a plant that likes plenty of water during its growing period; it can be propagated by division. It is a native of America. H.

THUJA GIGANTEA.

This Thuja, often erroneously called Libocedrus decurrens and Thuja Lobbi, is such a fast-growing tree in this country, that it is worthy of consideration by the planter with a view to profitable planting. We learn that in the forests of Oregon, British Columbia and Vancouver Island, thousands of these trees exist, many of them 200 feet high, with trunks measuring from 6 to 8 feet in diameter. The settlers there call the tree the Yellow Cedar, and extensively use it for building purposes, for which it is very valuable. From my experience in this

part (Hants), I know that this species will grow very nearly as fast as Larch, and is not particular as to soil, flourishing well in our strong chalky soil, but growing still better in sandy loam. Cuttings inserted in sandy soil in a cold frame at the end of August, if kept nearly close, will make plenty of root by the middle of the following month of April, when they may be transferred to necessary beds, and by the end of the year they will be nice little plants at least 9 inches high. The seed in most seasons ripens well in England, and if gathered and sown in sandy loam in boxes in a cool pit, a considerable number will come up the following spring, and make stocky plants by the end of the growing season.

Cuttings which I inserted in the manner described seven years ago have now reached 8 feet high, and are well furnished with side branches. Others planted eleven years since, when 6 feet high, are now 24 feet high, with stems 9 inches in diameter at the base, and as straight as a gun-barrel. With a view to test the capability of this tree, we have this year planted 2000 for trial, selecting stocky trees 2 feet high, planting them 6 feet apart, and between each *Thuja* stuck a Larch as nurse plants, but which will make Hop poles and rails when they must be removed. When planting these trees, holes were dug about 15 inches square, and the stiff and stony soil well broken up at the time of planting. The trees were made firm by treading the soil about the roots, as the position is rather exposed to wind from one quarter. For many years to come, if this tree succeeds where planted, it will be certainly an ornament, if nothing more, as this species is notable for the deep green colour of its foliage. S.

ORNITHOLOGY IN RELATION TO AGRICULTURE AND HORTI- CULTURE.

(Concluded from p. 75.)

In reviewing the habits and food of those small birds which are accustomed to take a little corn in winter, it must always be remembered that although the titmice and some other species given to making careful searches for minute insects on the branches and trunks of trees, walls, and other likely spots, are able to maintain themselves the winter through on their favourite food, yet it is not so with all small birds. Many of them, which do us so much good in summer by destroying insects, require to be kept alive on something else during the depth of winter. To them we should not grudge even a little stored corn, much less the scattered grain in the stackyards and at the barn-doors, which would be wasted, or at most, eaten by the poultry, if the small birds did not claim a share.

THE BULLFINCH.

There can be no doubt that the bullfinches do eat a large number of buds in early spring. Not only do they shear them off, but they actually eat them. Hawthorn buds may be found in their crops, and it is a pity that they do not confine their attentions to the hedges, where they can do no harm. Unfortunately they love the buds of fruit trees. It is, one can easily understand, exasperating to the fruit grower to see a couple of bullfinches assiduously pruning off the fat buds of his trees. But the actual damage that the growers suffer from the bullfinches is probably considerably exaggerated. The point is to ascertain how much less fruit a tree would have brought to maturity if the bullfinches had not visited it. In the early days of spring we see, say a Pear tree, with its fruit-bearing branches covered with large fruit buds. If the whole of them blossomed, and each blossom set, and each Pear swelled, it would be impossible for the tree to carry and mature them all. Either the fruit would be deficient in size, or the branches would break. It is not contended that this is always the case, but it is to be observed that bullfinches generally go to the fullest trees. Let anyone examine the ground under a fruit tree when the fruit is setting. If there has been a great show of blossom, it will in most cases

be found that a good deal of the unformed fruit has dropped off, and this in favourable seasons even, for occasions when the blossom has been cut off by a late frost must not, of course, be taken into account. Nature has, in fact, eased the tree of a burden it could not bear. It is therefore, to say the least, an open question, whether the trees which have been attacked would really have carried and matured, a very much heavier crop of fruit if they had not, apparently, suffered from the bullfinches' beaks in early spring. Exceptional cases, when trees with only a small show of fruit-buds have had most of them shorn off, must, of course, be excluded from this line of argument; but such cases, it is believed, do not often occur. After all, as Yarrell remarks, the effects of a late frost in destroying fruit is often laid to the charge of the bullfinch.

It is almost needless to repeat the warning, so often given, that a charge of shot fired into the young branches is far more injurious to the trees than the operations of several bullfinches; and the injury done by the shot is permanent.

The short period during which bullfinches can do any damage in this way must also be taken into consideration. All the rest of the year the bullfinches live away in the woods and fields, eating the hedge berries in their season, and, for the rest, consuming the seeds of many noxious weeds. The seeds of Groundsel, Thistle, and other composite plants, Dock, and Plantain, are eaten by bullfinches, and the writer recently watched a small party of these birds busily feeding on the ripe seeds of the

perhaps most, of them do some harm, more or less, yet the damage is often very slight, and always confined to a more or less limited period of the year. On the other hand, evidence has in each case been adduced to show, that during the rest, or during the whole of the year, they are one and all rendering important services to the cultivator of the ground in destroying large numbers of insects, or the seeds of weeds difficult to extirpate and most injurious to the land.

Several of our small birds have been intentionally omitted from this article, because their harmless and beneficial nature must be evident to everyone who has for one moment considered the question. The swallow family, the chimney-swallow, and the house and sand-martins, it is needless to say, are more particularly alluded to. And to these may well be added the swift, nightjar, and cuckoo. Several of the species previously treated of are absolutely innocuous, and largely beneficial, and among the hard-billed birds none can be more highly commended to the notice of the agriculturist than the goldfinch.

We can protect our crops from small birds, but without the latter we should be powerless to check the ravages which would be committed by the swarms of slugs, snails, caterpillars, and injurious grubs and insects, which would soon overrun our gardens and fields were the ranks of our feathered agents materially thinned. Let this be our rule, then, to protect our crops from the birds when absolutely necessary, and at the same time to protect the birds which do for us what we could not possibly do for ourselves, namely, prevent those crops from being eaten up by the teeming hosts of insect life. The birds will also materially help to keep our fields free from weeds, and we in return must not grudge them, in hard weather, a portion of the cereals they have helped to raise. O. F. Aplin, Member of British Ornithologists Union.

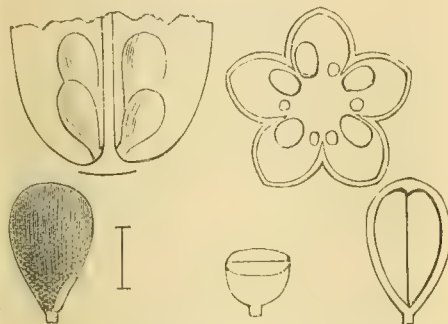


FIG. 35.—THE KIEFFER PEAR, DETAILS OF THE
OVARY, SEED, &c. (SEE P. 141)

GARDENIAS.

THE species of *Gardenia* most commonly met with are the double forms of *florida* and *radicans*, the latter with smaller leaves and flowers than the former. In the *Botanical Magazine* no fewer than fourteen species are figured, but few of these are met with outside botanical gardens. The single form of *florida*, introduced long after the double, was figured in the *Botanical Register* in 1820, and was the first figure that had been published; it is described as the Cape Jasmin, and is said to be a native of China, Cochinchina, and Japan. The double form was found by Captain Hutchinson, "near" the Cape of Good Hope, about the middle of the last century—probably as a cultivated plant. He brought the plant home in a pot, and it was preserved in the collection of Robert Warner, Woodford, Essex. A Mr. Gordon, nurseryman, obtained layers of this plant, and by propagating it largely, he is said to have pocketed £500. *G. radicans* is not now so much grown as *florida*, the flowers being, perhaps, of less pleasing form, but it is very sweet and free to flower, the period of bloom being longer than is the case with the latter. *G. Rothmanni*, introduced from the Cape in 1774, has white flowers spotted with purple, which preserve their perfume in a dried state. *G. Stanleyana* is a striking and desirable species from Sierra Leone, the flowers are tubular, 9 inches long, and of a dark purple colour externally, and internally white with purple spotting; it is a handsome stove shrub. *G. Fortunei* is a large-flowered form of *G. florida*.

Grown in the stove with good management, and keeping the plants clean, *Gardenias* will produce flowers freely. The plant is easily propagated by cuttings taken early in the year, if with a heel attached all the better; inserted round the rim of a 5-inch pot of sandy peat, and plunged in gentle bottom-heat in a frame or under a hand-glass, the moisture being wiped off the glass daily. This seems to be necessary in all cases when cuttings are placed under a close hand-glass or light, the removal of the light admitting also fresh air to the

Meadow Sweet (*Spiræa*). Mainly on account of the retiring lives led by these birds during a great part of the year, and especially at the time when they are engaged in rearing their young, less is known of their diet in the height of summer than of most birds. But it is highly probable that they feed their young to some extent on insect food, if they do not resort to it themselves just at that season. The late Mr. Edward Newman, formerly Editor of the *Zoologist*, details a strong piece of evidence respecting the insect-destroying merits of the bullfinch. Writing, in the periodical just mentioned, of the larva of *Cheimatobia brumata*, he says:—"The apterous female of this very common species lays its eggs in the crevices of the bark of various trees and shrubs during November and December; the larvæ make their appearance in early spring, and commence their destructive career by eating into the young unexpanded buds. At this time of the year the bullfinches and titmice render the most important service to the gardener by their activity in devouring this little garden pest." The late Mr. H. Stevenson, of Norwich, remarks upon the fondness of the bullfinch for the seeds of Thistles and other noxious weeds, and quotes an account of one individual in confinement having eaten 238 seeds of the Spear-plume Thistle in about twenty minutes, although plentifully supplied with Hempseed.

In reviewing the food and habits of feeding of our miscellaneous small birds, and endeavouring to form an opinion as to their merits or demerits in relation to agriculture, it will be found that while many,

cuttings. So freely do the plants grow when once they are rooted, that cuttings put in during January will form small flowering specimens the year following. They require a warm moist atmosphere, and to be freely syringed twice daily in summer time, the water to be applied with force to dislodge insects.

Young plants are rapid rooters, and should be repotted as soon as they require it, and kept near the glass without shade—one reason that Gardenias do badly in a house of mixed plants. Those gardeners who have to keep up a supply of Gardenia flowers of good quality, should plant them out in a small house, in a bed such as is usually prepared for Cucumbers. If the bed is, say, 4 feet wide, two 3 inch hot-water pipes should be fixed in the bottom, and some broken bricks placed over these, and then the compost for the Gardenias consisting of one part good yellow loam, and two parts fibrous peat, with a small portion of rotten manure. The plants may stand a yard apart in the middle of the bed. It is astonishing how freely plants so treated will grow in a temperature of 65° as a minimum; 60° in winter. When the plants are growing in summer, syringe them overhead, and water them at the root freely, shutting up the house in the afternoon with a steaming atmosphere. The temperature may at that time be 90°, less or more according to the weather. When the plants are well rooted, top-dress the bed with stable manure twice during the growing season. *J. Douglas.*

FORESTRY.

SEASONABLE WORK.

RECENTLY-formed plantations on heathy soils on hills occasionally require a good deal of attention at this season of the year. During a snow storm, the snow in many cases is apt to be blown against dykes and fences to such an extent that the surface of the snow forms a sloping level from the top of the dyke to the surface of the ground, and when the snow becomes firm on the top, it becomes easy for deer and sheep to enter the plantation and browse upon the leaves, twigs, branches, and leaders of young plants. In order to counteract this state of things and save the young trees from damage, the planter should lose no time in setting his men to make a cutting in the snow along the outer side of the dyke or fence, so as to form a wide chasm over which the animals cannot leap into the plantation. By neglecting to do this important operation in time, many a young plantation has been all but ruined in the young state.

Although many of the plants may be covered with snow, yet when the deer are pressed by hunger they break the hard icy surface of the snow with their feet to get at the green plants, which they eat greedily. In cases where the white mountain hare and rabbits are destructive, I have found it a very good plan to cart a lot of green Fir branches from established plantations, and scatter them here and there along the margins of newly-formed plantations, to attract their attention and afford them a supply of food, and prevent them from nibbling the young plants. Hares and rabbits not only eat the leaves, but they gnaw the bark from the branches, and leave them as bare as bleached bones. This is an effectual way of saving the trees, and if the supply of branches is kept up during a snow-storm, very few will suffer damage, as they, the green branches that lay on the ground, are always preferred. I have known the white hare in hard weather bite off the tops of Larch and other trees above 4 feet high, and leave them on the ground, which is very provoking.

When it is under contemplation to extend the plantations on Heather ground, the rank growth of Heath and surface Scrub had better be burnt several years before planting is commenced, as the plants always thrive best when the Heath is only some 6 or 8 inches high. Bare new-burnt ground affords no shelter for the plants, consequently many

of them are liable to perish on land at great elevation, and this explains the utility of preparing the ground beforehand when necessary. This burning may be carried out any time during winter or early spring, when the Heath is sufficiently dry, and continued, when necessary, up to April 10, when grouse generally begin to nest. This time, however, may be extended some ten days or a fortnight, when the proprietors in the district are agreed on the subject. The cones of Scotch Fir, Larch, and other hardy coniferous trees are now thoroughly matured, and may be collected in dry weather.

About fifty years ago, the cones of the Scotch Fir were generally collected in the natural forests in the month of February, but in many cases they are now collected in autumn. I, however, prefer the former date as it agrees better with Nature's time of selection, and gives the best results. The best Scotch Fir plants I ever raised were the progeny of seed gathered in February, and extracted from the cones by the heat of the sun during March and April. The largest size of cones are generally to be found on trees that have not reached mature age and made heart-wood. The leaves of young trees are strong, sharp-pointed, and stand stiff out from the branch or twig, and the cones are of larger size and sharper pointed than the produce of old trees. When the Scotch Fir begins to make heart-wood, the leaves gradually become smaller and to lie flat on the branch, and are soft and silky to the touch; the cones likewise become smaller, in consequence of which the larger cones of young trees are better.

With regard to Larch, seed collectors should be very careful not to gather cones from diseased trees, or such as are affected with ulceration on the stems and branches. Although such trees often produce large quantities of cones, the seed is not to be depended upon to produce healthy trees, and should therefore be avoided. The cones should only be gathered from trees that are known to be of sound constitution, and growing upon soil suitable for their full and healthy development. I have never found the Larch to be affected with ulceration in Ireland, and therefore I prefer seed from that country. *J. B. Webster.*

PEDIGREE ONIONS.

THE remarkable exhibit of Mr. H. Deverill, Corn Hill, Banbury, at the Royal Horticultural Society's meeting on December 8, caused a good deal of remark from the visitors, for it is seldom that so large a quantity of enormous bulbs have been seen at any exhibition. During thirty-one years he has been much interested in the selection of varieties and the cultivation of this valuable vegetable. It is ten years ago since he put into commerce the famous Rousham Park Hero. Previous to that the Banbury Onion had made its mark, and carried off first prizes at almost every show of any importance, twelve bulbs weighing 12 or 14 lb., was, at that time, considered a first-class achievement; one of the most noted growers of that day being Mr. George Ward, gr. to A. Tawney, Esq., Wroxton, and now of Oxford. As is well known, the Banbury Onion was a large, flat type. This was crossed with some pollen of some fine bulbs of the Brown Globe variety, and after a few years selection the outcome was the Rousham Park Hero, which soon led the way, notably at the Great International Show, held at Dundee, where nearly forty lots of Onions of all kinds, winter and spring sown, were entered, and had to lower their colours to the Hero.

Even that fine Onion, Cranston's Excelsior, was beaten. The result of the cross was an Onion larger in circumference, and many single dozen bulbs have been staged, scaling 16, 17, 18, and 19 lb. respectively. The heaviest, handsomest, and largest bulbs ever put up were grown by Mr. Bowerman, gardener, Hackwood Park, Basingstoke, and weighed 20 lb. This Onion, the best which can be grown for exhibition and main crop purposes combined, is a good keeper, and of very mild flavour.

The next venture was the purchase of the Wroxton

from Mr. Finlay, late gardener of Wroxton Abbey Gardens, Oxon. This variety was the result of a cross between Magnum Bonum and the Improved White Spanish—a kind of flat-oval type, and a good keeper; in fact, Mr. Deverill says it is the best keeping variety, and as it only grows from 8 oz. to, say, 16 oz., there is no better sort for general crop or market purposes. With care it will keep until Onions come again. Mr. Deverill has, by continual selection, arrived at a beautiful egg-shape type in this Onion. Those shown at the Drill Hall recently were perfect models, and were correctly described as the Improved Wroxton. Mr. G. T. Miles, of Wycombe Abbey Gardens, a noted man in all matters pertaining to vegetables, speaks in the highest terms of this stock. Another now popular stock is the Anglo-Spanish, brought about by the pollen of a very fine specimen of the imported Spanish Onion, crossed with the Reading Onion by Mr. G. Neal, gardener to P. Southby, Esq., Bampton, who laboured assiduously for no less than fifteen years to bring it to a standard type, and thus we get a much deeper-fleshed Onion than Rousham Park Hero, and one that is as large. Those shown at the National Vegetable Conference in 1889 were wonderfully fine specimens, weighing from 1½ to 2 lb. each.

The next one to make its mark was a seedling, shown by Mr. Finlay, when gardener at Lees Court. This was exhibited at one of the Royal Horticultural Society's shows at South Kensington, and was awarded the 1st prize for the best new Onion. It weighed exactly 8½ oz. more than the nine bulbs of Anglo-Spanish. This stock had been obtained by crossing a very perfect Spanish Onion from a shop with another variety, the outcome of which was a deeper-fleshed Onion than Anglo-Spanish, which, in other respects, it very closely resembles. Mr. Deverill purchased the stock—some eleven bulbs; and Mr. C. Ross, of Welford Park Gardens, Newbury, having suggested that it should be named Royal Jubilee, such was done. Only put into commerce last year, it secured many admirers, and will doubtless be more heard of in the future. Ailsa Craig, a seedling raised by Mr. David Murray, Culzean Castle Gardens, Ayrshire, was shown by him at the Royal Caledonian Show, Edinburgh, and Mr. Deverill, who noted its distinctive characteristics, secured the stock at once. It may be best described as a very deep oval bulb, but some of the bulbs are almost globular.

Last year Mr. N. Kneller, gardener at Malshanger Park, Basingstoke, grew a dozen bulbs, which collectively weighed 30 lb., and this year he had a dozen which weighed 34 lb. Mr. T. Wilkins, gardener, Inwood House, Dorsetshire, who came prominently to the front in vegetable competitions in 1890, produced a dozen bulbs scaling 28½ lb., which is an advance from 8½ to 14 lb. in a dozen bulbs of this fine variety over Rousham Park Hero and Anglo-Spanish. The 160 specimens exhibited at the Drill Hall in December last were the finest that have been staged, the bulbs perfect in shape and of excellent quality, weighing on an average 1½ lb. each. At the Shropshire Horticultural Society's show at Shrewsbury, last summer (1890), it was shown in several collections, notably in that which took the first prize, and its superiority to other varieties was very apparent. Mr. Deverill informed me that it is very late in coming into flower, is a shy seeder, and that it will take many years to get a large stock of seed of it.

The Cocoa-nut is a selection of the original stock of Excelsior, and certainly the splendid specimens of the latter put up from time to time, and weighing 1½ lb. and 2 lb. each, bear very close resemblance to that variety. It is a fine variety for show purposes, but at present the seed is very scarce. On one occasion Mr. Deverill placed a fine selection of the type before the committee of the Royal Horticultural Society, and that body asked to have some seed sent to Chiswick for trial. The stock of bulbs was planted by Mr. Deverill for seeding purposes, but a wet summer prevented the seed from maturing, and

he had to begin again and repeat his selections, until now he has secured a very fine type of Cocoa-nut. Some splendid specimens were shown at the National Vegetable Conference by Mr. W. Pope, gardener at Highclere Castle, Newbury.

Still another grand stock has been put into the market by the raiser, Mr. T. Doberly, gardener at Wroxton Abbey. The stock passed into Mr. Deverill's hands, and a dozen perfect bulbs were shown weighing over 20 lb. It is similar to Anglo-Spanish, but deeper in flesh, and no better Onion of the type can be obtained for show purposes. Lady North named it "Lord Keeper," in honour of a previous Lord North, a former Keeper of the Seals, and who laid out the gardens at Wroxton. It is an Onion that has given much satisfaction to those who have grown it.

The latest type is Advancer, the result of a cross made by Mr. G. Neal, Bampton, Oxon—nearly all the good Onion men appear to originate in and

of soot and salt in February or March, and top-dressing of Thomson's manure several times during the growing season in showery weather, or when not showery, well watered in—not too much—will work wonders. No top-dressing should touch the leaves of the Onions, but it should be sprinkled thinly between the rows.

The Banbury soil is a stiff loam, and plots intended for Onions are prepared in the early autumn by manuring heavily with rotten manure, including cowdung and nightsoil, all of which are carefully spread over the ground together with soot—in quantity of about a bushel to the rod—and after a few days, weather permitting, the ground is trenched, and left untouched till March, when the ground is made level and firm, and the beds are formed. The seed is sown the first week in February, not in the open, but in boxes, placed in a cool vinery, and when about an inch high they are pricked out, 3 inches apart, into other boxes, and given a gentle

from a specimen forwarded to us by Mr. J. Heyward, of Crosswood, Welshpool, who favoured us also with an interesting communication, published in our columns on November 29, 1890. What the origin of the Pear is, we do not know for certain. Its peculiar, but to us agreeable, Quince-like flavour, external appearance, and internal construction, point to its origin as a hybrid between a Pear and a Japanese Quince, like P. Maulei.

NOTES FROM CASTLE HILL, ENGLEFIELD GREEN.

WERE it not for the fact that a little further on is Baron Schröder's magnificent collection of Orchids, there can be no doubt but that Mr. Swan, formerly of Fallowfield, and who now has charge of Mr. Raphael's gardens at Castle Hill, would be credited with the oversight of one of the best—perhaps the best—collection of Orchids between Windsor and London. Naturally, visitors to The Dell make that Orchid shrine the Mecca of their wanderings; not perhaps knowing that on the way thither they pass close to a very fine collection of some few thousands of pieces of all the best varieties, which merit more than ordinary attention from orchidists. Several large span-roof houses are occupied with Orchids at Castle Hill, but when the snow lay thick on the ground, and the thermometer stood at 20°, and the time of the year the month of January, it will be readily understood that it was not the best time to find many Orchids in bloom. Presently, the Orchids here will be worthy a visit, for they look remarkably well, are in great variety, and contain many choice forms. Nothing could have been warmer with the snow outside than in colour of a number of small pans of *Sophranitis grandiflora*, full of bloom. Hardly a livelier Orchid exists, though many are finer and costlier. There was in the *Cattleya*-house, a fine structure of 60 feet long, a grand piece of *Lælia anceps* carrying thirty spikes, and measuring some 3 feet over. That was, however, but one of many. Just throwing up flowers, there was a large and specially interesting collection of *Cypripediums* in another house, but the entire collection is better seen than described.

Mr. Swan mentioned, that even so far out of London, and at so great an elevation, fogs had done Orchids harm, and traces of the inevitable soot were plentiful enough. If the fogs are so injurious high up, how much more destructive must they be in low-lying positions! The whole of the Orchid-houses, it was noticed, are, on the roof, fitted with iron roller blind supports, so that the blinds are kept well off the glass; this is found to promote a current of air between the blinds and the glass, and is valuable in cooling the houses in very hot weather; the plan is worthy of wider adoption.

In one of the plant-houses attention was called to a very fine lot of *Callas*, in 9-inch pots, and having some three or four stout stems each; these are the product of outdoor planting in the summer, the clumps being broken up to two or three, as the case may be, and planted out in the spring into a trench well manured, and fed during the summer, and lifted into pots for house decoration in the autumn. The plants were all well rooted, had grand foliage, and carried very fine spathes.

In the same house a quantity of seedling plants of *Eucalyptus globulus*, varying from 3 feet to 6 feet in height, were pointed out as of exceeding use for house or room decoration in the winter; these were raised from seed sown in the spring, and grown on in pots of varying dimensions. Their pyramidal and graceful habits rendered them specially useful for many purposes, and, being fairly hardy, they withstood exposure better than many ordinary decorative plants. In another place on a high shelf, was seen a quantity of wire baskets, moss lined, filled with old scarlet *Pelargoniums* lifted from the beds. These are to form hanging baskets for corridors and verandahs, and are found so filled to be much better than are those filled with young plants. The

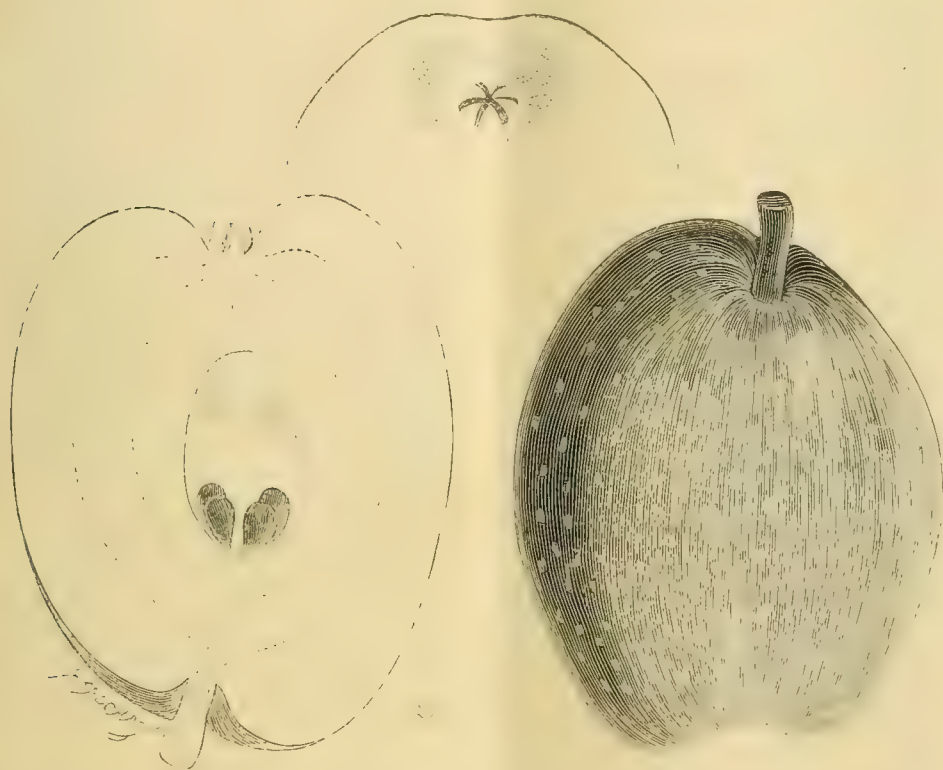


FIG. 36.—THE KIEFFER PEAR: SKIN DEEP GREEN, WITH LIGHT FLECKS; FLESH FIRM, WHITISH, MUSKY; SEEDS BLACK.

about the University! In type it resembles the Wroxton, but is rather flatter in shape, larger, and the skin whiter or silvery, and when fully developed it attains to a weight of 1½ to 2 lb.

The reputation of Mr. Deverill's Onions is maintained solely by his planting for seed purposes only the best bulbs of each variety, but these yield far less seed than smaller or medium-sized bulbs would do; thus, the small quantity of seed which is found in each packet sent out, but which, with good cultivation, is almost sure to produce large and handsome bulbs.

Mr. Deverill has paid as much as £2 2s. for twelve bulbs to plant for seed, and has himself received £6 10s. for eleven!

Mr. Deverill strongly advises the use of Thomson's Vine and plant manure in the cultivation of the Onion, saying that a good dressing afforded the soil in October, and trenching it in, and then a dressing

heat, with plenty of air, till they are 6 inches high, then placed in a cool frame, and the first or second week in April they are transplanted to the beds in rows 1 foot apart, and the same distance from plant to plant. They are not watered unless the weather be very dry at the time. Besides the top-dressings mentioned previously, the beds are mulched with rotten cow-dung or spent Mushroom-bed stuff, to prevent loss of moisture and the cracking of the soil in very dry weather. J. B.

THE KIEFFER PEAR.

This is a Pear which appears to be much better known in America than it is here. It finds no place in the *Fruit Manual*, but, according to our very limited experience of it, it is deserving a place therein. Our illustrations (figs. 35, 36) were taken

filling the baskets in the autumn, when the plants are lifted from the beds, saves time in the spring, and produces the best summer effects. A quantity of *Primula obconica* in bloom in one house naturally provokes the query as to any itching or eczema produced by handling the plants, but no such ills have ever been heard of at Castle Hill. Perhaps the poisonous effects of the plant species, as experienced by some gardeners, arise from diverse soils, or perhaps from unhealthy state of blood in the human body.

A very pretty drooping foliage plant not at all common, is *Aralia Chabrieri*, the leafage dark green and pendulous, and not unlike that of a narrow-leaved *Dracæna*. During the winter, the Vines in a range of houses have all had their roots disinterred and replanted in good soil; the drastic treatment was found needful because the wood and fruit results were found to be so unsatisfactory. Good effects are looked for during the present season as the product of this needful labour. Though not an extensive place, Castle Hill is an admirable garden none the less, and well worth a visit in the spring and summer months. Those who journey to The Dell may do worse than give Mr. Swan a call on the way. A. D.

FOREIGN CORRESPONDENCE.

HOLLAND.

The meetings of the Dutch Horticultural and Botanical Society for 1891 are fixed for the following days:—February 14, March 14, April 11, May 9, June 13, July 11, August 8, September 12, October 10, and November 14, being the second Saturday in each month. They are to be held in Amsterdam at the Zoological Gardens, from 11 to 4. There are three committees, one for flowers and plants, another for fruits and vegetables, and a scientific committee. The general committee of the Society also meets. The organ of this Society is the *Neederlandsche Tuinboublad*, of which Professor Dr. Hugo de Vries, of Amsterdam, became editor at the beginning of this year.

In 1889-90, thirteen meetings of committees were held, and a number of new and interesting plants were submitted, and some very fine collections of plants and flowers shown. It is reported that a record of the certificated plants will be published in French for distribution abroad. On February 28, the Society will hold a meeting at Haarlem for the discussing points of interest to horticulturists. The President of the Society is Mr. W. A. Viruly Vertigge, Member of Parliament, in succession to Baron W. van Goltstein.

An International Agricultural Congress will be held at the Hague in September of the current year, in response to an invitation from the Commission Permanent d'Agriculture, which was established at Paris at the Agricultural Congress opened at the World's Exhibition. Invitations are sent out to form an executive committee for this Congress, in which the leading authorities of Dutch Agriculture will participate. In the Commission Permanente Internationale d'Agriculture, the member for Great Britain is Mr. Clarke, Secretary of the Council of the Royal English Agricultural Society. *Our Own Correspondent.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

ROSES.—It is much to be feared that there will be many losses to deplore amongst Roses, and it will, therefore, be necessary to closely examine each plant to see which is killed or too much injured to remain, replacing them at once, or unsightly gaps will appear later. The Teas will have suffered the most, and it is well to be provided with a reserve of these in pits should there be any that will not start.

BULBOUS AND OTHER PLANTS IN ROSE BEDS.—Rose beds may be much beautified by planting amongst the Roses some of the bulbous and other plants, either to grow up and stand clear of the Roses or carpet the ground, *Gladiolus* and Spanish Iris being well adapted for the one, and *Anemones*, For-

get-me-Nots, Pansies, and such like for the other, as they do not take much from the soil. In planting the *Gladiolus* or Spanish Iris, the first-mentioned should be put in about 6 inches deep, and the latter 3 inches, giving both some sharp sand around them, as a preservative against the evils of excessive moisture.

LAWNS.—Continuous mowing naturally leads to poverty of soil, and weeds and moss take possession of the ground, and these should be eradicated, by cutting over the tops and dropping diluted oil of vitriol on the wounds. This should be handled carefully, and only just enough dropped into the crown of each plant to wet it, as more spreads and causes bare patches in the turf. On this account, some persons prefer to dig or grub the weeds, and if a suitable tool be provided, it does not take long to do this, unless the weeds are very abundant. The best way of dealing with moss is to give the lawn a good scarifying with an iron rake, which if well plied, will tear the greater part out, and after sweeping it up and cleaning it off, a top-dressing of wood ashes, soot and lime, mixed with fine soil, should be applied, which will stimulate and strengthen the grass and give it a rich green colour and make the lawn smooth. By-and-by, or even now before the top-dressing, it may be advisable to sow seed of lawn mixture of fine grasses, but if these lie long before germinating, a watchful eye is necessary to ward off birds, or they will eat the whole up.

PLANTING RHODODENDRONS.—Although I am no advocate for transplanting evergreens generally in the winter, I would not hesitate to advise the removal of *Rhododendrons* at that season, for they may be lifted with balls containing all their roots; and if these are matted round, and planted as soon as possible, they will open their flower buds almost as freely and well as if nothing had happened. Why *Rhododendrons* are not more generally planted and grown than they are, is from the prevalent impression that they will not succeed except in peat, which is a mistake, as in soils that are free from lime and have porosity, they do almost equally well, as I can show by those at this place. What is of much help to them, is a thick mulching of half-rotten leaves, to act as a manure and a protection against drought.

AZALEAS.—For sweetness of perfume and beauty, hardy Ghent Azaleas stand unrivalled, and they should be extensively grown; but many refrain from planting them on account of not having peat. Azaleas, though growing best in a peat soil, do very well in leaf-mould or sharp gritty loam, especially in situations that are partially shaded, and where they do not get very dry at the roots. A. mollis varieties, though not fragrant, are even more showy than the Ghent kinds, as they have larger flowers, with more variation of colour, and both are specially adapted for growing near the pleasure ground walks, or in borders in front of shrubs, or making beds or clumps on a lawn.

BEDDING PLANTS.—Turning from things outside to those that are in, bedding plants will now need early attention. *Pelargoniums* should be potted off forthwith in order to give them time to make plants of good size, as it is only such that produce good heads of bloom, and are effective in the garden. For bedding purposes it is not necessary or advisable to crock the pots, it being better to drop in a small quantity of leaf-mould on the bottom instead, where it helps to hold the roots well together, and facilitates the planting out. Alternantheras, Coleus, Iresines, and such like subjects that can be worked up quickly later on, should at once be placed in brisk moist heat for the purpose of obtaining young growths; and *Ageratums*, *Petunias*, *Heliotropes*, *Lobelias*, and any of that class, in a lower temperature to bring them on, potting them up from their store pots first, as then they will break freely, and produce plenty of shoots.

SWEET PEAS, &c.—These are of such value for cutting that they should be largely grown, the finest strain being Eckford's. To have a succession, it is necessary to sow at intervals, and a few seeds should be sown at once, giving them a good depth of soil, so that they may be able to withstand drought.

ANEMONES.—It is hardly possible to say too much in favour of these, especially the Poppy or Coronaria section, which produces splendid flowers. Roots of these should be planted at once, and seed sown, the first-named for blooming in spring, and the latter for coming in next autumn and winter. The best way is to sow in boxes filled with light soil, and place them in gentle heat, and thus raise the plants early, and fit to plant during May.

PENTSTEMONS AND ANTIRRHINUMS.—The winter has been such that few old plants of these outdoors will have escaped, but by sowing now in a warm house or pit, and nursing the plants under glass, they will be strong enough to flower early, and will make a fine display all through the late summer and autumn. J. Sheppard, Woolverstone Park, Ipswich.

THE ORCHID HOUSES.

DENDROBIUMS.—The wintering or resting period of *Dendrobiums* and other species of Orchids, is usually looked upon as a time when the plants require little attention, which is a mistaken notion that is soon made apparent, by the unhealthy state of the plants, in the growing season by the small growth, and in the flowering season by fewness of flowers. Great numbers of *Dendrobiums*, in my opinion, are ruined by the treatment afforded them whilst resting. The drying off practised with *Dendrobies* is, perhaps, responsible for the loss of more plants than any diseases they are subject to; and the plants are liable to bad treatment in other respects. To see evergreen *Dendrobiums*, as *D. chrysodorum*, *D. densiflorum*, stinted of water till the foliage turns yellow, and the pseudobulbs shrink up, is, or ought to be, sufficient evidence to the most careless observer that the treatment causing such results is not the one most conducive to strong growth or fine blooms. And yet this is the method of culture adopted by many Orchid cultivators. I have found for wintering of evergreen *Dendrobiums*, that as soon as the new growths are finished in summer, the plants should be immediately taken to a cool, and airy house; in our case an early vinery is made use of, from which the fruit has been removed, and the plants thoroughly ripen the growths made. Water is given them whenever it appears necessary, that is, before the pseudobulbs begin to shrink. A temperature of 40° during the winter is kept, and that is found to be sufficient to save them from injury. The plants send out more flower spikes if treated thus, and the growths which follow are correspondingly robust. Deciduous *Dendrobiums*, too, are likewise kept to dry by some growers in the winter months, with the result that the roots, to a great extent, are killed. *Dendrobiums* which are wanted for exhibiting should be staked-out now so that the flowers, when they push out, will stand out in proper form. Hanging plants of such things as *D. Wardianum*, which flower with the growths hanging down, lose much of their beauty if stood in flower-pots and staked-out, the flowers all appearing upside down. I last year saw at an exhibition some Orchids from a competitor who was distinctly the winner of the 2nd prize, who, had the whole of his *Dendrobies* been treated in the manner described, and who would undoubtedly have been 1st had he trained them differently. The weather has at last changed, and a few degrees more heat, with a commensurate amount of moisture, may be given with safety in each division. A. G. Catt, Parkfield, Hallow.

FRUITS UNDER GLASS.

MELONS IN POTS AND PLANTED OUT.—I gave a few notes on the 3rd inst., as to the advisability of sowing seed of Melons for early fruiting, and assuming this advice was followed, the seedlings will now have true leaves and be ready to be shifted into 5 inch pots, using a compost of turfy loam in a coarse state with the turf fibre left in it. This soil should be of the same temperature as the frame in which the plants have stood. The greatest care is necessary when potting Melons at this season, the plant being exceedingly liable to injury from pressure of the hands in potting, and also from cold air. Anyone may pot off Melon plants in a few months hence, but at this season the utmost care is needed. If the seedlings are standing in a pit in which the operator may stand and do the work, there is little danger, but when they must be brought from a dung-bed frame, it is best to put them in a close box and bring them into a hot-house for the performance of the repotting. Much has been written concerning the relative advantages of Melon culture in pots and in beds; for early fruiting, my preference must be given to the former if the proper degree of bottom heat can be maintained continuously, and that is only possible with hot-water heated beds. Indeed, Melons in pots are best at all seasons if the pits are large and lofty, as the roots being restricted early fruiting is thereby secured.

Melons, on the contrary, when planted out in rich compost make a great deal of growth, and in consequence the flowers are difficult to set and the fruits to

finish well. Use large pots, not less than 16 inches,—and they may be larger, with big holes in the bottom to admit of the quick passage of the large quantity of water which has to be afforded the plants when the fruits are swelling. The warmth enters the ball of earth better by these big holes than would be possible with small ones. The flavour of the fruit depends in a great measure on the kind of compost employed. I think that if too much manure and too light a soil are used for some varieties they scarcely set a fruit; and I do not suppose that the old recipe of using a strong loamy soil from an old pasture can be beaten. This soil should have been stacked for a year, and on preparing it a liberal quantity of old mortar rubble should be well mixed with it, and, in filling the pot, it should be made very firm. The better this work is done the less difficulty there will be in setting the blooms. If the loam is sandy or light, mix some clay with it that has been stacked, and which should be broken up into small pieces with the spade, and thoroughly incorporated with the loam. Dry cow and sheep dung are capital fertilisers for Melons, to be applied when the fruit is set; or even mixed with the soil if the loam is not good. I prefer them for manure water to any other.

The young Melon plant must be kept free of aphides, these insects causing much mischief. Place one plant in each pot, and make the soil firm about it, keeping the top of the ball nearly level with the rim of the pot; let the plants be as near the glass as possible. The soil for beds should be similarly prepared. Seeds may be sown for succession every three or four weeks.

Stake each plant at planting, the stake reaching up to the first wire or support over which the plant will be trained. Very little water will be required for some time after one good watering at planting has been afforded. Night temperatures of 65° to 70° in mild weather, with a rise of 10° to 15°, or 85°, by day. Ventilation must be carefully done, and air should be taken off early so as to retain sunheat; keep the house damped down according to the weather. I admit a little fresh air daily when the temperature rises to 80°, and by doing so the plants are strengthened. Moisture must be kept from lodging about the stems and crowns of the plants, or canker may ensue, followed by the death of the plants. Ashes and fresh-slaked lime are sometimes used on old plants as a remedy for this; but with young plants this will not be required. *G. Wythes, Syon House, Brentford, W.*

PLANTS UNDER GLASS.

BOUGAINVILLEA GLABRA.—No doubt this is the best and the most free-blooming species of Bougainvillea. Plants that have been at rest should have the soil, which has probably become by this time quite dry, thoroughly soaked, and if they are in pots, this will be best performed by putting the pots into a tub containing sufficient tepid water to cover the pots, letting them remain in the tub for two or three hours. This species does well in an intermediate-house, and succeeds well either planted out in the border or in a pot; and when grown in the latter manner they may be taken to the conservatory or greenhouse, after they come generally into bloom to prolong their season. By starting pushing on the plants early in the year, placing them at the warmer end of the stove, they may be got to bloom twice in the year. The night temperature at starting may fluctuate between 60° and 70°, syringing them once or twice a day according to the outside temperature until they begin to show for bloom. Before starting the plants, cut away all the weak shoots, as it is only the young strong growths that will bloom. Plants in large pots or tubs will require to be turned out, and have some portion of the old soil taken off, and repotting them in soil consisting of fibrous loam of good quality, with sufficient sand to keep it open; and when the plants have got freely into growth, they will require plenty of water at the roots, and great care taken not to allow them to become dry. The plants should have as light a position as possible.

CALADIUMS.—It is advisable to pot a portion of the stock of these tubers at different times, so that their season may be a prolonged one. Preference should be given to the strongest tubers for this the earliest potting; and the soil may consist of equal parts peat and loam with plenty of sharp sand, as during the growing season a liberal supply of water is required by them. The sizes of the pots used will depend on the size of the tubers to be potted, always giving them sufficient root-room at

first (but not placing them much below the surface), so that no repotting will be required during the season. When potted, a night temperature ranging from 60° to 65° may be afforded them, and very little water will be required till they have commenced to throw up their leaves, when they should be placed as near the glass as is desirable, taking care that they are shaded during bright sunshine.

BOUVARDIAS.—Old plants which after flowering were cut back, and have made two or three inches of growth, should now be shaken out and repotted, the size of the pots depending on the size of the plants; 6 and 8-inch pots are the most useful sizes, but if large plants are required for conservatory decoration, 9 and 10-inch pots may be used. These plants enjoy a good rich soil, consisting of turfy loam, peat or leaf soil, and a little rotten manure and sharp sand to keep it open. After repotting, keep the plants in a nice genial growing temperature.

It is always advisable to strike a batch of cuttings every season, and the present is a good time to take them, the old plants having made some fresh growth. The cuttings may be two or three inches in length, and inserted either in pots or pans filled with loam and peat, and surfaced with sand. After water has been given, they may be placed in the propagating pit, in a temperature from 70° to 75°, and in the course of three weeks' time, they will have made roots, and should be gradually hardened off before being potted off singly in small pots, using the same kind of soil as recommended above, and keeping them close for two or three weeks; and after they have taken to the fresh soil, they may be placed in a light position. As growth proceeds, stop the shoots occasionally, so as to cause them to break and form dwarf sturdy plants. *R. Milner, Penrice Castle, Swansea.*

THE KITCHEN GARDEN.

CURRENT WORK.—Work which has been delayed by the frost, such as trenching and digging, should be pushed forward the moment the ground is firm enough to bear the men upon it. It is important to have the plots for the main crop of Onions heavily manured and deeply trenched, where that is advisable, so as it may be got into good tilth before sowing time arrives. Root crops should, generally speaking, follow a crop of another character for which the soil was heavily manured, the ground being deeply dug only, but no manure employed; a deep, well-pulverised soil, free from large stones, is one of the chief points in growing clean handsome roots.

RHUBARB.—Where much Rhubarb is forced, it is necessary to make fresh plantations—not necessarily large ones—annually. Providing the ground has been prepared by deeply trenching, and liberally dressing it with manure put in the bottom of each trench, and it is in a fit state for working, planting may soon be taken in hand. A well-drained sunny position should be selected for the plantation, and strong roots with a single bud should be employed, preference being given to those which are large and well developed. Plant these pieces, if large growing, at 3 feet 6 inches apart each way, and early varieties at 2½ feet. The plantations should make one season's growth before any stalks are pulled, and it would be still more beneficial if two years could elapse before pulling took place or any were used for forcing.

HORSE-RADISH.—To obtain large succulent roots, my advice is to plant annually, choosing a piece of good ground open to the sun. In preparing the plot, trench it two or more spits, and put a heavy dressing of rotten manure at the bottom of the trenches. When the ground is in a fit state for planting, it should be trodden moderately firm and raked evenly, drills being then drawn at 15 inches apart. The sets should be young straight pieces, 1 foot long, with a single crown on each, and these should be dropped into holes made with a long dibble to their full length, so that the crown is 1 or 2 inches beneath the surface, not filling in the holes. During the season the ground should be kept clean, and the plants confined as much as may be practicable to one crown, surplus ones being removed early; any time from the present until the second week of March is a good time to plant. In digging the roots, it is best to dig up the whole bed at once, and store the roots in sand or soil, selecting at the same time sufficient sets for the next planting. In shallow soils the narrow bed and alley is a good way to get

long sticks of Horse-radish, by this means 9 inches may be added to the natural depth of the land. *Ed.]*

STORED ROOTS.—These will have to play an important part in the supplies during the next three months, owing to the general destruction of green crops by frost, and they should be preserved most carefully. Where they are stored in large heaps, these should be examined, and unsound roots removed, replacing the remainder in damp sand. Onions beginning to sprout should be picked out for present use, as they create moisture round about them, and cause growth in others. Put the soundest bulbs in dry, airy stores.

Potatoes for seed require to have the surplus shoots rubbed off, and laid in one layer on floors or shelves in cool but frost-proof places. I find that our early kinds are sprouting fast; the longest shoots must be pulled off, and two, or in some cases only one, being left on each tuber. Late varieties show no sign of sprouting, and when they do, all but a couple of eyes will be rubbed off. *C. J. Waite, Glenhurst, Esher.*

THE HARDY FRUIT GARDEN.

PLANTING TREES, &c.—Planting of all kinds should be pushed on when the ground can be properly worked, except on land that is heavy, and consequently the better for waiting a little time. See that the wall trees have good drainage, especially stone fruit. The soil should be made very firm about them, loam with some mortar rubble being employed in the staple, and in heavy soils some burnt earth may be employed advantageously. Plant the trees of all kinds sufficiently far from the wall to allow for the increase of size in the stem. Before planting cut off all damaged roots, spread them out in all directions, and at various depths; shake the finer soil over and amongst them, gently raise the tree, and cover the roots to the level, or rather above it, of the surrounding ground. Some temporary fastening may be needed to keep the tree in place until the ground sinks finally. The soil around these trees should again be tramped in March or April, and the trees fastened properly. Those about to plant may select some of the following Peaches:—Hale's Early, Abec, Dymond, Alexandra Noblesse, Grosse Mignonne, Stirling Castle, Goshawk, Bellegarde, Barrington, Walburton, and Admirable; and for early varieties—Waterloo. There are other good Peaches deserving of a place where there is space. Nectarines Elruge, Stanwick Elruge, Pitmaston Orange, Pine-apple, Humbolt—and for an early kind Lord Napier. For filling the walls quickly with fruitful Pear-trees bearing large fruits, the upright or oblique cordon are valuable modes of training, and these may be either double or single-stemmed. Borders devoted for many years to fruit trees should have much of the old soil removed, replacing it with sweet pasture loam one year cut, and old mortar and burnt earth; and for the first time a space of 3 feet wide and 2 feet deep will be enough to deal with. For single-stemmed trees, 18 inches apart should be the distance allowed, doubles 2 feet, or a little more. Where wall space is very limited, cordons may be planted in lines in an open position, and trained to wires obliquely, similar to Raspberries. The fruit produced on these trees is usually fine in colour, large in size, and the flavour excellent. It is a mode of training the Pear and Apple that is much to be recommended. Should fruit trees arrive from the nursery with dried roots, sink the whole of them top and bottom in water, for some hours, before planting them, trees not infrequently dying from neglect of this precaution.

APRICOTS.—These being the first to bloom, should be pruned and nailed first, making use of planks for the men to stand upon when doing the work. Lay in a sufficient number of shoots to fill up gaps, and take the place of worn-out branches that are cut out; and young wood, it should be remembered, producing the finest fruit. Cut back foreright shoots to two visible buds, and endeavour to secure a large number of fruit-spurs close to the wall. Use roomy shreds or ties, so that when the wood swells the bark will not be injured. Young trees that may have made very strong growths last year should have their long shoots shortened back to the more thoroughly ripened portion of these. Top-dress the roots after the pruning, nailing, &c., are completed, a portion of the top soil being removed and replaced, as with Pears, but do not disturb the roots much in doing this. Soil which is light should be dressed with cow-manure, *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Advertisements should not be sent to the Editor, but to the Publisher.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY, FEB. 5.—Linnean Society, at 8 P.M.

SALES.

MONDAY, FEB. 2 { Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY, FEB. 4 { Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.
Lilies, at Protheroe & Morris' Rooms.
THURSDAY, FEB. 5 { Lilies from Japan, at Stevens' Rooms.
FRIDAY, FEB. 6 { Orchids, at Protheroe & Morris' Rooms.
SATURDAY, FEB. 7 { Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—39° 2.

Burnt Earth.

THE value of properly-burnt earth in the cultivation of plants is, we are glad to see, attracting the attention of our correspondents. The matter was on this occasion first broached at one of the recent meetings of the Scientific Committee of the Royal Horticultural Society by the Rev. C. WOLLEY DOD, whose experience with this substance gives great weight to his pronouncements. For mixing with stiff clay, such as is so common in the London district, it is invaluable, promoting drainage, supplying potash, and, as it seems, retaining ammonia and other plant-food in the most serviceable form, and the fittest for absorption by the roots. In some comparative experiments recorded several years ago in the *Journal of the Royal Horticultural Society*, the present writer showed conclusively the great value of the substance, as shown by the large development of root-hairs in the case of seedling plants. A great deal depends, of course, on the friable and porous nature of the burnt earth, but even when over-burnt and consequently hardened, much of the evil is remedied by crushing it and sifting out the coarser lumps, which are most useful for drains and the foundation of garden paths. We have been accustomed to use the ordinary "ballast," made by the builders round London for their purposes. Properly sifted, this answers every purpose.

Few of our correspondents who have favoured our readers with their ideas about the preparation and use of burnt earth, have pointed out its uses in the culture of plants in pots and tubs. It is in this respect that the substance has great value when it is mixed with the ingredients, used in the proportion of one-eighth to one-sixth of the whole.

Its action seems to be both mechanical and nutritive—in the former, by adding to the porosity of the soil, and inducing thereby the greater ramifications of the roots, as these always follow the water channels in the soil. It also retains moisture in the soil, but in less degree than does charcoal, and is of great advantage when the body of soil is small, and therefore very liable to get dangerously dry. In a nutritive way the burnt earth may contain earthy salts, such as potash liberated by burning, that are of value as plant-food, but that would in a great measure depend on the constituents of the soil before burning.

To Camellias, Oranges, Ficus, Banksias, Telo-peas, Eugénias, Boronias, and most species of New Holland plants, it is very beneficial, and to many of those from the Cape except Heaths and Australian Epacris, which do not seem benefited by its use; but on this point we think fuller information is needed. Cactus, Begonias, Ferns, Hoyas, Passifloras, Gardenias, &c., grow well for a long time in soils which contain it, as do such semi-aquatics as Cyperus, Richardia, and Philodendron, species that require much moisture and a free soil.

Plants which suffer from damp in our winters, when placed in cold pits or frames, as Violets, Echeverias, Lettuces, Calceolarias for bedding out, Mignonette in pots, escape much of the injury from this cause if, in the case of things planted out, the soil be covered with burnt earth of a loamy nature, or when by almost filling the pots if they are potted. The layer of nodules—for the finer portion should be removed by sifting—keeps the surface of the mould in an uniform condition as regards moisture, and roots are attracted thereby to the surface, which is of much benefit in the case of Violets wanted in bloom at an early date, and can be of no detriment in any other.

There is one other point which is worth mention, and that is the alleged influence of this substance in inducing variegation. The late SIR FREDERICK POLLOCK, who was a good observer, a great lover of horticulture, and who collected and cultivated all the hardy variegated plants he could find, was of opinion that burnt earth had a great effect in inducing variegation. Our own experience, on the same soil as SIR F. POLLOCK's, by no means enables us to confirm his statement. For nearly twenty years a large mound of this substance has existed within a few yards of our windows, and has been under continuous observation with reference to this point. The heap has been for many years more or less covered in the undisturbed portions by the ordinary vegetation of the meadow, but on no single occasion has our search for a variegated plant on it been successful. We have also, as we have said, used it largely in the adjacent garden, both in the borders, for pot-plants and for raising seedlings, but entirely without result so far as variegation is concerned. We are inclined, therefore, to think that the results observed by SIR FREDERICK POLLOCK were accidental coincidences.

ATHROTAXIS LAXIFOLIA.—We are enabled in our present issue to give an illustration (fig. 37) of what is, so far as we know, the finest specimen of this shrub in cultivation in this country. It is taken from a photograph by Mr. Sherring of a shrub growing in the garden of J. Rashleigh, Esq., of Menabilly, Cornwall. As seen in well-grown specimens it is decidedly handsome, the foliage being of a clear Apple-green. Mr. Rashleigh's plant is some 12 feet high, a perfect pyramid, feathered to the ground. Judging from its condition near London,

we should not recommend it for general cultivation, but only in the warmer counties and in sheltered localities. The names of the species of this genus have been cruelly confused, but in our volume for 1888 (November 10, p. 544), we endeavoured to remove the confusion, and we have at various times given illustrations of all three species.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are glad to learn that Sir W. H. SALT, Bart., of Maplewell, Loughborough, has sent a donation of £50 to the funds of this useful Institution.

LINNEAN SOCIETY.—At the meeting held on January 15, Professor STEWART, President, in the chair, Messrs. W. A. CLARKE and C. McRAE were admitted, and the following were elected Fellows:—Messrs. L. FIELD, E. S. GOODRICH, H. S. STREATHFIELD, J. SYMONS, and C. WILSON. The President exhibited a bunch of Holly berries, which were remarkable for being perfectly black instead of red, but which in no other respect looked abnormal. The peculiarity was attributed to the effect of a fungus. On behalf of Mr. THOMAS KIRK, of Wellington, New Zealand, the Secretary read an interesting report of a botanical visit to the Auckland Islands. At the evening meeting of the Society to be held on February 5, at 8 P.M., the following papers will be read:—"The Tree Ferns of Sikkim," by J. GAMMIE, jun.; and the "Life-history of two Species of Puccinia," by A. BARCLAY.

WILLIAMS MEMORIAL FUND.—At a meeting of the committee, held on Wednesday, January 28, Dr. MASTERS in the chair, it was resolved:—(1.) That the sum of £250 be offered to the Gardeners' Orphan Fund, to enable two orphans to be at once placed on that Fund as B. S. Williams Memorial Orphans, and that Mr. HARRY WILLIAMS be requested to undertake the nomination of the orphans. (2.) That the balance of the sum collected (£227) be devoted to the establishment of B. S. Williams Memorial Prizes, in accordance with the terms of the appeal originally issued.

HOME NURSERYMEN AND COLONIAL SOCIETIES.—We extract the following from a letter, which was addressed to us by Mr. HAVILAND REYNOLDS, Secretary of the Horticultural Society of New South Wales:—"I would suggest the great advantage it would be to horticulturists generally if the nurserymen and seedsmen were to send a few copies of their catalogues to the horticultural societies in this colony for reference by the members. The Society of which I am the Secretary, is particularly anxious that this should be done by them, and I am desired to ask on their behalf that you will kindly give publicity to this wish. My Society, with a view to watching what is being done on your side of the world, would be very glad if the horticultural societies of the old world would kindly send them their prize schedules as issued."

THE EDINBURGH CHRYSANTHEMUM SHOW.—We have just received the "preliminary" prize list of the Chrysanthemum show to be held by the Scottish Horticultural Association, in Edinburgh, on November 19, 20, and 21 next. A note on the schedule intimates that a complete schedule will be published as early as possible, the present issue being merely prepared as a guide to intending exhibitors. There will be many special prizes, no doubt, added, to swell the attractions of the complete schedule, and it need only now be noted that the "City of Edinburgh Prize," namely, a Cup, value £20, with 2nd, 3rd, and 4th prizes, of the value of £10, £5, £3, and £2 respectively, for forty-eight blooms, not less than thirty-six varieties, forms the leading feature in prizes for cut blooms. The next prize in importance is the "Scottish Challenge Cup," to which are attached valuable money prizes. In all departments the prizes are on the same liberal scale as formerly. A novel feature is introduced in the shape of a prize open to all, for a table of garden produce, 20 feet by 5 feet, consisting of plants, flowers, fruits, and vegetables, quality, variety, and effect being the determining considerations.

CONCERT IN AID OF THE GARDENERS' ORPHAN FUND.—On Thursday evening, 22nd inst., a fairly large audience assembled in the Constitutional Hall, Chertsey, to hear an excellent concert in aid of the Gardeners' Orphan Fund. The local

deners' Orphan Fund, and thanked the numerous friends who had rallied to his support. The failure of the heating apparatus caused much inconvenience to both singers and audience. The sum raised will unfortunately be small,

NATIONAL CHRYSANTHEMUM SOCIETY.—A numerous-attended meeting of the committee took place at Anderton's Hotel, Fleet Street, on the 22nd inst., Mr. R. BALLANTINE in the chair. A sub-committee, appointed at a previous meeting, brought up a report recommending certain alterations in and amendments to the rules, the main points being that the committee shall, for the future, determine the amount allowed to the Secretary for clerical assistance; that one of the two auditors shall retire annually, and not be eligible for re-election; that foreign members shall be admitted to all the privileges of the Society, on such terms as the committee may from time to time determine; the reduction of the number of medals allowed to affiliated societies; the fixing the time of the annual general meeting in February instead of January; and instead of a permanent Catalogue Revision Committee, the substitution of one of five members to be elected annually by the General Committee. The report was adopted, the committee to recommend the annual general meeting to accept them. A Schedule Revision Sub-Committee was appointed, consisting of the officers of the Society as *ex officio* members, and Messrs. Stevens, Wynne, Bevan, Boyce, Crane, Gordon, Gibson, and Addison; the sub-committee to recommend the amounts to be offered in prizes, deal with special prizes, and arrange for printing the schedule. Notice of motion was given for the next meeting by Mr. D. B. Crane, with the view of abolishing the mid-winter show in January, and substituting for it one to be held about the second week in December. One Fellow and four candidates for membership were elected. The proceedings closed with the usual vote of thanks to the chairman.

SCOTTISH PRIMULA AND AURICULA SOCIETY.

—At a meeting of this Society, held at 18, Reform Street, Dundee, on Saturday—Mr. G. B. SIMPSON, Broughty Ferry, presiding—it was resolved to hold this year's show on Friday, May 8, in the City Assembly Rooms, Dundee, and a local Committee was appointed to make arrangements for the exhibition. Classes for herbaceous Calceolarias, and cut blooms of Rhododendrons, were added to the schedule, and some special prizes for Auriculas, in addition to the schedule prizes, were intimated by members.

THE VEGETABLE SUPPLY OF A LARGE TOWN

is treated of in the December *Journal of the Royal Agricultural Society* by M. MAURICE L. DE VILMORIN. He thus sums up:—"It is submitted—1. That municipalities should so organise their markets as to facilitate the rapid and effective distribution of vegetables amongst consumers. 2. That means should be adopted to protect the interests of distant cultivators. 3. That the fiscal arrangements should be the most favourable possible to an industrious and deserving class of men."

CIDER-MAKING.—In the *Journal of the Royal Agricultural Society of England* (December number), Mr. DAN PIDGEON publishes an article on "Trials of Cider-making Plant at Glastonbury," in which he quotes the following anecdote. He says that:—"Not many years ago, some shallow muddy pools, hollowed in the lias formation of the neighbourhood, formed the only water-supply of a certain Somersetshire village. These, in pre-scientific days, excited no man's fears, but housewives cooked and scrubbed in happy ignorance of the microbe and his wily ways. At length there came a new sanitary inspector, PASTEUR-bitten, and a microscopist, who, shocked at the state of things he found, could not rest until he had brought down Mr. BAILEY DENTON to inspect and report. The authority arrived, and was duly horrified at the mud-holes whence, he presumed, the village drank. Turning to the hale old native who had shown him the way, he said, 'And is *this* the water you drink, sir?' 'Whaat did you zay, zur?' was the surprised reply, and the question had to be repeated more than once before the Western man could catch its drift. At length he 'caught on,' and, with a burst of hearty laughter, exclaimed, 'Oh,



FIG. 37.—*ATHROTAXIS LAXIFOLIA*, GROWING AT MENABILLY, CORNWALL. (SEE P. 144 AND 147.)

Hon. Secretary of the Fund is Mr. A. J. BROWN, head gardener at the School of Handicraft, and to him much credit is due for the success of the concert. During an interval between the songs, Mr. BROWN explained the working of the Gar-

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of this Society will take place at the Caledonian Hotel, Adelphi, on Monday, February 9, at 8 P.M., when Mr. JAMES VEITCH has kindly consented to preside.

Lard bless 'ee, noa, zur, we doant drink no watter down here, we've got plenty o' good zider in Zummerzet!"

A REQUISITION.—Among the inquiries which have reached us this week is one which is worth quoting, as showing what editors are sometimes called on to provide. We forbear to quote the subject on which assistance is asked, but it is one of very wide scope indeed:—"I have been requested to give a paper at the Mutual Improvement Society on —. Can you give me, through the medium of your paper, the best course to be adopted, and where I can obtain the necessary information." This is not a solitary instance, by any means.

NEWSPAPERS AND THE POST OFFICE.—A Sheffield paper, the *Weekly Telegraph*, has been experiencing the arbitrary treatment meted out by the General Post Office authorities to newspapers, and which would be ludicrous were it not so irritating. The Post Office authorities in this case claim that a paper shall consist of at least one-fourth part of news, and that the advertisements shall not fill more than half the paper. The Post Office authorities, moreover, assume the right to determine what is news and what is not. As a matter of business, which is the only light in which the Post Office has any real right to consider the matter, the interference of the authorities must surely be suicidal.

THE CHISWICK HORTICULTURAL SOCIETY held its annual meeting on Thursday, January 22, when a satisfactory report was presented. It was announced that the shows for the present year would be held on July 2 and November 5.

EEL WORMS AND ROOT GALLS.—The *Agricultural Gazette* of New South Wales for August, 1890, contains an elaborate account by Mr. N. A. COBB of the eel worm (*Tylenchus arenarius*) which is causing great mischief to root-crops in New South Wales. A synopsis of the known species is given. When established, cure is impracticable; but prevention may do something by ridding the soil of the worms, or by putting such obstacles in their way as to render their ravages bearable. This may be done by the use of some chemical—preferably a fertiliser—which will destroy the larvæ before they have entered the roots; by the selection of some varieties not subject to the attacks of the creature; by trapping the worms and destroying them. To trap and destroy enemies numbered by the million, and hidden away under ground, might seem impracticable; nevertheless, a plan based on the life history of the creature, has been successfully adopted in the case of Beetroot. STRUBELL, who obtained a prize from the University of Leipzig for an investigation into the nature of the disease affecting the Beetroot, observed that the larvæ, after entering the roots, did not become mature till after an interval of five or six weeks. Whereupon Professor KÜHN recommended that the plants should be pulled at the end of four weeks, when the creatures would die, and leave no progeny in the shape of eggs. By thus sacrificing two or three crops of seedling plants, the pest is so diminished that a crop of roots can be successfully raised. Gas lime applied to the soil would probably be efficacious. These pests are becoming more frequent, or are sooner observed than heretofore, not only in outdoor crops, but in the case of pot plants.

CYCLAMEN PERSICUM.—This plant, according to BOISSIER, *Flora Orientalis*, iv., 12 (1879), is only a garden variety of *C. latifolium*, which is a native of Greece, and is figured in *Sibthorp. Flora Græca*, ii., p. 71, t. 185. The fruiting peduncles are not spirally twisted, as they are in other species; neither the type nor the variety grows in Persia. Mr. BAKER, in the *Gardeners' Chronicle*, March 17, 1883, retains the name persicum, as given by MILLER in 1771, and we think wisely, in spite of the fact that the plant is not Persian. In fact, a name is better as a mere token than as a description. The greatest

confusion and labour is engendered by the habit of giving Latin names to garden varieties—a practice which, in spite of incessant protests, is still rampant, and which the Royal Horticultural Society, with its Nomenclature Committee, appears impotent to check.

TRADE IN THE PAST YEAR.—Looking back is a very necessary occasional employment for those who endeavour to walk in Wisdom's ways, and to steer as nearly clear as possible of Error's path. In all the relations of life is this necessary—very much so in commerce. To help our friends at home and in British colonies and possessions in such matters as may be considered within our special care, we once a month prick the chart of the grand old ship, "British Enterprise," and at the close of the year take a brief survey of the work done—looking back to assist, if possible, in forecasting the work or prospects of the future. The year 1890 had in it many disturbing elements—political disturbances abroad, and labour "frictions" at home; the monetary crisis at the end of the year will long be remembered. Tariff legislation, especially in the United States, gave rise to wide-extended irritation, which is certainly very far from having subsided to-day; necessarily, the imports of raw materials have been affected during the greater part of the year—the following brief summary will best explain matters. The summary concerns "imports from foreign countries and British possessions for the year ending December, 1890," and these are compared with those for the year 1889:—

	1889.	1890.	Difference.
	£.	£.	£.
§ II.—(A.) Articles of food and drink—duty free	131,870,525	136,422,110	+1,551,585
(B.)—do., dutiable	26,210,774	26,216,261	+6,090
§ VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	91,307,086	85,239,289	-6,067,797
§ VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	43,694,671	41,626,155	-2,068,516
§ IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	14,697,130	14,007,776	-689,354
(B.)—Parcel Post ...	374,612	503,209	+128,597
Total value of imports	£127,595,442	£120,885,695	£-6,709,747

The exports of British and Irish produce for the month of December show an increase over the corresponding period last year of £382,000; but the exports of foreign produce show a decrease of £678,614. The exports for the year of British and Irish produce foot up the very respectable sum of £263,542,500—an increase of £14,607,305 over the figures for 1889. There are some suggestive tasks in simple arithmetic here for enterprising Board School teachers, and to them we leave it. As was expected, the McKinlay tariff has affected our trade with the United States to some extent, but exportations to the East have increased both in volume and value—notably in two instances, which, however, do not immediately interest our readers; this development is most satisfactory in the face of foreign competition. And here it may be as well briefly to note an unlooked-for result of the McKinlay Tariff. The sweet simplicity of that Protectionist measure is telling against a certain class of manufacturers, whose imports of raw material receive particular attention at the hands of the American Custom-house officials; to such an extent is this the case, that the discovery has been made that, however beneficial the Tariff may operate in their favour as far as home trade is concerned, the Yankee manufacturer is shut off from competing with us or our Continental friends in the general markets of the world. Hence it appears that factories may be expected to

be put to work in this country by American manufacturing speculators for the execution of part of the fabrics interested, the other part, together with "fitters," being shipped over here, and the work of completion being done in England! The settlement of the matter of tariffs may be left to our 'cute cousins on the other side of the Atlantic.

A few more figures may here be given respecting the year's imports of fruits and vegetables, and these are as follow:—

	1889.	1890.	Difference
	£	£	£
§ II. Fruit:—			
Apples, raw	976,118	786,072	-190,046
Unenumerated, raw	1149,832	1806,811	+343,021
Onions	674,547	724,020	+49,473
Potatoes	735,999	714,257	-21,742
Vegetables, raw, unenumerated	623,769	773,590	+149,801

To the reader who watches the prices given in our market columns under the heading "Fruits and Vegetables," it will be an easy matter to reckon whether the expansion or contraction of acreage is advisable—that is the lesson to which the grower is directed from month to month. It is worth while recording here, that while the value of the Oranges and Lemons imported in 1889 footed up £1,736,594, in 1890 the value was £1,756,852—or an increase in 1890 of £20,258 over the preceding year, and yet to-day in London we can buy in the street Oranges at three for a penny!

DOUBLE FLOWERS.—It may be remembered by some that Dr. NOBBE, of Tharant, ascertained by experiment, that double flowers of Stocks were produced in larger proportions from those seeds which germinated quickly than from those in which the growth was slower, and which produced a larger number of single flowers. Dr. NOBBE's experiments have been repeated at the Botanic Garden of the University of Ghent, and fully confirmed.

INSECTICIDES FOR TREES.—Professor RILEY has issued, in the *Proceedings of the United States Department of Agriculture*, a treatise on the insecticides available for use in the case of trees, and on the apparatus needed for the purpose. Paris Green and London Purple (arsenites of copper) are spoken of thus:—"The safety and efficiency with which they can be used, and their slight cost, fully satisfy all the demands of practical work." Of the two, London Purple is to be preferred, because cheaper and more diffusible. It may be used as follows:—London Purple, half a pound; flour, 3 quarts; water, 40 gallons; or about half an ounce of the poison to a bucketful. The flour is placed on a funnel with a wire sieve in it, and through the meshes of which the flour is washed by pouring water on to it; the London Purple is then used in the same way. This mixture is then syringed on to the leaves in the form of a very fine spray. Pyrethrum, Hellebore, and sulphur can be used in like manner. Petroleum emulsions thus made:—Kerosene, 2 gallons, 67 per cent.; common soap, or whale-oil soap, half a pound; water, 1 gallon—together 33 per cent. Dissolve the soap in boiling water, then add the kerosene, and churn the mixture with a force-pump for five minutes; when allowed to cool, it forms a cream, which, before using, should be diluted with nine parts of cold water. The above formula makes 3 gallons of emulsion, and, when diluted, gives 30 gallons of wash. Resin washes are also used for scale insects. They are thus prepared:—Caustic soda, 1 lb.; resin, 8 lb.; water to 32 gallons. Boil the soda in a gallon of water, add the resin to one-half the soda solution, and dissolve it by boiling; add the remainder of the soda solution, and boil over a hot fire, stirring constantly. When sufficiently cooked, it will mix with water like milk; add water and strain. Dry hydrocyanic acid gas is also used in the case of special trees, with the aid of a canvas tent. The gas is prepared by boiling 5 lb. of cyanide of potassium in a gallon of water. On to this solution sulphuric acid is poured in a fine stream, the result being the emission of the gas as a fine mist. It

need hardly be added, that the most scrupulous care must be taken in preparing and using this substance, as it is intensely poisonous. Powders, such as Pyrethrum, may be used with bellows, while liquid insecticides require the use of a good force-pump and a suitable nozzle. In the case of large trees,

France. It does not appear that there are any English manufacturers of these nozzles—at least, none are mentioned—while there are several of both German and French makers specified; but in all these matters, JOHN BULL is about the last to adopt new notions.

serious business-like articles of some of the writers with satisfaction as great as the amusement that other writers provide. Rosarians are nothing if not sympathetic, and some exhibitors can, no doubt, appreciate the following recommendation: "In trying weather it may be advisable to add some preparation of ammonia or alcohol, or even common salt, to the water in which the blooms are placed, in order to retard the growth, but it is a difficult matter to ascertain whether any appreciable difference results!" Mr. ALEXANDER GRAY seems qualifying to become editor of DEAN RAMSAY'S book of Facetiae. Mr. MAWLEY'S Meteorological Report is, as usual, a record of permanent value. The book is rendered the more interesting by a portrait of Mr. GEORGE DICKSON, of Newtownards, accompanied by an appreciative notice.

MR. BURNETT.—Many of our readers, to whom Mr. BURNETT, of the Deepdene Gardens, Dorking, was well known, will be pleased to hear that he is engaged in fruit culture in California, and speaks hopefully of his prospects, as will be evident from the following letter, which Mr. CHEAL, of Crawley, has recently received from him:—

"Bakersfield, Kern County, California.

"I have settled down here, and taken up 40 acres of land, and had a house built, and planted 27 acres with Muscat Grapes for making Raisins; also planted a few acres with Peaches and Pears. The country here is a vast plain, running 400 miles north-west, and from 50 to 100 miles wide, and nearly surrounded by lofty mountains. The soil is a kind of decomposed granite of great depth, and, with water applied, it is apparently very productive. Grapes grow splendidly, and owing to the absence of rain, Raisins can be made of very high quality. My Vines have made remarkably good growth, and I hope to have a sufficient crop next year to pay my expenses. And in two years they will pay well, and increase in annual value up to five years, when the crop ought to be worth about £35 per acre per annum, nett profit, after paying all expenses. The Vines are planted 8 to 10 feet apart, and are kept pruned very low, the Grapes, in fact, lying on the ground, but owing to the extremely dry weather, they are never spoiled. The country here, before the introduction of canals for irrigation, was a barren wilderness; but the effect of water on the soil seems magical. The company from whom I bought the land own between 600,000 and 700,000 acres, and they have only just begun to sell it. Myself and two others were the very first to settle on the desert lands here. The people are settling here rapidly. The land is cut up into square miles, which are again cut up into 32 20-acre lots, and you can have any quantity that you are able to take. There is not much good for any man without money coming here. It requires a capital for a man coming here to take 20 acres of at least £600 or £700. Wages here are good, and if work were steady a man would soon make money, but the working men are so numerous that numbers of them are unemployed. Peaches do remarkably well, and give good returns. I have seen some fruit of what is called the Orange Cling, weighing from 1 lb. to 23 oz. Some of the Peach growers have cleared as much as £60 per acre. Figs and Apricots also do extremely well. It is a little too warm for Apples, but Pears do splendidly. Oranges do very well, but there are none grown here for exportation. There seems a market in the Eastern States for any quantity of fruit that we can grow, and the prices, so far, are much in advance of what they are at home. The climate is very hot in summer, but with always cool nights. The autumn months are very pleasant, but now it is chilly and raw. We have not seen much of the sun this month, but all through November the days were bright and warm, with cool, frosty nights and mornings. I do not think we are likely to regret coming here, as there seems every likelihood of our making an independency; but still there is no place like home, and I miss the 'Horticultural' Meetings very much."

CYCLAMEN ROOTS.—At the last meeting of the Royal Horticultural Society, Mr. WARREN mentioned, that after flowering he disposed of the old tubers to the herbalists. It has long been known that the tubers possess acrid, emetic, and purgative properties, though probably these would be diminished after flowering. Mr. HOLMES, of the Pharmaceutical Society, tells us, that on inquiry



FIG. 38.—BRANCH AND CONES OF *ATHROTAXIS LAXIFOLIA*. (SEE P. 144.)

fire-engines may be used—the cyclone or Riley nozzle, which secures a whirling, centrifugal motion of the liquid, which issues in a funnel-shaped spray through a central outlet. The Vermorel nozzle is a slight modification, which may be had from M. VERMOREL, Villefranche (Rhône),

"THE ROSARIAN'S YEAR-BOOK."—We always look to this annual for some light reading and pleasant interchange of opinion, and never in vain. Nor is more nourishing pabulum wanting either. In truth, the grave and the gay, the light and the substantial, are well blended, and we can read the

he finds the demand has almost ceased. The active properties are due to a principle called "cyclamin."

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—The sixty-third annual meeting of the proprietors of this Society was held in the Town Hall, Manchester, on Wednesday last, January 28, when the report of the Council was submitted. It is satisfactory to learn that the financial position of the Society is fairly satisfactory, the ordinary receipts of the year having been sufficient to meet the ordinary expenditure, notwithstanding the wet summer. A new range of glass-houses has been erected, at a cost of £200, replacing the old range, which has stood for forty years. It was remarked that the Whitsun exhibition had not been so profitable during recent years as it was formerly, when a sum of £600 was the average annual surplus, and this falling off is attributed to increased facilities of railway travel to more distant parts about the holiday time. A subscription list for the extinction of the debt fund has been opened, and is progressing satisfactorily. The proposed arrangements for the present year include horticultural exhibitions in the Town Hall, on March 17 and April 28; the Whitsuntide show from May 15 to 22, in the Gardens at Old Trafford; Rose show, July 18; exhibition and conference on hardy fruits, October 13 to 16. Arrangements are also made for a Chrysanthemum show, and for exhibitions by the Auricula, Tulip, and Carnation Societies. Botanical lectures are to be delivered during June, July, and August, and musical entertainments are also provided.

NOVELTIES.—We find in the catalogue of Mr. W. THOMPSON, of Ipswich, mention made of the following plants, now first introduced into cultivation by him:—*Arnebia macrothyrsa*, a perennial species, with large yellow flowers in dense trusses; *Astragalus siculus*, a dwarf, shrubby, spiny species, with rosy-purple flowers; *Coreopsis grandiflora* (re-introduced), *Onosma albo-roseum*, of which the corolla is stated to be pure white, changing to deep rose, the same raceme thus presenting several shades of colour.

LAMBERT'S "GARTENFREUND."—We have here a small octavo volume, illustrated, of 178 pages, written in the German language, by Herr J. LAMBERT, nurseryman, Trier, and intended for the use of amateurs. The subjects treated are Roses, Strawberries, vegetables, and hardy and half-hardy flowering plants, flower forcing, and indoor gardening. A great variety of subjects are brought under treatment, but, necessarily, the details of culture afforded are concise to meagreness.

PUBLICATIONS RECEIVED.—*Idle Hours with Nature*. By CH. DIXON. (London: CHAPMAN & HALL, Limited.)

GOSSIP FROM THE SALE ROOMS.

FREQUENTLY, when offering Orchids likely to attract amateurs, Mr. J. C. Stevens makes up a catalogue of Orchids, Lilies, Tuberoses, and other bulbs of the season, and such a practice must be of great service to those attending from a distance, and who may require Lilies, &c., as well as Orchids. Thursday, January 22, he had a very good example of such a sale. The sales of hardy plants and bulbs for the open garden, together with the milder weather, gave increased liveliness to the room on this occasion. On Wednesday, January 21, Messrs. Protheroe & Morris cleared out over 20,000 *Lilium* bulbs, at a considerable rise on previous prices, and large quantities of Daffodils, Roses, &c. One of the curious features in these sales, is the ready sale of *Dracenas*, *Crotons*, and other stove and greenhouse plants, which, as a rule, sadly hang fire at nurseries.

At Friday's sale, January 23, a notable feature was the grand, thick stemmed, freshly imported pieces of *Dendrobium Wardianum*, from Messrs. Hugh Low & Co., which were quickly taken up at good prices, and

more wanted. The same day there was a show of over 150 Orchids in flower; among them being a fine *Odontoglossum Edwardii*, some good yellow hybrid *Odontoglossums*, masses of *Sophranitis grandiflora*, and *S. violacea*, *Masdevallia Hucksiana*, some grand *Oncidium splendidum*, *Cypripedium Boxalli atratum*, and fine *Lycastes* and *Cattleya Trianae*.

PLANT PORTRAITS.

DISA RACEMOSA, Garden, January 3.

GLADIOLUS ATROVIOLEACEUS and *G. GRANDIS*, *Westnik*, t. 23.

GLORIOSA SUPERBA, Garden, December 20.

IRIS MARICOIDES VAR. *ATROPURPUREA*, *Westnik*, St. Petersburg, t. 22.

LYCHNIS HAAGEANA HYBRIDA, *Revue de l'Horticulture Belge*, January.

ROSE LA FRANCE DE 1889, the result of a cross between *La France* fertilised by *Marie Henriette*. It is of a much deeper rose colour than *La France*. It is sent out by M. Moreau, of Angers. *Revue Horticole*, January 1.

SPIRÆA BUMALDA, *Revue de l'Horticulture Belge*, January.



FIG. 39.—*CLADOSPORIUM DENDRITICUM*: SCAB OF APPLES. (SEE P. 149.)

BOOK NOTICE.

BRITISH FERNS, AND WHERE FOUND. By E. J. Lowe, F.R.S., &c. Swan Sonnenschein & Co.

This is a small treatise of much more importance than its unpretending appearance would lead one to expect. It contains a complete account, not only of the species of British Ferns, or of what are usually regarded as such, but also of their multitudinous variations. And here, at the outset, we are met with a circumstance that affords matter for inquiry. While the two *Woodsiæ* have no recorded varieties, a dozen or more, the *Bladder Fern* (*Cystopteris fragilis*) sixteen, the *Maidenhair* over thirty, the hard Fern, *Lomaria*, has over eighty, the *Lady Fern* 300, and the *Hart's-tongue* over 400. What is the reason of the much greater variations in some cases than in others? Are the species which show little variation dying out? while those which are so prolific in varieties are in the full flow of existence, and, as it were, throwing off offsets in various directions, some destined to suit new conditions, and consequently to survive, but most to perish or revert to the original condition. These are questions which cannot be satisfactorily solved till we know the life-history of each species, and can ascertain in what ways different conditions act on the plants at different stages of their growth.

One of the first things we have to do is to endeavour to decide what is a variation and what is a monstrosity—to separate, in other words, normal

variation from that which is abnormal. The endeavour is so beset with difficulties, however, that a full measure of success is not to be hoped for. Nevertheless, the impossibility of doing all we should like to do, need not daunt us from doing all that we can, and if we can only arrive at a very arbitrary conclusion, it will nevertheless be a useful one.

Mr. Lowe, in the book before us, divides the variations, say, of the *Hart's-tongue Fern*, into two divisions, according to changes affecting principally, A, the skeleton of the fronds, or, B, the condition of the soft parts. In each case the changes are such as result from over-luxuriance of growth, or from the opposite condition of defective development.

Are such instances to be reckoned as variations? The answer must, we think, be in the negative, unless we are prepared to consider a prize pig as a "variety" of the common type of swine. Mere excess or defect may, according to this, constitute a monstrosity, but hardly a "variation," still less a variety in the technical sense. In the strict sense of the latter term, as generally understood, there is something more than mere change in bulk, there is a change in type—a something superadded. For instance, while most of the forms of *Scolopendrium* mentioned in this work are illustrations of deficiency or of excess of growth in normal parts, the "supra lineate" and "marginate" forms have a more valid right to be considered "varieties," as inasmuch as something is superadded to the frond which is not found in the normal form. Moreover, the addition of a marginal ridge above or below is very often associated with a difference in the position of the sori or clusters of spore-cases. The change here is not one of more or less only, but of an actual addition of something not present at all in the normal condition, and this associated with changes in the position of the sori. If this contention be accepted, then, it follows that the system of nomenclature adopted is not only cumbersome and troublesome, but from a scientific point of view scarcely, if at all, warrantable. A prize pig is nothing more than a form of *Sus scrofa* after all. No naturalist would give it a varietal name, and no breeder would designate it by any other than an arbitrarily selected English name. In like manner, forms of Ferns which present no more serious structural variation than that which is expressed by "more" or by "less," might be named as florists' flowers are. For purposes of classification they might, as indeed they are, be grouped under divisions. Those divisions might have Latin names; to go beyond this in the present state of our knowledge seems undesirable, as leading to that fearsome cumbersomeness which excites the ridicule of the scoffers, and the despair of the Fern-lovers. We heartily agree with Mr. Lowe "that a cumbersome string of names cannot be tolerated, no matter how descriptive it may be; in fact, a name is the symbol by which it is to be recognised, and is not intended to be a description." Occasionally a single word may serve to convey an idea of the plant, but as a rule of which every-day practice shows the wisdom, it is better to keep description and nomenclature strictly apart. The application of Latin names should be confined to those cases in which the variation is constant, and sufficiently marked to be described in words. Of the 400 forms of the *Hart's-tongue* herein described, how many could be identified by the descriptions alone, even with the aid of divisions and sub-divisions? How many could, even with the aid of specimens for comparative examination, be accurately defined, and their differences from others made clear by words? Only a small proportion. To that small proportion only, should scientific names or such as have the semblance of being scientific, be applied. An additional reason for restricting the employment of technical names, is afforded by the circumstance that two or even more "varieties" may be found on the same plant. We have seen instances of *Cystopteris Dickieana* produced on the same plant with ordinary *C. fragilis*, and examples of the kind are known to all Fern growers. More than this, if Mr. Lowe's observations are confirmed by subsequent experimenters

"we can now, by crossing several varieties of Ferns, produce all the characters on one frond, and several of these again crossed will give us their combined characters; and this must prove the utter impossibility of a descriptive nomenclature." Whether Mr. Lowe's explanation of the phenomena here mentioned be the true one, or whether the appearances due may be the result of the sudden separation of heretofore blended characters, as in "sports," is a matter for future investigators. In the meantime, the thanks of all classes of Fern-growers, Fern-lovers, and Fern-students of all degrees have been well earned by Mr. Lowe. His ample collection of materials in the small compass of 162 pages, his very significant "concluding remarks," his hints to collectors and cultivators, all render his work one which the Fern-lover will find he cannot afford to dispense with.

margins; at *i*, the lobe is sinuous at the margin, with a projecting lobe at the base; at *n*, the pinna is coarsely and obtusely pinnate lobed; at *k*, the lobe is deeply pinnatisect, the lobules, *s*, being entirely free; at *l*, the lobe is twice divided, "bipinnatisect," while at *o*, it is cordate ovate-acute, sickle-shaped.

FLORISTS' FLOWERS.

SEASONABLE NOTES ON THE AURICULA.

For a period of five weeks up to January 13, the entire collection of Auriculas in our frames have been frozen hard, have been in fact exposed to the longest and most severe trial that I ever knew them to be exposed to. The pots

received, a thorough watering. In order to obtain healthy, dwarf specimens, some care is necessary from now until the flowering time in April. If the weather continues frosty, I shall give enough artificial heat to keep the minimum temperature above 32° Fabr.; but should the weather change to mild, the top-lights of the house are so arranged that they can be removed. This prevents the leaves or flower-stems being drawn up weakly, as they certainly would be if they were not freely exposed in dull, damp weather. As soon as the plants should have fairly started into growth, fumigation with tobacco-smoke as a preventive for green-fly must be performed. Those who are troubled with the white woolly aphid should dust the necks of their plants with fine tobacco-powder. I have omitted this year, as I have done for many past years, to top-surface dress the plants, as it did not seem to do any good; and in the manner it is done in the north it may sometimes be injurious. I was looking over a large collection a few years ago in Lancashire, at flowering time, in which the plants did not look at all vigorous; and to a remark of mine to that effect, the owner said, "They ought to do well, I gave them a good top-dressing in February;" and on examining this dressing, I found it was of considerable depth, and composed almost entirely of rich manure. But the most remarkable part was the fact, that no roots had penetrated the rich compost on the surface, nor did they seem to have benefited from its application in any way.

Seedlings from seeds sown in July last have been pricked out, and find a place in a corner of a heated house. Many of the seeds are even now vegetating, and pricking out will go on at short intervals until all are done. My plan is to put a dozen round the edge of a 60-pot. Offsets will be taken off on the first week in February, or at any time to the end of the month; they form roots readily, and grow freely at that time. The small offsets taken off in the autumn may now be repotted into larger pots.

The alpine Auriculas I have as yet not mentioned; but these being far more hardy than the show section, are allowed to produce their flowers in a frame, as fully as possible exposed to light and air. Others are planted out in the rock garden, or will be placed in the front rows of flower borders. The late steady frosty weather suited these and other alpine admirably, they having been secure under the snow. The plants in frames will be seen to as soon as it is warm enough to stand out-of-doors, and the plants in the borders will also require to be cleared of decaying foliage. *J. Douglas.*

CHRYSANTHEMUM MRS. ALPHEUS HARDY.

In your issue of January 10, a correspondent remarks, that a plant of this variety has been exhibited in America carrying over 200 perfect blooms. If it does so well in America, how is it that so many have failed even to get one bloom from a plant in this country? Are there two varieties? The specimens I have seen look too weak to carry half-a-dozen flowers, and the weak, straggling growths do not look like making specimen plants. No doubt it requires different treatment from other varieties of Chrysanthemums; but is it worth the trouble spent on it, if the only return (as it has been seen in England up to the present) is perhaps two or three flowers, leaving alone the look of the plant? If it does not prove a stronger grower, and more free of showing buds, I fear a great many will discard it altogether. Perhaps another trial will give some of us a better opinion of it. *F. T. C.*

PREVENTION OF APPLE SCAB.

THE seventh annual report of the Agricultural Experiment Station of the University of Wisconsin, just issued, contains among other subjects of great interest, a report by Mr. E. S. Goff, the horticulturist of the Station, on the "Prevention of Apple Scab." In a series of experiments instituted, it was found that seven sprayings, at intervals of about two weeks from May 18 to August 10, with a solution com-



FIG. 40.—IDEAL FERN FROND, SHOWING DEGREES OF BRANCHING.

We insert the above woodcut (fig. 40) to illustrate the form of the frond, and the nature and amount of the notching of the margin. It may be serviceable to young gardeners, as indicating the degrees of divisions and the technical terms applied to them. This imaginary frond, or leaf, is stalked, ovate in outline, cordate at the base, *a*; acute at the apex, *b*; pinnately divided in various degrees, thus, the two topmost pinnae, *cc*, are "pinnatifid," or pinnately cleft to the middle, and entire at the margins; the next pair, *d, e*, are more deeply cleft, or pinnatisect; *f* indicates a wide "sinus," or space between the lobes, *g*, a narrow space. At *p*, the pinna, or segment, is finely toothed; at *q* it is serrated, the base being prolonged down the midrib; at *r*, the pinna is slightly lobed, the lobes being entire; at *m*, the lobe is crenate at the margin, or divided into shallow rounded lobes, which are again crenulated at the margin; at *h*, the lobes are bidentate at the

containing the plants have not been plunged, but were all exposed on a slight wooden platform. Anxious to know how they fared, all of them have been removed into the house, and I find they are perfectly sound at heart; there is in each case a rosette of leaves in the centre, closely folded together, and the outer leaves, although they were perfectly sound before the frost, are now dead. Here is a scientific problem, which I would like to see solved, viz., the reason why the central and altogether more tender-looking leaves should be quite sound and healthy, whilst the outer ones have been killed by the low temperature. I hope the Auricula aphid is also dead, certainly it does not show life anywhere at present, and if this lengthened exposure should have killed this pest we ought to be thankful. The plants have now been arranged in the Auricula-house, all the dead leaves removed, and the greater number of the plants being dust-dry, they all required, and

posed of $1\frac{1}{2}$ ounce of carbonate of copper, 1 quart of liquid ammonia, and 90 quarts of water, so far prevented the growth of the Apple scab fungus, as to increase the number of first quality Apples by more than $3\frac{1}{2}$ times, and to decrease the number of third quality Apples by almost 14 times.

REPORT OF THE EXPERIMENT.

Orchardists are familiar with the black scabby appearance that so often disfigures the surface of Apples, particularly in certain varieties and seasons. Although generally present in greater or less degree, this appearance is not normal to the Apple, but is due to a parasitic fungus, known to science as *Fusicladium dendriticum*.

In Apples badly affected, the scabs are chiefly found clustered together on one side of the fruit, and in such cases this side is always less developed than the other, showing that the fungus in drawing its nourishment from the fruit has prevented it from attaining its normal size. The same fungous parasite that causes the scab on the fruit also affects the leaves, and new growth of the tree.

The real damage it accomplishes, therefore, is not confined to the disfigurement and reduced size of the fruit. By interfering with the normal functions of the leaves, assimilation is restricted, and the vitality of the whole tree is impaired, thus not only diminishing the present crop, but injuring the prospect for future ones as well.

During the past season, a somewhat extensive system of investigations was carried out in the orchard of Mr. A. L. Hatch, of Ithaca, Richland co., Wis., under the direction of Mr. Goff.

The orchard occupies a rather elevated piece of ground that slopes gently to the north. The soil is a light clay loam, and for some years past has been in grass.

On May 18, twelve trees of the Fameuse or Snow variety, of nearly uniform size, and all well set with fruit, were selected. This variety was chosen because in Mr. Hatch's orchard it has been more affected with the scab in past seasons than other sorts. The trees selected were all planted in the spring of 1875, and were about 12 feet in height, with heads of about the same distance in diameter.

After labelling the trees in accordance with an arranged plan, two of them were sprayed with a solution of potassium sulphide at the rate of half an ounce to a gallon of water; two others, with a solution of soda hyposulphite at the rate of 1 lb. to 10 galls. of water; a third pair was sprayed with water containing in partial suspension a "sulphur powder" formed by slacking lime to which a certain proportion of sulphur had been previously added; 1 lb. of the powder was used to 10 gallons of water. A fourth pair was sprayed with a solution formed by dissolving $1\frac{1}{2}$ ounce of carbonate of copper in a quart of liquid ammonia, and diluted with 90 parts of water.

A fifth pair was sprayed with the liquid that remained after slacking the lime and sulphur mixture noted above, diluting with 180 parts of water. The sixth pair was left untreated as a check. At this time the petals had all fallen from the flowers, but the young fruits were scarcely larger than Peas. These sprayings were repeated on May 30, June 4, June 17, July 1, July 24, and August 10.

The following table summarises the results:—

Tree Numbers.	Sprayed with	No. of Fruits Examined.	Per Cent. of		
			First Quality Fruits.	Second Quality Fruits.	Third Quality Fruits.
1 and 2	Potassium sulphide	1388	30.0	48.6	21.4
3 and 4	Soda hyposulphite	1545	43.2	42.8	14.0
5 and 6	Sulphur powder	1303	32.7	54.3	13.0
7 and 8	Ammoniacal carbonate of copper	1345	75.0	23.4	1.6
9 and 10	Liquid sulphur preparation	690	43.0	49.0	8.0
11 and 12	Not sprayed	1564	23.3	54.0	22.7

It appears from these results that all the treatments were more or less beneficial, and that the carbonate of copper solution was almost a complete remedy for the disease. In order to render the effects of this application more readily apparent, a graphic illustration (fig. 41) is given below, showing the proportion of the fruit in each of the three qualities from the trees treated with the carbonate of copper solution, and from the check trees, not sprayed.

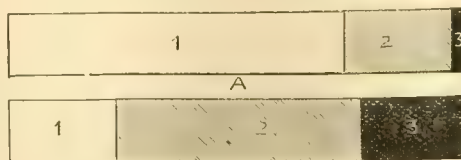


FIG. 41. SHOWING THE PROPORTIONATE QUALITIES OF THE FRUIT.

It should, perhaps, be added, that while the graphic diagram represents the proportion of fruits in the different qualities numerically, it does not do full justice to the beneficial effect of the spraying. The fruits from the sprayed trees that, by the standard adopted, were necessarily placed in the second and third grades, were much superior in average quality to those of the corresponding grades from the check trees. The reduced size of the badly-scabbed fruits, which does not appear in the numerical computation, also created a manifest difference in favour of the spraying. *J. J. Willis, Harpenden.*

HOME CORRESPONDENCE.

BURNT EARTH.—The instructions given for preparing this on p. 106, leave little to be said in addition. Where wood is scarce, any combustible material at hand may be used, and a larger quantity of slack coal added; but I entirely differ from Mr. Divers when he says, that clay soils will not do for burning, as they are just the soils which derive the greatest advantage from it. Clays may differ, but the cold alluvial red clay of the new red sandstone formation on which I live is easily burnt, and immensely improved for gardening purposes by burning. When burnt, it closely resembles fragments of red brick, but if put upon the kiln, as it ought to be, in the driest season, and in thin layers, and thoroughly burnt, it becomes more porous and lighter than brick, and never reverts to condition of plastic mud. The advantages to plants grown in it are probably due as much to mechanical as to chemical changes. It retains moisture in sufficient quantity, but not in excess, and allows roots to travel easily, and to branch in all directions evenly; but no doubt in many instances plants prefer their food cooked to raw, and find it more digestible. I am advised, for instance, that oxide of iron, which is largely present in this red clay, has its condition changed by burning, becoming a help instead of an impediment to plant growth. *C. Wolley Dod.*

— The full value of this material it has yet to be realised, both by gardeners and farmers, and is difficult to say which of these would profit most by giving the subject the consideration it deserves, and by continuing its use and distribution, especially upon cold and clayey soils. To such soils as these, invariably defective in drainage, or rather, by the close adhesive nature of the soil, unable to allow rain-water to percolate quickly to lower levels, the ordinary cultivation methods being employed, the liberal use of burnt earth cannot be over-estimated. This fact I learned some years ago, in a private garden of which I had the management. The condition of the soil may be inferred from the following facts:—When I took charge of this garden, it was the custom to dig the kitchen garden always with a bucket of water at hand, to dip the spade in now and then; indeed, this vessel of water was considered to be one of the requisites for the due performance of the work. Not only was such a proceeding irksome to those engaged who had the work to do, but it was unsatisfactory to me also, for unless the land was upturned in early autumn to get the benefit of the winter's frost, it was heavy labour to deal with it at all. The soil in question was in a large measure the output from a tunnel which ran beneath the garden, and

was of a greasy nature, except perhaps in the height of summer. I found, however, that I was no worse than my neighbours, and therefore endeavoured, as far as possible, to remedy the evil. Fortunately there was plenty of wood obtainable, and burning a portion of the soil at convenient times in the manner described by Mr. Divers at p. 106, the soil became much improved. The burning was generally carried out in the period from July to September, the material being kept dry till made use of. As a quarter of the kitchen garden was cleared, burnt earth was added in the following way:—A trench was taken out as for trenching, while, on the surface, some 3 or 4 inches of road sweepings were scattered, the burnt earth being wheeled on and left in heaps to be worked in on the top of the first spit, leaving the uppermost spit in as rough a state as possible for the time. In the winter, opportunity was taken of the frost to wheel on to the surface all the burnt refuse from the rubbish fires, which was kept dry till it reached the open quarters in the kitchen garden, adding all the spare leaf soil which fortunately existed in plenty in the wood. When the worst of the winter had passed, and the frost had done its part in crumbling the rough clods, the surface was brought into nice tilth by the use of a Canterbury hoe. In less than two years I had entirely dispensed with the bucket of water at digging, a flat tinned fork being used instead of a spade; and by deep working of the soil, the burnt earth was distributed and porosity ensured. The crops were excellent, and not the least in importance was the comparative ease with which the soil was worked. A neighbour, whose kitchen garden was more extensive than in my case, treated the whole of his very similarly, so far as the trenching and adding the burnt earth was concerned, and, indeed, I owe to him this valuable lesson. The only point in which my experience appears to differ from Mr. Divers is where he says, "clayey soils will not do," &c.; but this was exactly the kind of soil I had to contend with. If burnt too hard, this sort of soil is similar to brickbats, and would be very troublesome to manage. In the garden of which I speak, there was a large collection of choice alpine, and the screenings of the burnt earth I used freely, both in the soil and also for draining the pots, the plants appearing to like it. In Gloucestershire large quantities of blue lias clay is burnt annually, though I am not aware that it is used for improving the land to any extent, though it undoubtedly would very materially, if only by improving the drainage of all retentive soils, and from large heaps 30 or 40 feet in diameter at the base a very large percentage of the interior is reduced to dust, and from this to the size of a hen's egg. In the burning process, after a good body of fire has been established of logs of wood, faggots, lump coal, and such-like, nothing is employed but what is locally known as "forest slack," which is scattered over the clay as it is added to the heap. *J.*

BURNT EARTH AND ALPINE PLANTS.—There are numbers of plants classed as alpine, which require about the same kind of cultural treatment. Now, most alpine grown in this country suffer more from the excessive moisture of our winters, and the alternating frosts and thaws, and the utmost that we can do for them is to afford them the most suitable soil and drainage. Here is a list of a few alpine and other difficult plants, which scarcely grew at all in our heavy soil till we used burnt earth:—*Acæna*, *Adonis vernalis*, *Epimedium alpinum*, *Gentiana*, *Gnaphalium leontopodium*, *Cyclamen hederifolium*, *Polemonium*, *Lychnis alpina*, *Linaria*, *Vinca acutiloba*, *Silene acaulis*, &c. A sickly bed of *Ranunculus* seemed also to derive great benefit from a good dressing of burnt earth twice in a season. In using this material, I prefer the autumn season; and some of the kinds may be almost covered with it, for not only does it afford protection to them, but seems to preserve them from moisture. Dressings of burnt earth do not interfere with the usual pricking up of the soil, and, furthermore, it has always a neat and tidy appearance. I once tried an experiment with a few *Francoa ramosa*, with the result, that those plants which had this earth and those which had not were so marked, that they might have been taken for different varieties. *G. B. Claydon, Holbeck's Park.*

FUMIGATING INSECTICIDES.—In reading the *Gardeners' Chronicle*, p. 54, we notice a communication from "J. C. W.," concerning the cost of Campbell's Fumigating Insecticide. It is far from our wish to make your correspondence columns a means for a gratuitous advertisement, but we ask your permission to be allowed to point out that "J. C. W."

is not in any way making a fair comparison, which any one writing to you should do. No doubt the public would be able, without interference on our part, to decide which preparation may be both the most efficient and economical, but we think it only reasonable to defend ourselves when so one-sided a statement is presented. "J. C. W." states that he fumigated 2600 feet with two of McDougall's 1s. sheets, which according to the list are only sufficient for 2000 feet. When he gives one preparation the benefit of 600 feet above the list, why does he not give the other the same benefit? We can point to very many instances where a No. 4 roll of Campbell's has fumigated a house up to 3000 feet capacity, although the list strength is only 2000 feet. In fixing the list when this preparation was first introduced, we had to provide for houses loosely glazed, or with badly-fitting ventilators, and we did not wish in any way to overstate the strength. Then again, according to the list, as "J. C. W." states, one No. 4 roll is sufficient for 2000 feet, costing 2s. 3d.; but why should he take, in addition, a No. 2 roll, costing 1s. and a No. 1 roll, costing 8d., for 600 feet, when he could have calculated a No. 3 roll for 1000 feet, costing 1s. 3d., so making the cost 3s. 6d. instead of 3s. 11d.? To carry the comparison further, allow us to point out that No. 5 roll, costing 2s. 9d. according to the list, is for 3000 feet, where three of McDougall's sheets would cost 3s., and No. 6 roll, sufficient for 4000 feet, costing 3s. 3d., may be put against four of McDougall's sheets, costing 4s., and that is taking list strength. It is far from our wish to enter into any contention, we are quite satisfied in all respects to leave the matter to the public, if only those who have an adverse opinion to Campbell's Fumigating Insecticide will state the opposite case fairly. *Wm. Clibran & Son, Oldfield Nurseries, Ayrincham.*

— (A Correction).—Not having seen the printed particulars issued with the patent self-acting tobacco-sheets, I could not read them, so that a mistake as to their composition was easily made, and as I am thoroughly satisfied with the new fumigating materials, which I have in various ways given a good trial to, I am not disposed to accept Messrs. McDougall's offer, as my motive was a different one than merely to report the result. I simply recommended Nicotiana paste as an improved insecticide, that might replace tobacco-paper where desired. It was not my intention to enter into any controversy as to the best insecticide, that being useless, seeing that each inventor thinks his own the best, and I would allow each to enjoy his own opinion, whilst I am allowed to do the same. *G. W.*

— I have been much interested in the remarks, lately in your columns, regarding the new Fumigating Insecticides. I can endorse all that "G. W." and "R. D." say in favour of Gardner & Smithson's Nicotiana Fumigator, and being sent out by Mr. J. George, Putney, as the best and cheapest fumigator I ever used. I tried it in a house containing Callas, Carnations, Bouvardias, Libonias, Heliotropes, Roses, and Maidenhair Ferns, with many plants in flower, and found every insect killed, and not the slightest injury done on either flower or foliage, and this at a cost of less than 8d. per 1,000 cubic feet, the size of house being 6,500 cubic feet, and quantity of Nicotiana used three packets, 1s. 6d. each. It certainly supersedes tobacco-paper, being perfectly safe to use, and free from flame, which is one of the chief dangers arising from tobacco-paper. It can be easily set going with a piece of paper or small piece of charcoal, and, when once started, requires no further attention. I think the Nicotiana, when more known, will be sure to come to the front, and will be largely used. *Thomas Glen, Worth Park Gardens, Crawley.*

FROST IN THE GARDEN.—The damage done by frost amongst trees and crops was not fully realised until the thaw of Thursday, 22nd inst., when I discovered that the bark on the stems of Peaches and Apricots on the south-east walls had been split by the action of frost in several places. All Broccolis are killed; Brussels Sprouts are spoiled, except the tops, which remain sound; Lettuce and Batavian Endive, planted at the foot of the walls for use in the spring, are destroyed; Cabbage seems to have escaped, Enfield Market and Earliest of All having withstood the frost the best. The crops here were not thawed for seven weeks. At 6 A.M. on the 18th inst. we registered 1° below zero, or 33° of cold, the thermometer standing at 4 feet from the ground, facing north-east; on the following day, at 7 A.M., there were 31°. The frost did much damage in kitchen gardens elsewhere in this neighbourhood.

Where conveniences exist to fill the gaps caused by the loss of Broccolis, and autumn-sown Cauliflowers have been protected under glass, these plants, if taken up with good balls, and planted on warm, rich borders under glass cases or hand-lights, with plenty of air afforded them in mild weather, will, to a certain extent, take the place of the former. A sowing of early Cauliflower seed should be made forthwith in gentle heat. *H. Turner, Fineshade Abbey Gardens, Stamford.*

SKIN IRRITATION BY DAVALLIA.—In reply to the editorial note in your last issue, respecting Davallia Mooreana, I can state that I have frequently experienced, when handling this Fern, a peculiar smarting round the eyes, nostrils, and arms, especially when perspiring; this, I presume, is caused by the spores adhering to the moistened skin. *D. Elkins.*

— I can confidently corroborate the statement concerning the irritation caused by D. Mooreana, but do not believe it affects every person alike, inasmuch as every one is not alike susceptible to the influence of heat. I find if this Fern is handled when the person is perfectly cool, it has no effect on the skin, but if handled after bodily exertion, or in a great heat, and the pores of the skin are open, the irritation is felt, and a very disagreeable sensation it is, especially if you rub the affected part, because, by so doing, you simply spread the spores [?] which cause the irritation, which soon passes off, if left alone. The sensation is peculiar, more like that of the stinging from the Wigandia than the common Nettle; but the only thing I can directly compare it to is, the feeling given by rubbing a little of the sap of a Dieffenbachia on the tip of the tongue. *J. Robertson.*

PEACHES AND NECTARINES.—In reply to Mr. Sheppard (p. 116), I used the term "new varieties" in a relative sense, as any one may perceive who reads the article through, and most gardeners know that Mr. Rivers, the raiser, died several years ago. My memory does not go so far back as Mr. Sheppard's, but I find all the varieties he recommends are described in the third edition of Robert Thompson's Catalogue of Fruits at the Royal Horticultural Gardens, which was printed forty-nine years ago, so that Mr. Sheppard will probably agree with me that those are old varieties, for none of the varieties which I recommended are mentioned in that book. By whom they were first sent out I am at present unable to state, but I have abundant evidence that several of them are very difficult to obtain even at the present date, and are, comparatively speaking, "new" to the majority of gardeners. Even Mr. Sheppard appears to have been long in coming to a decision about them, but if he is so well satisfied with the old varieties, by all means let him keep to them. We have during the last six years tried every variety that had any kind of recommendation, and a few months back we had fifty-five varieties of Peaches and Nectarines on trial, but have now discarded most of them, with the exception of those I have previously recommended. Grosse Mignonne (I presume Mr. Sheppard means the ordinary variety of this) is too small, and has no special quality to recommend it. Noblesse is not a sure cropper; Bellegarde is not melting enough; Barrington and Walburton Admirable are neither of them sure croppers. Mr. Sheppard says, "Early Beatrice and Early Louise are too small to be of much use." The size of fruit depends upon stocks and the kind of culture pursued with them; but can he give me the names and other particulars of any varieties which, started the first week in December, will give ripe fruits at the end of April, bear good crops whose fruits will fetch 2s. 6d. each wholesale in Covent Garden Market? I have repeatedly made this price for surplus fruit of these varieties, so it is very evident that there are persons who think they are worth growing, and buying too. I have before referred to Alexander and its race as being too uncertain in bearing for such early forcing as this, and as to Violette Hative Nectarine, it is nowhere when compared with Dryden or Stanwick Elruge. *W. H. Divers, Ketton Hall Gardens, Stamford.*

JERUSALEM ARTICHOKE.—In 1884 there was a discussion in the *Gardeners' Chronicle* on the origin of this name, and Mr. Wolley Dod and I (and others, I believe), expressed our dissent from the derivation from the Italian Girasole. I believe I said that is a modern clever guess of no authority whatever, and simply grounded on a similarity of sound. To-day I have been looking into the Italian edition of *Mathiolus*, published at Venice in 1668, a fine book

with excellent engravings. There I found the following description of the Ricinus or Palma Christi:—"Del Ricino, c. 165. In Toscana si chiama la sua pianta da chi Girasole, da chi Faguolo Romano et da chi Faguolo Juicheso et in Lombardia Mirasole." Then I looked into Dalechamp *Histoire Generale*, &c., 1615, and there I found this:—"De la Paume de Christ, ricin ou ricotier en Grec; s'appelle en Latin Ricinus; en Arabe Kerna; anciens Apothecaires l'appellent Cataputia minor; d'autres pentadactylon et Palme Christi; Mesin l'appelle Granum Regium; les Italiens Girasole." B. xvi., c. 4. This settles the question. The Italians had in the seventeenth century a plant called Girasole, but it was a very different plant to the Jerusalem Artichoke. *Henry N. Macombe, Bilton Vicarage.*

THE MISTLETO.—Can anyone kindly give me some information as to how to grow Mistleto, and also as to where I could get the ripe seed. The berries one gets at Christmas are useless. This plant is almost unknown in Ulster. I have noticed that Mistleto and the nightingale are usually found in the same districts, and would be glad to know if this is noticed by others. *Subscriber.*

EUPHORBIA JACQUINIÆFLORA.—I was much interested in reading Mr. P. Grieve's capital article on this plant in your last issue. I had a nice batch growing in 6-inch pots in a Melon pit, but many of them were spoiled by mice ringing the stems just above the soil. Have any of your correspondents been similarly troubled by these artful intruders? *D. Elkins.*

SPORT AND BUD VARIATIONS.—I read, in *Gardeners' Chronicle*, page 108, that "Carnations and Picotees, again, which originate from one species, vary from seeds but not from buds." I cannot tell how the writer of the above may have obtained his experience of the Carnation, the Rose, and the Chrysanthemum; but if my experience, of more than thirty years' work amongst the above, may be taken as a guide, I would place the Carnation highest—it is really the most sportive of all our garden plants. I have grown annually for the above period about 500 Roses, and cannot recollect a single sport amongst any of them in that time. Of the same number of Chrysanthemums, we may average about one sport in a year; and some of them have been very curious and erratic in the way they are produced, though they cannot always be fixed. The only sport we had this year, from about 150 varieties, in all the sections, was a pink one from the pure white Japanese variety, "White Elephant." The plant was grown to the height of about two feet, when it was stopped, and then produced three branches; two of these produced white flowers, and the other branch was adorned with flowers of a delicate pink colour. We obtained all the leaf-buds we could get underneath these pink flowers; they were planted, and some have formed roots. We may be hopeful that some of these plants will fix the sport. Naturally some of these sports revert to the original from whence they came. Most growers have also had plants of the pretty Pompon variety Cedo Nulli, with yellow and pink sports on it, and occasionally one with brown flowers. Another rather remarkable fact in relation to these sports is, that the original plant may be grown in hundreds of collections for years with no suspicion of a sport anywhere, until all at once we hear of them in different places the same year or in the succeeding one, evidence truly that some subtle mysterious influence is at work in the constitution of the plants causing this sport variation; moreover, when the sportive influence has once begun in any variety, it does not stop at one colour or shade of colour. Take the variety Princess of Teck, a blush or pink incurved variety. I bought this from Mr. Salter, of Hammer-smith, the first year it was sent out, and have grown a number of plants of it every year since, but have not obtained a sport, although it has sported in the hands of others, white, yellow, and buff. Princess of Wales, Mrs. Rundle, Empress of India, and Queen of England, have sported into several colours each, but they are not numerous, when we consider the thousands of plants of each in cultivation. I have grown many plants of each of them for many years, but never obtained a "sport." When we come to the Carnation and Picotee, I can write with more confidence. I have raised thousands of seedlings, and we cultivate some 500 plants of named varieties in pots. Seed variation is a matter of certainty, for as the flowers are hybridised, we look for it as one of the most enjoyable parts of our work, as a cultivator of florists' flowers. None of

the seedlings will be like each other; they are new colours, new creations of the cultivator's fancy, and a source of pleasurable excitement once realised never to be forgotten. As to bud variation from established varieties, this is so common in collections as to be a source of annoyance to all who grow blooms for exhibition purposes. Some classes or types of Carnations are more sportive than others. Picotees seldom sport; occasionally one in a thousand blooms will take a pink or purplish tint of colour in place of the white ground, the edge of red, purple, rose, or salmon colour remaining unaltered. Self Carnations more rarely sport than Picotees, even; but the bizarre varieties and flakes are amusing in their sportiveness, the scarlet bizarres taking the lead. I remember visiting a grower who had a stock of a new bizarre ready to send out. I had two pairs of them, and picked out by the colour of the leaves those that had not "sported." Quite half, I was sure, would produce flowers different from the seedling; and, by the dark colour of the leaves, most of them would be self—and so it proved; but the four plants I had selected, from the lighter colour and almost indistinct stripes in the leaves, came true to the original colours. A scarlet bizarre should have a white ground with scarlet and maroon stripes, but out of a hundred flowers twenty-five per cent. more rather than less, will be sports; some of them will be maroon selfs, others scarlet, and more of them with the two colours in alternate flakes and stripes, without the white. Other colours in bizarres act in the same way. The flakes having but one colour besides the white ground will sport to selfs only; and it is rather curious how very much some varieties sport. I raised a rose flake some three years or more ago, of excellent quality, named Thalia, and a third at least of the flowers will sport annually. Sybil, of this colour, has the same character. The purple and scarlet flakes sport in the same way, some more freely than others; but they are easily detected in the plant state, from the more vigorous growth of the plants, and deeper green colour of the leaves. *J. Douglas*. [Our experience is in some measure different from Mr. Douglas's, probably because we attach a different meaning to the word to that which he does. We began collecting these sports about 1854, and have continued to observe and note them ever since, having had a large number through our hands every year. We have had very few Carnation sports, and those few only colour sports, if we except positive malformations, which are not unfrequent. Ed.]

NOTES ON THE LATE FROST.—It is with a certain sense of relief that we can, after the late severe frosts, look around and congratulate ourselves, judging from present appearances, upon having escaped with but slight injury, either to trees or shrubs in this locality. Evergreens do not seem to have seriously suffered; the leaves of Aucubas are here and there blistered and browned in patches, also Ivies; but the majority of other things are looking much better than one might have expected, and I am aware that it is yet early to estimate the damage in an accurate manner, but I hope for the best. I attribute this immunity from injury in no small measure to the splendid ripening time that we had in September and October, and the absence of late autumn growth. I noted too, during the frost, that the wind usually did not come from the east, as was the case ten years ago this month, when a great deal of injury was done, and more, I think, by wind than by frost. Roses have not received much harm, and ours, having been transplanted rather more than a year ago, were not so vigorous as usual. So far, the worst loss will be in Broccolis; Brussels Sprouts have maintained their claim to be the best hardy winter vegetables, of which gardeners do not, as a rule, grow as much as they should; and when snow is on the ground, Brussels Sprouts are the easiest gathered of all green vegetables. So far, the birds have not molested the buds of fruit trees or Currant and Gooseberry bushes. Fortunately, the pruning of the latter was not done, or it might have been otherwise. The greatest cold registered in our locality was 24° Fahr., the next lowest readings were those of the nights 20°, 19°, and 18°; several nights gave 14° and 12°. *J. Hudson, Gunnersbury House*.

CANKER IN BEECH TREES.—By parcel post I send some branches of the Beech, damaged by the attack of some insect, probably the larva of a beetle. Can you tell me what it is? It is very prevalent

amongst Beech trees in this neighbourhood. In many cases the twigs beyond the point attacked are quite killed. In others they recover, and new bark grows over the wound, but a tree in which there have been many wounds may be at once known by the number of withered leaves which remain through winter on the dead twigs instead of being shed. *C. Wolley Dod*. [We do not see any trace of insect or fungus now, but think the mischief is due to old frost-cracks. Ed.]

WEIGHTS AND MEASURES.—The fact of your paper calling attention to the new regulation respecting the stamping of all weights and measures ought to be taken advantage of as follows:—A letter should be addressed to the nearest ironmonger, or to the dealer from whom you purchase such goods, stating that you saw in the *Gardeners' Chronicle* the necessity for examination, and your liability to a fine for non-compliance, and you request him to call at his early convenience and see that your scales, weights, and measures are in proper order. If you cannot part with your scales, then he must arrange to bring you a set while yours are being stamped. I would advise that, in the case of measures, enquiry should be made, if it is not cheaper to purchase newly-stamped goods. Keep a copy of the letter, and see you attach it to the reply; for if the tradesman has not time to attend to you at once, you are held harmless from fine until your turn arrives. In conclusion I would add, that all scales and weights must be stamped, hence the necessity for placing yourself in the hands of a tradesman, for you cannot do the necessary work yourself. *Thos. Christy, Sydenham*.

CAMPANULA PYRAMIDALIS.—These form very attractive-looking subjects in the greenhouse during winter, lasting a long time in beauty. We have had several in bloom for at least three months, and they are still flowering—height of stems about 3 feet. It was quite by accident that they were not destroyed, they having failed to flower last summer. The seed from which the plants were raised was sown in the previous autumn, and some were potted on last spring for greenhouse decoration, and others planted out in the border, where they flowered profusely till the frost cut them down. *W. A. Cook, Compton Bassett, Calne, Wilts*. [The flowers which our correspondent sent were nice for the season, although rather flimsy in texture. Ed.]

CULTURAL NOTES.

SOLOMON'S SEAL.

I AGREE with Mr. Evans in what he says at p. 116 of your last issue, as to the usefulness of this plant when forced. This, like another old plant, *Dielytra spectabilis*, is admirably adapted for the conservatory and decorating apartments in early spring. Five or six crowns may be placed in 6 or 7-inch pots, and in the autumn plunged with the Dutch bulbs in coal-ashes. When these are put in gentle heat as required they soon flower, and need careful inuring to the temperature of the cool-house. A cold frame is the best place for them when bloom is over. In May divide the roots, and plant them between the small fruit bushes, giving them a mulching of rotten manure, and allowing them to remain in the open ground undisturbed for the season. *D. Elkins, Trewherry Court*.

SCOTLAND.

LONG SERVICE.

THE oldest gardener in the Carse of Gowrie, Mr. Peter Loney, Fingask Castle, has just retired from his situation after the long service of fifty-two years. We are gratified in stating that he was much appreciated by the late Sir Peter Murray, Threipland, as also by the present young laird, who has conferred a pension on the old gardener who, aided by his own savings, is able to leave the old abode where he has resided so many years. Two of his sons received their first instructions in gardening from him, namely, Mr. P. Loney, about thirty years gardener and manager of the private estates at Marchmont,

Duns; and James, who left Scotland for Sweden in 1864, to lay out the well-known and extensive gardens of James J. Dickson, Esq., Gothenburg, where he still remains in charge of the estates. We may also remind our readers of the mention made of Mr. Loney's golden wedding, at page 819 (December, 1882) of the *Gardeners' Chronicle*. The happy old couple, still in apparently good health, now reside with their daughters at Broughty Ferry, near Dundee.

Obituary.

MR. CHARLES KEETLEY.—It is with much regret we have to record the death of Mr. C. Keetley, which occurred on Sunday, January 18, after a short illness, at Osmaston Hall, near Derby, in his 77th year. Mr. Keetley was Head Gardener to the late Sir Robert Wilmot, Bart., for upwards of forty years, and continued as such until the estate was sold to the Midland Railway Company, a year or two ago, in whose service he continued until his death. Mr. Keetley was a well-known and skilful gardener, kind and courteous to all with whom he had dealings, and ever ready to give advice to others, which won for him a number of friends.

THE WEATHER.

By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS. Above (+) or below (—) the Mean for the week ending Jan. 24.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.							
	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Dura- tion for the Week.	Percentage of possible Dura- tion since Jan. 4, 1891.					
	Above 42°, for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 4, 1891.	Below 42°, difference from Mean since Jan. 4, 1891.										
	Day- deg.	Day- deg.	Day- deg.	Day- deg.						10ths Inch.	Inch.			
1	5	—	0	56	—	19	+	39	10	+	17	3.2	11	12
2	4	—	0	60	—	25	+	48	0	aver.	9	1.0	25	20
3	5	—	0	61	—	21	+	77	2	—	12	0.8	28	19
4	5	—	0	64	—	21	+	120	2	+	14	1.2	34	28
5	5	—	0	61	—	28	+	88	2	+	8	1.2	27	28
6	5	—	0	51	—	30	+	111	4	+	11	1.5	30	31
7	3	—	0	36	—	24	+	32	5	+	12	2.4	22	25
8	4	—	0	47	—	26	+	69	5	+	7	1.4	20	24
9	4	—	5	44	—	39	+	91	5	+	9	2.0	17	33
10	3	—	2	34	—	34	+	41	2	+	13	1.3	19	25
11	1	—	12	25	—	43	+	52	0	aver.	11	1.5	19	31
12	3	—	11	25	—	48	+	51	2	—	11	1.2	22	38

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N. 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N. 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending January 24, is furnished from the Meteorological Office:—

"The weather over England has undergone a complete change. The frost so long prevalent, broke up entirely on the 19th, and gave place to a warm current of air from the westward and south-westward. A good deal of rain fell in most parts of the Kingdom; and, in Scotland, some heavy falls of snow were experienced. In the southern and eastern parts of Great Britain, the weather was less cloudy than elsewhere; fine, bright intervals having prevailed from time to time.

"The temperature, as a whole, has, however, been below the mean for the week, the deficit having ranged from 5° in the north of Scotland, and the

greater part of England to only 1° in 'Ireland, S.' At the beginning of the week the thermometer over England was extremely low; the absolute minima recorded, being 5° in 'England, E.' (at Hillington), 7° in the 'Midland Counties' and 'England, S.W.' (at Loughborough and Llandover), and between 9° and 12° in the other districts. In Scotland the lowest readings were generally registered either on the 18th or 22nd, and varied from 10° to 16°; while in Ireland the thermometer did not fall below 24°. The highest of the maxima were recorded towards the end of the week, and ranged from 49° to 54°. At many of the English stations the daily maxima recorded on the 18th and 19th were below 30°.

"The rainfall has been less than the mean in 'England, N.E.' and the 'Channel Islands,' and about equal to it in 'Scotland, E.' and 'Ireland, S.,' in all other districts, however, there has been an excess.

"Bright sunshine has been rather more than the mean in most districts; the percentage of the possible duration having ranged from 34 in 'England, E.,' and 30 in 'England, S.,' to 19 in Ireland, and 11 in 'Scotland, N.'"

MARKETS.

COVENT GARDEN, January 29.

[We cannot accept any editorial responsibility for the subjoined reports, which are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the price on any particular day, but the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted must not be taken as indicating the prices at any particular date, still less can they be taken as anything more than guides to the prices in the coming week. Ed.]

Our market very quiet, with no remarks to make. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ -sieve	... 3	6- 6 0	Lemons, per case	... 15	0-25 0
— Nova Scotia, brl.	15	0-25 0	Melons, each	... 0	6- 2 0
Cobs, Kent, 100 lb.	... 45	0-50 0	Pine-apples, St. Mi-		
Grapes, lb.	... 0	9- 3 0	chael, each	... 2	0- 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.			s. d. s. d.						
Artichokes, Globe,	0	4	0	6	Lettuces, per dozen	3	0	...	
each	0	4	0	6	Mushrooms, punnet	2	0	...	
Beans, French, lb.	1	6	...	...	Mustard and Cress,			
Beet, red, per dozen	2	0	3	0	punnet	0	4	...	
Brussels Sprouts, lb.	0	4	...	...	Parsley, per bunch	0	4	...
Carrots, per bunch	0	6	Seakale, per basket	2	0	3	0
Cauliflowers, each	0	9	1	0	Shallots, per lb.	0	6	...	
Celery, per bundle	2	6	3	0	Spinach, per bushel	7	0	...	
Cucumbers, each	0	6	0	9	Tomatoes, per lb.	0	9	1	0
Endive, per dozen	2	0	...	...	Turnips, per bunch	0	6	...
Herbs, per bunch	0	4	...	...			

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.			s. d. s. d.		
Aralia Sieboldi, doz.	6	0-18 0	Ficus elastica, each	1	6-7 0
Aspidistra, doz.	18	0-42 0	Foliage plants, vari-		
— speci. plants, each	7	6-10 6	ous, each	2	0-10 0
Azalea, per dozen	24	0-42 0	Hyacinths, per doz.	9	0-10 0
Bouvardias, p. doz.	9	0-18 0	— Roman, per doz.	9	0-12 0
Cyclamens, dozen	9	0-18 0	Lily of the Valley,		
Cyperus, per dozen	4	0-12 0	per dozen pots	12	0-24 0
Dracena terminalis,			Marguerites, doz.	6	0-12 0
per dozen	30	0-60 0	Mignonette, per doz.	4	0-6 0
— viridis, per doz.	12	0-24 0	Myrtle, per doz. pots	6	0-12 0
Eunomys, in var.,			Palms in variety,		
per dozen	6	0-18 0	each	2	6-21 0
Ericas, various, doz.	8	0-18 0	Poinsettias, dozen	9	0-15 0
Evergreens, in var.,			Primula, per dozen	4	0-6 0
per dozen	6	0-24 0	Solanums, per doz.	9	0-15 0
Ferns, in var., per			Tulips, per doz. pots	6	0-9 0
dozen	4	0-18 0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.				
Azalea, 12 sprays	1	0	1	6	Marguerites, 12 bun.	3	0	6	0
Bouvardias, per bun.	1	0	1	6	Narcissus (paper				
Callaethiopica, 12 bl.	4	0	8	0	white), 12 sprays	1	0	2	0
Camellias, white, 12					— French, 12 bun.	12	0	18	0
blooms	2	0	4	0	Mignonette, Fr. bu.	2	0	4	0
.. cold., 12 blms.	1	6	2	0	Pelargoniums, scarlet,				
Carnations, 12 blms.	1	0	3	0	12 spr.	1	0	2	0
Christmas Roses, 12					Poinsettias, 12 blms.	4	0	12	0
blooms	0	6	2	0	Primula, single, 12				
Chrysanth., 12 bun.	4	0	6	0	sprays	0	9	1	6
Cyclamens, per doz	0	3	0	6	Primulas, double, 12				
Daffodils, various, 12					sprays	0	6	1	0
blooms	1	6	3	0	Roses, Tea, per doz.	1	0	4	0
Eucharis, per dozen	4	0	6	0	— coloured, dozen	3	0	6	0
Gardenias, each	2	0	4	0	— yellow (Maré-				
Heliotropes, 12 spr.	0	6	1	0	chiel-), each	0	9	1	3
Hyacinths, Rom., 12					— red, per dozen	3	0	6	0
sprays	1	0	1	6	— Safrano, French,				
Hyacinth, various, 12					per box of 100...	3	0	6	0
spikes	3	0	6	0	— ditto, per dozen	1	0	3	0
Lilium, var., 12 blms.	2	0	18	0	Tuberose, 12 blms.	1	0	2	0
Lily of the Valley, 12					Tulips, various, 12 bl.	1	0	2	0
sprays	0	6	1	3	Violets, 12 bun.	2	0	5	0
Maiden Hair Fern,					— Parme, Fr. bun.	7	6	9	0
12 bunches	4	0	9	0	— dark, Fr. bun	2	0	3	6

ORCHID-BLOOM IN VARIETY.

POTATOS.—Market still continues firm. Arrivals not so heavy. J. B. Thomas.

SEEDS.

LONDON: Jan. 28. — Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, S.E., write that an increasing disposition to buy Clover and other seeds now shows itself. Some recent heavy purchases of American red by Germany have strengthened values, whilst in the offerings of new English samples there is a marked falling off. For Alsike, white and Trefoil, former quotations are fully supported. The French are now asking 2s. per bale more money for Rye grass. Tares, both spring and winter keep steady. In Hempseed the tendency is still upwards. Canary seed continues to quietly harden. Buckwheat and Rapeseed are again higher. Blue Peas dearer. No change in Haricot Beans.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior, do., 46s. to 75s.; hay, best, 60s. to 87s.; inferior, do., 26s. to 50s.; and straw, 24s. to 38s. per load.

FRUIT AND VEGETABLES.

SPITALFIELDS: Jan. 28.—Limited supply of fresh vegetables, demand good. Moderate supply of fruit, fair demand. Potato trade fairly active. Prices as under:—English Apples, 6s. to 12s. per bushel; American do., 26s. to 36s. per barrel; foreign Tomatos, 1s. to 2s. per box; Cabbages, 3s. to 6s. per tally; Savoys, 2s. 6d. to 6s. do.; forced Rhubarb, 1s. to 1s. 6d. per dozen bundles; Curly Kale, 1s. 6d. to 2s. 6d. per bushel; Seakale, 1s. to 1s. 6d. per punnet; Cauliflowers, 3s. to 4s. per dozen; Brussels Sprouts, 1s. 9d. to 2s. 6d. per half-sieve; Greens, 3s. to 5s. per dozen bunches; Turnips, 3s. to 3s. 6d. do.; Carrots, 3s. to 4s. do.; Parsley, 2s. to 3s. do.; Parsnips, 2s. to 2s. 6d. per score; Beetroots, 3d. to 4d. per dozen; Cabbage Lettuces, 1s. 6d. to 2s. do.; Celery, 6d. to 1s. per bundle; Horseradish, 1s. to 1s. 3d. do.; Leeks, 3s. to 4s. per dozen; Endive, 1s. 6d. to 2s. do.; Mustard and Cress, 1s. to 1s. 6d. per dozen baskets; English Onions, 5s. 9d. to 6s. per cwt.; Spanish do., 8s. 6d. to 9s. per case; Bordeaux do., 6s. do.; Belgian do., 4s. 9d. to 5s. 3d. per bag of 110 lb.; Dutch do., 4s. 6d. to 5s. do.; Carrots, 25s. to 40s. per ton.

STRATFORD: Jan. 27.—There has been an excellent supply of all kinds of produce at this market during the week; a brisk trade was done at the under-mentioned quotations:—Savoys, 2s. to 7s. 6d. per tally; Greens, 1s. to 2s. 6d. per sieve; do., 3s. to 5s. per dozen; Turnips, 2s. to 3s. per dozen bunches; do., 40s. to 50s. per ton; Carrots, household, 40s. to 50s. do.; do., cattle-feeding, 30s. to 34s. do.; Parsnips, 1s. to 2s. 6d. per score; Mangels, 18s. to 22s. per ton; Swedes, 18s. to 24s. do.; Onions, English, 110s. to 130s. do.; do. Dutch, 3s. 6d. to 4s. 6d. per bag; Apples, English, 3s. to 10s. per bushel; Celery 7d. to 1s. per roll; Oranges, 8s. to 14s. per case; Watercress, 7d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: Jan. 27.—Quotations:—Hebrons, 75s. to 120s.; Magnums, 80s. to 130s.; Regents, 80s. to 120s.; Imperators, 80s. to 105s. per ton.

SPITALFIELDS: Jan. 28.—Quotations:—Magnums, 55s. to 80s.; Regents, 70s. to 120s.; Champions, 70s. to 80s.; Imperators, 80s. to 120s.; Hebrons, 80s. to 95s., Victorias, 70s. to 100s. per ton.

STRATFORD: Jan. 27.—Quotations:—English Magnums, 70s. to 100s.; Imperators, 85s. to 100s.; Hebrons, 80s. to 95s.; Scotch Magnums, 90s. to 110s. per ton.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

ALGERIAN IRIS.—Will our correspondent W. O., or other reader, kindly inform G. E. M., who has also been resident in Algiers, of the name of an Iris, sky-blue in colour, with a white and yellow centre, and growing 4 or 5 inches high; found wild by him on the edge of the cliffs at Pointe Pesade?

NOTICES TO CORRESPONDENTS.

AMORPHOPHALLUS CAMPANULATUS: W. Complaints have reached us concerning an advertisement of this plant, which should have been addressed to the journals in which the advertisement appeared, but the publisher, even of a garden newspaper, can no more be expected to have a knowledge of botany and horticulture than the editor to be proficient in the commercial management of his journal. In most, but not in all journals, the editorial and the business departments are entirely distinct, a fact which correspondents seem unable to realise in spite of the weekly announcement of the fact.

BONE-DUST ON LAWN: E. L. In March, and during growth. Its action is slow.

BOOKS: C. B. W. *Plant Life* (Bradbury, Agnew & Co.).—*Epitome of Gardening* (Black & Co.).

CARNATION DISEASE: A. *Uromyces dianthi*. A fungus which grows in the interior of the leaf, where no fungicide can reach it without destroying the leaf itself.

CATTLEYA FUNGUS: Correspondent. Nothing is known as to the disease further than that it is connected with a fungus. Burn the plants, or if you do not care to make the sacrifice, cut out and destroy all the diseased portions, using for the purpose a knife previously heated in the flame of a spirit lamp, or made red-hot.

CORRECTION: *The Northern Gardener*. The proprietors write that it is erroneous to say, as we did in our "List of Horticultural Periodicals," at p. 121, that Mr. James Anderson is the Editor of that periodical.

CURIOSITIES OF PLANT LIFE: T. B. D. Read M. C. Cooke's *Freaks and Marvels of Plant Life*, published by the Society for the Promotion of Christian Knowledge. Cost, a few shillings.

"EXQUISITE" ARCTIC KALES: S & Sons. Exquisite is a pretty name, but the Kales are old friends of many years back. That they are very hardy is known to every one.

FRUIT ROOM: Subscriber. For particulars of construction, see our issue for December 13 last, p. 704. In your case, hollow walls may be a necessity, and there should be a ceiling over the stoke-hole to prevent the sulphurous fumes ascending into the room.

KILLARNEY FERN: Killarney. The botanical name is *Trichomanes radicans*. It, and its varieties, cristatum, incisum, multifidum, and ramosum, are best grown in the cool greenhouse, in a shady part of it. An ordinary glass aquarium or fern-case should enclose it; the dry air of the house being opposed to its thriving. It may be planted in a mixture of bits of sandstone and sandy peat, and kept in a moist condition the whole season; but, as little air need be given the case, evaporation is very slow. In a damp Masdevallia house or cool fernery, with a northern aspect, a less amount of protection from aridity would be necessary. Use clear glass, and keep the same clear of *Confervae*, which would soon cover it, and render a view of the Fern impossible.

LILY OF THE VALLEY TO FLOWER IN THE MIDDLE OF SUMMER: G. A. Macduff. Possibly by some system of retarding growth by cold in winter and in spring.

MUSHROOMS FROM MILLTRACK SPAWN: W. D. Bason. Excellent produce from outside beds at this season.

NAME OF FRUIT: G. E. M. Scarlet Crofton.

NAMES OF PLANTS: G. Ward. 1, *Abutilon Sellowianum variegatum*; 2, *Cyperus laxus*; 3, *Sansivera zeylanica variegata*; 4, *Dracena terminalis*; 5, *D. Cooperi*; 6, *Anthericum lineare*.—G. W. H. *Cyrtoceras reflexus*.—T. & J. R. 1, *Lelia Eyermannii*, small form; 2, *L. autumnalis*; 3, *Cattleya Percivalliana*; and an ordinary form of *Cypripedium insigne*.—W. H. R. The *Begonias* are, 2, *B. Warszewiczii*; 3, *B. hydrocotylifolia*.

ROMAN HYACINTHS: J. H. B. Send specimens for inspection.

SKELETONISING LEAVES: J. Shambrook. An account of their preparation, &c., appeared in our issue for December 8, 1888, p. 680.

VINES: *Hensell.* If the canes are strong, cut them back at the wall plate, and take them up three shoots—if that is the number you wish to have—selecting the most promising of those which break just below the end of the cane. Get these into an ascending line as soon as possible, making, this year, no attempt to make neat diverging angles but leaving that to be done next winter. When the shoots have grown half the length of the rafter, pinch out the tops, and the laterals pinch back to one leaf each. When the leader breaks again, see that it is from what would be the dormant bud, and not from the foremost bud at that point, the growth from which must be rubbed off as soon as observed. Train up as before, but not rigidly, allowing the point a good amount of freedom. If growth is very rapid, or the space to be filled small, another stopping of the leaders may take place with the same forcing of the otherwise dormant bud at the end. The effect of these arrests of growth will be to induce abnormal development of the buds all down the canes, and there will be no necessity for cutting the canes back beyond the middle of the rafter next autumn. Make the border piecemeal fashion, and assist growth with liquid manure, genial warmth and moisture, and sufficient ventilation at the proper time.

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- W. SMITH & SON, Exchange Seed Warehouses, Aberdeen—Seeds, Plants, &c.
 W. SHAND, New Street, Lancaster—Garden Seeds, Roots, &c.
 BETTS & BARKER, Hornington Cross, and Burton-on-Trent—Vegetable and Flower Seeds.
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 J. E. BARNES, Great Eastern Seed Stores, 9, Exchange Street, Norwich—Seeds and Requisites.
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 KELWAY & SON, Langport, Somerset—Manual of Horticulture and Agriculture.
 THAMES BANK IRON COMPANY, Upper Ground Street, London, S.E.—Trade List, 24th edition.
 V. DÜPPEL, Erfurt, Germany—Seeds and Plants (Wholesale).
 WM. SAMSON & CO., 8 and 10, Portland Street, Kilmarnock—Seeds and Plants.
 JOHN R. KING, Coggeshall, Essex—Garden Manual for 1891.
 JOHN PERKINS & SON, 52, Market Square, Northampton—Vegetable and Flower Seeds.
 T. T. GREEN, Duke Street, Settle, Yorks—Garden and Farm Seeds, &c.
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 W. P. LAIRD & SINCLAIR, 73, Nethergate, Dundee—Vegetable and Flower Seeds.
 W. B. ROWE & CO. (Limited), 65, Broad Street, Worcester—Vegetable and Flower Seeds.
 JOHN GREEN, Norfolk Nurseries, Dereham—Annual Guide for Seeds and Plants.
 J. R. PEARSON & SONS, Chilwell Nurseries, Notts—Garden and Flower Seeds.
 T. HORSMAN, 102, Godwin Street, Bradford—Spring List.
 GEORGE COOLING & SONS, 11, Northgate Street, Bath—Spring List.
 EDMONDSON BROS., 10, Dame Street, Dublin—Seeds and Requisites.

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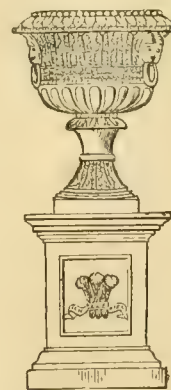
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COOKSON, N., Wylam-on-Tyne.
CRAWSHAY, De B., Sevenoaks.
LAWRENCE, Sir Trevor, Bart., M.P., President, Royal Horticultural Soc.
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LINDEN, Lucien, Brussels.
O'BRIEN, James.
PFITZER, Prof., Heidelbergberg.
ROLFE, R. A., Kew.
ROSS, Comm., Florence.
SANDER, F., St. Albans.
SMEE, A. H., Wallington.
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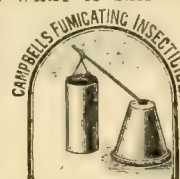
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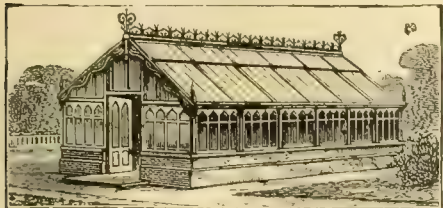
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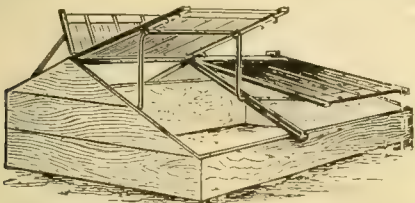
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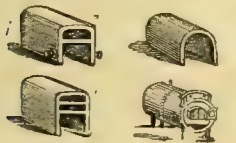
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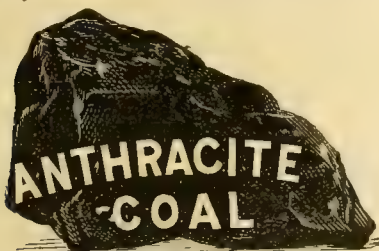
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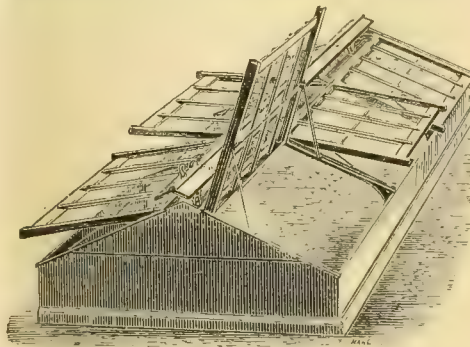
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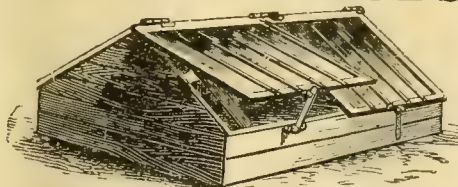
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GARDENING APPOINTMENTS.

MR. C. SHEPPARD, who for the last seven years was Head Gardener to **E. Crabb, Esq.**, Great Glemham Hall, Saxmundham, Suffolk, is engaged to remain there in the same capacity to the Duke of Hamilton.

MR. S. OCOCK, until recently Gardener at Stud House, Home Park, Hampton Court, has taken charge of the Gardens of **R. B. EVERED, Esq.**, Oatlands, Horley, Surrey.

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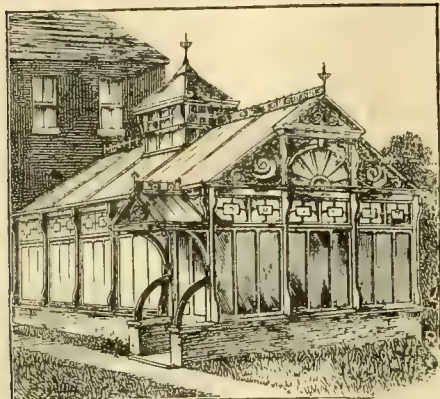
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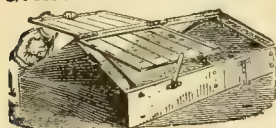
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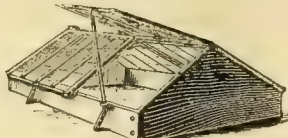


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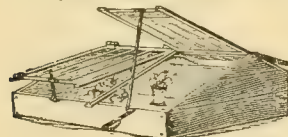
6 ft. by 3 ft. ... £2 0 0	6 ft. by 4 ft. ... £2 5 0
12 ft. by 3 ft. ... 3 2 0	12 ft. by 4 ft. ... 3 15 0

No. 73.
NEW SPAN-ROOF
GARDEN FRAME.



CASH PRICES.
CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 14 0
8 ft. by 6 ft. ... 4 4 0	16 ft. by 6 ft. ... 7 4 0

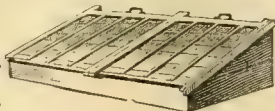


No. 74.
THREE-QUARTER
SPAN
GARDEN FRAME.

CASH PRICES.
CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 17 0
8 ft. by 6 ft. ... 4 5 6	16 ft. by 6 ft. ... 7 8 6

No. 75.
MELON AND
CUCUMBER FRAME.



CASH PRICES.
CARRIAGE PAID.

4 ft. by 6 ft. ... £2 0 0	12 ft. by 6 ft. ... £4 3 0
8 ft. by 6 ft. ... 3 0 0	16 ft. by 6 ft. ... 5 6 0

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ESTABLISHED 1841.
2615.

No. 215.—VOL. IX. {THIRD SERIES.}

SATURDAY, FEBRUARY 7, 1891.

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THE GARDENERS' CHRONICLE,
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W. RICHARDS, 41, Wellington Street, Strand, W.C.

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MY DWARF ROSES are the finest Plants I
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MR. COOPER, F.R.H.S. (late of Calcot Gardens), is the largest grower in the kingdom of Prize Cob Filbert Trees for Sale. Descriptive and Price LISTS on application to Mr. COOPER, Western Elms, Reading, Berks.

CLEARANCE SALE of BULBS, all in fine condition. HYACINTHS, TULIPS, DAFFODILS, CROCUSES, SNOWDROPS, SCILLAS, CHIONODOXAS, and other BULBS, at REDUCED PRICES. Clearance LIST free on application to BARR AND SON, 12, King St., Covent Garden.

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WANTED, CUT FLOWERS, daily.—ROSES, ORCHIDS, &c. Best Market prices.
W. RAVENHILL, 157, Norwood Road, Herne Hill, S.E.

WANTED, LAVENDER, in quantity, for Planting. Send sample, and price per 1000, put on rail, to—
J. RHODEN, Rothbury, Blackheath Park, Blackheath, Kent.

WANTED, large KENTIAS, in EXCHANGE for PALMS, in 48's and 32's.
G. PHIPPEN, F.R.H.S., Reading.

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WANTED, for forcing, young well-trained
Trees from 3 to 5 feet radius. Must be clean and healthy. State sorts and prices to—
GARDENER, Neasden House, Neasden, N.W.

WANTED, Cuttings, or out of store pots,
H. Jacoby, Veuvius, and Mrs. Turner GERANIUMS.
W. AND J. BROWN, Stamford.

THE CHINESE ARTICHOKE (*Stachys tuberifera*).—JAMES CARTER AND CO. have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An Illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers.
Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

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Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

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CHARLES TURNER can offer the above with tall stems and strong heads.
The Royal Nurseries, Slough.

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DICKSON AND ROBINSON'S Descriptive Priced CATALOGUE of VEGETABLE and FLOWER SEEDS—including all Novelties of Merit, and Garden Requisites for 1891, is now ready, and will be forwarded, post-free, on application.
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JAS. WINGFIELD, Widmore Hill Nursery, Bromley, Kent.

AVENUE and ORNAMENTAL TREES.—Norway Maple, 10 to 12 feet, 30s. per 100; Limes, 8 feet, 40s. per 100; Sycamore, 10 feet, 30s. per 100; Birch, 10 to 12 feet, 30s. per 100; Elm, Wych, 8 feet, 20s. per 100; Elm, English, 8 feet, 30s. per 100; Ash, 10 to 12 feet, 25s. per 100.
GARRIES MITCHELL, Nurseryman, Stranraer.

SEEDS! SEEDS! SEEDS!—Select Stocks of Vegetable and Flower Seeds at Wholesale Prices. Everyone with a garden, and every market gardener, should send for a Catalogue before ordering elsewhere.—B. L. COLEMAN, Seed Merchant and Grower, Sandwich, Kent.

Unusual.

H. CANNELL AND SONS will EXHIBIT at the DRILL HALL, next TUESDAY, 10th inst., the finest PRIMULAS they have ever shown. Mr. H. Cannell, Senr., will be glad to meet as many friends as can make it convenient to be there.—SWANLEY.

FERNs.—*Pteris tremula*, *P. cretica cristata*, and *P. cretica* major, grand stuff in large thumbs, quite ready for 48's, 12s. per 100. Packing free, cash with order.—GOWERS AND EMBERSON, Comely Bank Nursery, Walthamstow, E.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney. WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday Next.

An immense Importation of LILIES from Japan, comprising 50,000 LILIUM AURATUM (many in cases as received), L. LONGIFLOREM, L. SPECIOSUM RUBRUM, &c. Also 10,000 Pearl and S. African TUBEROSSES, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 11.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

Several Hundred Standard, Pyramid, and Dwarf-Trained FRUIT TREES, comprising many of the best sorts of Apples, Pears, Plums, Peaches, Nectarines, &c. 1,500 Choice named Standard and Dwarf ROSES, from a well-known English grower. A grand collection of LILIES, home-grown, CARNATIONS, PINKS, French PÆONIES, DAHLIAS, IRIS, and other BORDER PLANTS. Imported LILIUMS, DUTCH BULBS, SPIRÆAS, choice DAFFODILS, and many other Bulbs and Roots.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY and SATURDAY NEXT, February 11 and 14, at half-past 12 o'clock precisely.

On view mornings of Sale, and Catalogues had.

Thursday Next.

Very fine HYBRID DENDROBIUM, from the Collection of Sir W. Marriott, D. HETEROCARPUM × with the finest var. of D. NOBILE NOBILISSIMUM, from Mr. Rucker's Collection, a fine plant, with 12 bulbs and 28 flowers.

MR. J. C. STEVENS has received instructions to include the above plant in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 12.

On view morning of Sale, and Catalogues had.

Thursday, February 19.

IMPORTATIONS OF ORCHIDS FROM NEW DISTRICTS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, February 19, at half-past 12 o'clock precisely, the finest imported Plants ever offered as under:—

DENDROBIUM FORMOSUM GIGANTEUM in wonderful health and condition, the bulbs are enormous, and the masses gigantic, eyes plump and dormant, flowers very sweet scented and colossal in size, of a brilliant shining white and rich orange, the best Orchid known for cutting purposes.

DENDROBIUM JAMESIANUM FLORIBUNDUM.—The large, handsome, pearly white and orange-coloured blossoms of this grand Dendrobe, last two months in perfection, the plants are the finest ever collected, and are from a virgin forest, where no European has ever before collected. The plants are magnificent, pseudobulbs enormous, eyes sound and dormant.

ONCIDIUM SPLENDIDUM, just to hand in the very finest order and condition, with big plump bulbs and thick green leaves, full of native vigour this is the finest golden winter-blooming Orchid, and now very rare. All are offered.

CYPRIPIEDUM from Bhootan, gathered on limestone mountains during a survey, and not seen in bloom. All are offered. One box only could be found. Leaves are similar to C. bellatulum.

THUNIA, with large crimson flowers, larger than those of T. Marshallae, and very free-flowering. All are offered as received.

CALANTHE SECTION OF VESTITA sold as received. No doubt many new kinds are among the plants now offered, which have been sent from unsearched forests.

DENDROBIUM DALHOUSIANUM, the finest lot ever seen, gathered in a virgin district, the plants now offered, are much superior to established specimens, as they are well-furnished with magnificent unblossomed bulbs.

DENDROBIUM NOBILE (Sander's superb strain), in magnificent masses, the finest lot ever seen in Europe.

DENDROBIUM discovered in Chucatan, with bulbs in the way of Guiberti; only a few found, all of which are offered. From the very distinct knotted bulbs and old flower-seats, this is probably a new variety.

Fifty plants of PLATYCERUM SPECIES from Surinam.—This grand Elk's-Horn Fern is well adapted for growing on Tree Fern stems, rockeries, sandstone, &c., and is at all times quaint and remarkable.

ANGRECEUM BILOLEUM, very rare.

FASTUOSUM, very pretty species, and rare.

CATTLEYA PERCIVALLIANA, magnificent plants.

DENDROBIUM CRASSINODE BARBERIANA.

LYCASTE, white and bronze-flowered species; useful for cutting; winter-flowering, and sweet-scented.

LYCASTE CRUENTA, golden-yellow, red centre; one of the very finest winter bloomers, lasting a long time in perfection. &c., &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

SPECIAL SALE OF ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 12, at half-past 12 o'clock precisely, a Fine Collection of ORCHIDS, mostly in FLOWER or BUD, comprising 14 Hybrid Cypripediums, including C. Morganianum, and other choice forms; Dendrobium nobile Cooksonianum, n. Sanderianum, Hybrid Dendrobe, from the collection of Sir W. Marriott; D. Ainsworthii, Odontoglossum Edwardii, Lælia Aconops, Alba, and Williamsii; Cattleya Trianae, fine varieties; Cologyne Xololeuca, and other rare species. Also importations of Mexican and Burmese Orchids, a fine lot of Terrestrial Orchids, &c.

On view morning of Sale, and Catalogues had.

ONCIDIUM BRULLESIANUM.

A most beautiful and rare species; a Plant in Flower.

ODONTOGLOSSUM ASPERSUM.

Splendid Variety in Bloom; the grandest ever seen.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, February 19, by order of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Monday Next.

CARNATIONS and HARDY BULBS.

MESSRS. PROTHEROE and MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, February 9, at half-past 12 o'clock, a choice collection of CARNATIONS, PICOTÉES, PÆONIES, DAHLIAS, NARCISSUS, CALOCHORTI, early flowering GLADIOLI, ANEMONES, and many other beautiful varieties for outdoor planting. A magnificent collection of IRIS, including all the best in cultivation; LILY OF THE VALLEY, CYPRIPIEDUM SPECTABILE, home-grown LILIES, consisting of GIGANTEUM, BROWNII, HUMBOLDTI, HANSONI, KRÆTZERI, SPECIOSUM, PARDALINUM, and others; HARDY PERENNIALS, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIES, PALM SEEDS, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 11, at half-past 12 o'clock, 7000 LILIUM AURATUM, very fine bulbs; a case of MAPLES, and two cases of Dried GRASSES, from Japan; 170,000 SEEDS of KENTIA BELMOREANA, in splendid condition; 700 yards of DRACÆNA Stems, various sorts; and 15,000 AMERICAN PEARL TUBEROSSES, just received from New York; 1000 double and semi-double BEGONIAS, from Belgium; 500 Standard and Dwarf ROSES, English-grown LILIES, HERBACEOUS PLANTS, and about 50 lots of FERNS, PALMS, and OTHER PLANTS, for Greenhouse and Conservatory.

On view morning of Sale, and Catalogues had.

Wednesday Next.

170,000 SEEDS KENTIA BELMOREANA in magnificent condition; probably one of the finest consignments ever received in this country. Also 700 YARDS DRACÆNA STEMS, of various sorts; 15,000 AMERICAN PEARL TUBEROSSES, just received from New York.

MESSRS. PROTHEROE and MORRIS will include the above in their SALE on WEDNESDAY next, February 11.

On view morning of Sale, and Catalogues had.

Friday Next.

DENDROBIUM WARDIANUM LOWII.

CATTLEYA TRIANA.

VANDA AMESIANA.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 13, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a fine lot of Imported plants of DENDROBIUM WARDIANUM LOWII, the large-bulbed variety from Upper Burma, just to hand, per P. and O. steamer *Coromandel*. Also selected specimens of CATTLEYA TRIANA, VANDA AMESIANA, amongst them fine pieces of V. KIMBALLIANA, V. CÆRULEA, and other choice Orchids.

On view morning of Sale, and Catalogues had.

Orchids in Flower. Special Sale, February 24.

MESSRS. PROTHEROE and MORRIS respectfully announce that they purpose recommending their Special SALES OF ORCHIDS IN FLOWER, on TUESDAY, February 24, and will be glad to receive an early intimation from their Clients who may desire to INCLUDE PLANTS. ENTRIES should be made NOT LATER THAN THE 18th INST.

Isleworth.

CLEARANCE SALE OF GLASS ERECTIONS, PLANTS, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, the Spring Grove Nursery, London Road, Isleworth (four minutes' walk from Isleworth Station, L. & S.W. Ry.), on TUESDAY, February 17, at 12 o'clock precisely, without reserve, by order of Mr. J. Palmer, 10,000 MAIDENHAIR FERNS, 200 Double White AZALEAS, 1200 CARNATIONS, 800 ROSES (La France and General Jacqueminot), and other PLANTS; the Erections of 14 GREENHOUSES, 500 feet HOT-WATER PIPING, mostly 4-inch; 6 BOILERS and BRICKWORK, &c.

May be viewed day prior to Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone.

N.B.—The beneficial interest in the LEASE of the NURSERY, comprising 2 Acres of Land, Dwelling-house, &c., will be offered on the Premises prior to the Disposal of the Stock and Greenhouses.

Without Reserve.

Woodford Road, Essex, E., near Snarresbrook Station, Great Eastern Railway.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. John Fraser (the Lease of this portion of his branch Nursery being about to terminate) to SELL by AUCTION, on the Premises, Woodford Road, Wanstead, on TUESDAY, February 17, and two following days, at 12 o'clock each day, the First Portion of the exceptionally well-grown NURSERY STOCK, containing an extensive assortment of Hardy Shrubs, 4000 Hollies, 2 to 8 feet, bushy, handsome plants, beautifully rooted; 3000 Rhododendrons, finest named sorts, probably one of the best collections in the country; 2000 Flowering and Ornamental Trees; 4000 Conifers, containing numerous good specimens; 3000 Evergreen Shrubs, a splendid lot of Rotundifolia and Common Laurels, Aucubas, &c.; 5000 Fruit Trees, con-isting of Standard, Pyramid, and Espalier Apples, Pears, Plums, Cherries, and Nuts, many in a forward state for fruiting; 4000 Standard and Dwarf Roses of the choicer sorts.

May be viewed. Catalogues had on the Premises, at the Lea Bridge Nurseries, Leyton, E. and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Sale of Nursery Stock and Greenhouse Plants from Sample.

MESSRS. PROTHEROE and MORRIS desire to announce that their SALES OF NURSERY STOCK and GREENHOUSE PLANTS from Sample will re-commence on THURSDAY, February 19.

Entries are solicited for the NEXT SALE, and should be sent in NOT LATER THAN FEBRUARY 7.

Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Titchfield, near Fareham, Hants. IN LIQUIDATION.

The English Apple and Fruit Growing Company.

GREAT CLEARANCE SALE.

MESSRS. PROTHEROE and MORRIS are instructed to SELL by AUCTION on the Premises, the Pasbrooke Gardens, Titchfield, 3 miles from Fareham station, L. and S.W. Railway, on WEDNESDAY, February 18, at half-past 11 o'clock, precisely, by order of the Liquidator, without reserve, the whole of the choice GREENHOUSE PLANTS, fine Eucharis, 3,000 Carnations, 4,000 Chrysanthemums, Camellias, Azaleas, 3,000 Callas, 3,000 Roses, 2,500 Ivy-leaf Geraniums, double white Primulas, 12,000 Strawberries in pots for forcing, comprising all the leading varieties, 600 Fruit trees, 5,000 Narcissus in pots, and other stock; 4,000 feet of hot-water piping, 3 and 4-inch; two 9-feet horizontal boilers, sundry furniture, capital horse and van, set of harness, garden implements, &c.

May be viewed prior to the Sale. Catalogues had of Mr. BENNETT, on the premises; of Messrs. MAY, SYKES AND BATTEN, Solicitors, 2, Adelaide Place, London Bridge, E.C.; of W. IZARD, Esq., the Liquidator, 147, Cannon Street, E.C.; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Exeter.—Preliminary Notice.

FINAL CLEARANCE SALE OF NURSERY STOCK and GREENHOUSE PLANTS.

MESSRS. PROTHEROE and MORRIS are instructed by Messrs. Lucombe, Pince & Co., whose Lease expires at Lady Day next, to SELL by AUCTION, on the Premises, the Exeter Nurseries, Exeter, on TUESDAY, February 24, and two following days, the FINAL PORTION of the exceptionally well-grown NURSERY STOCK and GREENHOUSE PLANTS, full particulars of which will appear in next week's advertisements.

N.B.—The Old-established NURSERY is to be LET or SOLD, part of the Land having important Frontages to Main Road, ripe for Building.

Paignton, Devon.—Without Reserve.

PRELIMINARY NOTICE.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. W. Rossiter (who is transferring the business to his son at Midsummer next), to SELL by AUCTION, on the Premises, the whole of the well-grown NURSERY STOCK, contained in three of his branch Nurseries.

Full particulars will appear next week.

Bures St. Mary, Suffolk.

MESSRS. EDW. SMITH and BOGGIS are instructed by the Trustees for Sale, under the will of the late Mr. H. I. Hardy, to SELL by AUCTION at the "Eight Bells," Bures Hamlet, on WEDNESDAY, February 18, 1891, at 3 for 4 o'clock in the afternoon, a valuable FREEHOLD BUSINESS PROPERTY known as "The Stour Valley Nurseries and Seed Grounds," comprising about 4 acres of Productive Garden Land, well planted with Fruit Trees and Bushes, a convenient Dwelling-house, Greenhouses and Buildings; well situated in Bures St. Mary, and occupied for many years by the late Mr. H. I. Hardy, F.R.H.S., Seed Grower and Florist.

Particulars and conditions of Sale may be obtained of W. HEATHFIELD, Esq., Solicitor, 67, Hanley Road, Hornsey Rise, London; at the place of Sale, or at the Auctioneers' Offices, Colchester.

To Seedsmen, Nurserymen, &c.

FOR SALE, by Private Contract, as a going concern, the BUSINESS of SEEDSMEN, NURSERYMEN, FLORISTS, &c., carried on by Black & Co., at Malton. The business comprises Stocks in Shop and Warehouse at Malton; Stock in the Nurseries situate at York Road, Malton, and at Old Malton respectively, and certain Greenhouses thereon. Tenancies of the above Premises can be secured by the purchaser.

Apply to JOHN GORDON, jun., Chartered Accountant, 1, Bond Street, Leeds.

FOR SALE, a FLORIST'S SHOP

(High Class). Apply to

THE CONSERVATORY, Finchley Road, Hampstead, N.W.

FOR SALE, FLORISTS' BUSINESSES,

both in first-class positions, well-established, and on long leases.

For full particulars as to prices, &c., apply to the Agents, GREEN AND GREEN, 23, Harrington Road, South Kensington, S.W.

FOR SALE, very compact Small NURSERY,

with 200 feet of Glass, well-heated with hot-water, with immediate possession; 6-roomed HOUSE attached, part let off.—B. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

To Nurserymen and Others.

WANTED to LET, Extensive Fruit and Vegetable Gardens, forming part of a Residential Property near East Sheen.—For particulars, apply by letter, to T. Street Brothers, 5, Serle Street, Lincoln's Inn, W.C.

Fifty Nurseries, Market Gardens, Florist and Seed

BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

Landscape Gardening.

B. MALLER and SONS are prepared to Furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

NOTICE.—CHANGE OF ADDRESS.

MR. H. E. MILNER begs to Notify that in Order to Meet the need for Increased Office Accommodation at DULWICH WOOD, as well as to ensure more convenience for Consultations, he has taken additional Offices at WESTMINSTER CHAMBERS, 7, VICTORIA STREET, S.W., which, henceforward, will be his Chief Office.

HENRY ERNEST MILNER, F.L.S., ASSOC. M. INST., C.E. LANDSCAPE GARDENER.

MESSRS. POPE & SONS, HORTICULTURAL AUCTIONEERS AND VALUERS, 6, Philip's Street, Birmingham, hold SALES at their Rooms as follows:—
CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday.)
MISCELLANEOUS PLANTS and BULBS every THURSDAY.
NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

ORCHIDS.

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(JOHN COWAN), Limited,

Have an immense Stock of Orchids, And they are constantly receiving Importations from various parts of the world.

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BULBS—BULBS—BULBS.—Hyacinths, Tulips, Crocus, Narciss, Spirea, Lily of the Valley, Liliums, Gladioli, American Tuberoses, still in stock. Customers at liberty to come and select for themselves at the NEW HAARLEM BULB WAREHOUSES, 34, Mansell Street, Aldgate, City, London.
Proprietors—MICHAEL RAINS AND CO.
Reg. Tel. Address—"BRIOTICUS, London." Established 1858.
CATALOGUE on application.

To Nurserymen, Builders, Local Boards, Vestries, and others who intend planting Trees and Shrubs this season.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to offer an extensive stock of FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c., which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine SEAKALE and RHUBARB for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

HARTLAND'S YEAR-BOOK of Rare Seeds for 1891 is now being gratuitously posted to all his English and Scotch customers. If any reader of the *Gardeners' Chronicle* wishes for a copy, and that he has not hitherto seen W. B. H.'s "Trade Lists," they are always *recherché* and original, sixpence in stamps will secure the "Year-Book," and 2s 6d. the "Floral Album" of Conference Daffodils. Please write for one, or both, and you shall secure the thanks, with the test services of WM. BAYLOR HARTLAND, F.R.H.S., Old-established Seedware House, 24, Patrick Street, Cork. (Please quote *Gardeners' Chronicle*.)

ORCHIDS A SPECIALTY.—Please write for LIST of good, healthy, cheap plants before ordering elsewhere. ODONTOGLOSSUM ALEXANDRE, selected, 30s per dozen; SOPHRONITIS GRANDIFLORA, 5s., 7s. 6d., CYPRIPEDIUM BARBATUM SUPERBUM, 2s. 6d., 5s., 7s. 6d., C. BOXALLII, fine plants, 5s., 7s. 6d. Cash with order.
W. L. LEWIS, F.R.H.S., Chaseside, Southgate, London, N.

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ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey

SHROPSHIRE HORTICULTURAL SOCIETY 1891.

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Schedules may be obtained from the Hon. Secs.,

Messrs. ADNITT & NAUNTON,
The Square, Shrewsbury.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDERS, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

QUINCE STOCKS for SALE.—5000 strong, well-rooted Plants, fit for grafting this spring. TODDINGTON ORCHARD CO., Winchcombe.

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Good strong Canes of Carter's Prolific, and Runners of Sir Joseph Paxton, at 10s. per 1000. Apply—MANN AND SONS, Market Gardeners, Whitton, Middlesex.

CHEAP CASH OFFER.

THUJA LOBBIL bushy stuff, 2 to 3 feet, 2s. per 100.
PORTUGAL LAUREL, " " 1 to 1½ feet, 8s. per 100.
ABIES DOUGLASSI " " 2 to 3 feet, 15s. per 100.
" " 3 to 4 feet, 18s. per 100.
CUPRESSUS LAWSONIANA " " 2 to 3 feet, 25s. per 100.
GRAY AND SONS, Bron Nursery, Chertsey.

TIROLESE ALPINE PLANTS.—100 Plants for acclimatisation, for 10s.; see my list No. XI., now ready for distribution. Single plants, see list No. V., 20 pence each. Plants despatched from May to October.
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ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE. JAMES CYPHER, Exotic Nurseries, Cheltenham.

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QUICKS, 1½ to 2 feet, 10s.; 2 to 3 feet, 13s.; 2½ to 3½ feet, 15s. per 1000. Stout and strong LAURELS, all sorts, at low prices. CUPRESSUS ERECTA VIRIDIS, cheap, to clear. All Clean Grown, well-rooted stuff.
T. SMITH AND SONS' NURSERIES, Stranraer, N.B.

Thirty-fifth Annual Issue.
W. THOMPSON, SEEDSMAN, 34, TAVERN STREET, IPSWICH, Begs to announce that his FLOWER SEED CATALOGUE for the present season is now ready. Post-free. Contains many rare and choice Seeds not to be had elsewhere.

SNOWDROP SEED POTATOS.—For Sale, about 1 ton, splendid sample. Call and see, or write to W. H. DIVERS, Ketton Hall Gardens, Stamford.

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KELWAY'S GOLD MEDAL COLLECTION. Grand Bulbs, selected from a Stock of 25 Acres. Twenty large Exhibition sorts, in good variety, for 10s.; twenty good Border sorts for 5s.; or, select your own sorts (all prices), from a List of 400 varieties, gratis upon application. Gold Medal, Paris, 1889.
KELWAY AND SON, Langport, Somerset.

Trade Price Current, 1891.
PETER LAWSON AND SON (Limited), Wholesale Seed Growers and Merchants, Edinburgh, have posted their ANNUAL CATALOGUE OF VEGETABLE and FLOWER SEEDS to their Customers. If not delivered in any case, another copy will be posted upon application. The ANNUAL CATALOGUE OF AGRICULTURAL SEEDS will be published later on, meanwhile Special Offers will be made, when requested.

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RHODODENDRONS.—Largest and finest stocks, all sizes, grown in peat. RHODODENDRON PONTICUM, 10-inch bushy, 16s. per 100; 1 to 1½ feet, 22s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 40s. per 100; 3 feet, 60s. per 100; 4 to 5 feet, 120s. per 100. Hybrids, fine named, 2 to 3 feet, 70s. per 100; 3 to 4 feet, 150s. per 100. RHODODENDRONS, fine stocks, 90s. per 1000.
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ASPARAGUS, 5-yrs. old for forcing, grand roots, 7s. 6d. per 100; 3-yrs. old for planting, 25s. per 100. Cash with order. My Asparagus always makes top price at Covent Garden. Read the following unsolicited testimonial:—"Please send me another 200 5-yr. old Asparagus Roots. I may say that the last 200 were the best lot of forcing roots I ever bought, and my employer says the quality is excellent." C. H. PERKINS, The Gardens, Milton Abbey, Bradford, December 27, 1890.
J. J. CLARK, Market Gardener, Goldstone, Brighton.

Birmingham.—Primula Seed.
MESSRS. POPE & SONS can still supply the following PRIMULA SEEDS in separate packets: The Queen, Emperor, Marquis of Lorne, Princess Louise, Lady R. Churchill, at 3s. 6d. per packet; or, all the above, with the addition of Purity, Red and Pink, Queen, &c., in mixture, at 2s. 6d. and 5s. per packet. All grown at King's Norton Nurseries, Crop of 1890.
King's Norton, Birmingham.

MEMORIAL

TO THE

LATE MR. SHIRLEY HIBBERD, F.R.H.S.

IN compliance with a requisition signed by influential representatives of all departments of Horticulture, a Public Meeting was held at the rooms of the Royal Horticultural Society, on December 9, 1890, Sir TREVOR LAWRENCE, Bart., President, in the chair, when it was unanimously resolved to establish some Memorial of the life and work of the late MR. SHIRLEY HIBBERD, and the following gentlemen were appointed as a Committee to carry the resolution into effect:—

- (1) As representing the Council of the Royal Horticultural Society—Rev. W. WILKS, M.A., Secretary; GEORGE PAUL, Esq., and JAMES DOUGLAS, Esq.
- (2) As representing the Fellows and Subscribers—W. H. COLLINGRIDGE, Esq., W. MARSHALL, Esq. (Chairman of the Floral Committee), R. DEAN, Esq. (Secretary of the National Chrysanthemum Society), and Dr. MAXWELL MASTERS (Vice-President of the National Rose Society), the latter gentleman being nominated as Chairman of the Committee.

On December 19 the Committee so appointed met to consider the various suggestions which had been made as to the form of the proposed Memorial, and also to take steps for carrying it into effect. At this Meeting, the following resolutions were unanimously carried:—

- (1) Proposed by Mr. MARSHALL, and seconded by Mr. W. H. COLLINGRIDGE: "That this Committee recommend that a portrait of the late MR. SHIRLEY HIBBERD be painted, and that, after defraying the necessary expenses, the remainder of the fund subscribed be invested in the names of Trustees, to be hereafter appointed, for the benefit of the orphan daughter of the late MR. HIBBERD."
- (2) Proposed by Mr. DOUGLAS, and seconded by Mr. DEAN: "That the portrait be entrusted to the care of the Trustees of the Lindley Library, on behalf of the Royal Horticultural Society."

The Committee have already received promises of financial support, chiefly from those present at the original meeting, to the amount of about £100, in sums varying from 2s. 6d. to £25, and they now earnestly solicit further assistance in carrying the above proposals into effect.

The gentlemen who signed the original requisition to the Council were:—The Very Rev. the DEAN OF ROCHESTER, President of the National Rose Society; Rev. H. H. D'OMBRAIN, Secretary of the National Rose Society; T. W. GIBBLETON, Esq., National Dahlia Society; R. DEAN, Esq., Secretary National Chrysanthemum Society; W. MARSHALL, Esq., Chairman of the Floral Committee; R. D. BLACKMORE, Esq., Vice-Chairman of the Fruit Committee; Dr. ROBERT HOGG, *Journal of Horticulture*; HARRY J. VEITCH, Esq., Chairman of the Orchid Committee; W. ROBINSON, Esq., *Garden*; Sir JOHN D. T. LEWELYN, Bart., National Auricula Society; Professor M. FOSTER, Secretary Royal Society; Dr. MAXWELL T. MASTERS, *Gardeners' Chronicle*.

Subscriptions may be sent to any Member of the Committee, or to Dr. MASTERS and the Rev. W. WILKS, at the Offices of the Royal Horticultural Society, 117, Victoria Street, Westminster.

MAXWELL T. MASTERS,

Chairman of the Committee.

WILLIAM WILKS,

Hon. Secretary of the Royal Horticultural Society, 117, Victoria Street, S.W.

Subscriptions promised at the meeting:—

Sir Trevor Lawrence, Bart., M.P., President R.H.S.	C. M. Mitchell, Esq.
Sir James Whitehead	Rev. H. H. D'Ombrain
Rev. W. Wilks	George Gordon, Esq.
George Paul, Esq.	Charles Noble, Esq.
Jas. Douglas, Esq.	Harry J. Pearson, Esq.
J. O'Brien, Esq.	C. F. Hore, Esq.
W. H. Collingridge, Esq.	W. Marshall, Esq.
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(Proprietors of the <i>Gardeners' Magazine</i> .)	N. Sherwood, Esq.
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FOREST TREES, &c.—Alder, 2 feet, 16s. per 1000. Ash, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; 3 to 4 feet, 22s. per 1000. Beech, 2 feet, 16s. per 1000; 2½ to 3 feet, 24s. per 1000; 4 to 5 feet, 4s. per 100. Spanish Chestnuts, 1½ to 2 feet, 16s. per 1000. Larch, 1½ to 2 feet, 17s. per 1000; 2 to 2½ feet, 24s. per 1000; 3 to 3½ feet, 28s. per 1000. Spruce Fir, 1 to 1½ feet, 12s. per 1000; 1½ to 2 feet, 14s. per 1000; 2 to 2½ feet, 16s. Scotch Fir, 2 years, 2 years transplanted, 16s. per 1000. Silver Fir, 1 to 1½ feet, 17s. per 1000. Hazels, 2 feet, 20s. per 1000. Hornbeam, 2 feet, 16s. per 1000. Oaks, 2 feet, fine, 16s. per 1000; 2½ to 3 feet, 20s. per 1000. Sycamore, 1 to 2 feet, 12s. per 1000; 2 to 2½ feet, 16s. per 1000; 4 to 5 feet, 30s. per 1000. Thorns, 1 to 1½ feet, 9s. per 1000; 1½ to 2 feet, 11s. per 1000; 2 to 2½ feet, 13s. per 1000; 2 to 3 feet, 15s. per 1000; 3 to 4 feet, 18s. per 1000.
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THOMAS METHVEN & SONS offer their Choice Strain of the above Intermediate Stocks, in Six Varieties, viz., Scarlet, Purple, White, Crimson, White Wall-Leaved, and Crimson Wall-Leaved, at 1s., 2s. 6d., and 5s. each colour.

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EXTRA FINE BULBS,

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COGGESHALL, ESSEX.
ESTABLISHED 98 YEARS.

1891, SEASON, 1891.

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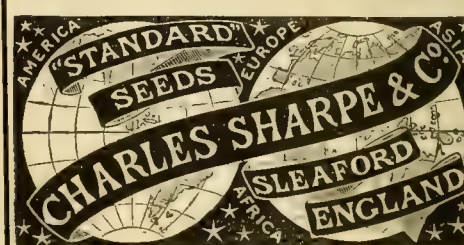
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	Mr. P. DANIELS	0 10 0	Mr. J. TAYLOR	0 10 0
	Mr. J. HORTON	1 1 0	Mr. J. CRAVEN	0 10 6
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	Per SHIRLEY HIBBERD, Esq.:—		Mr. J. RICHARDSON	3 3 0
	Mr. D. McLELLAN	1 1 0		
	Mr. R. McLELLAN	0 5 0	Dec. 1—	
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	Mr. JAMES COOMBS	0 10 6	TANIQUE DE GAND	5 0 0
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	Mr. W. EARLEY	1 0 0	Messrs. H. LOW & CO.	5 5 0
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Nov. 6—	Mr. W. EARP,	0 10 6	6—Per Messrs. SILBERRAD:—	
10—	Per Mr. OUTRAM:—		M. L. VAN HOUTTE	1 1 0
	Mr. JOHN WATSON	5 0 0	8—Mr. A. STIRTON	1 1 0
	Mr. J. MOORE	1 1 0	10—Mr. G. PRINCE	1 0 0
	Mr. J. SELWOOD	0 10 6	Mr. CONINCK	0 5 0
	Mr. J. CHALLIS	1 1 0	11—Per Mr. J. A. LAING:—	
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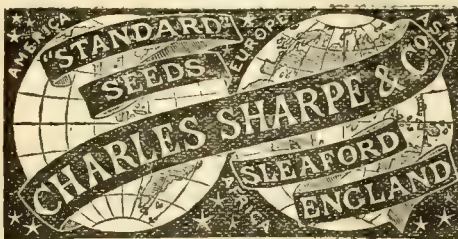
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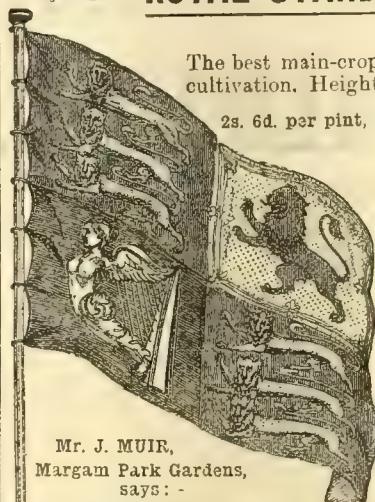
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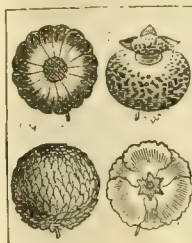


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TO THE

GARDENERS' CHRONICLE

FOR

Next Week, February 14,

will be Published an Ink-Photo of

NARCISSUS GROWING

IN THE

SCILLY ISLES.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 7, 1891.

THE BERMUDAS.

LITTLE wots the urchin when throwing
stones into a pool that the ripples this sets
in action cease not until they break in tiny
wavelets on the further shore; and little wot the
Guards at Wellington Barracks, almost under
the windows of Buckingham Palace, that their
insubordinate conduct would take them as far
away from home as Bermuda, and cause that
island to be very much inquired after by all
classes of the people because of their transpor-
tation to a spot on the ocean supposed by many
to be the seat of doom, the far-abiding place of
whelks and sea wrack, once the home of the
pirates and buccaneers. Nor are the elderly,
ignorant, stay-at-home folks so very much to
blame, for on turning up a work of reference,
the sole reference to the subject of this article is
as follows:—"Bermuda, an island, situate in
lat. 32° 29', long. 68° 48' W." He would be a
conjurer who could, from this, excogitate a
description of one of Ocean's bright gems.

There are about one hundred of these islands
600 miles distant from the coast of North Caro-
lina, but only fifteen of them are inhabited. The
islands form a chain not more than 20 miles
long, some of the straits between the islands
being so narrow that they are spanned by
bridges. They form the oldest British colony,
having been settled in 1612.

A writer in a late number of *Lippincott's Maga-
zine* has taken Bermuda in hand, and makes one
almost long to be there, especially during the
foggy days we have had lately. These isles, known
to our forefathers chiefly as a refuge for fraudulent
debtors, are described by Mr. Walsh as an
earthly Paradise, situated at only three days' sail
from New York. In the winter time the
thermometer takes its stand at about 70°, and
deviates but little from that figure. It is a land
where Oleanders tower above the stunted Pines,
and white stately Lilies (*Lilium Harrisii*) blossom
in the fields among Jessamines, Pinks, Roses, and
lovely-flowering shrubs. Abject poverty in these
isles, one of which is rather inaptly named Ire-
land Island, is not to be seen, and beggars are

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For 1891.



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Illustrated Seed Catalogue for 1891,

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B.S. Williams & Son,

UPPER HOLLOWAY,
LONDON, N.

unknown. The streets in Hamilton, the capital, are of dazzling whiteness.

A most unpicturesque but really valuable aid in estimating the value of such localities as Bermuda, either to the collector, the commercial man, or the valetudinarian, is a Government "Return;" and from a recently-issued one we learn concerning meteorological observations in the Bermudas, that the mean temperature of the year, as taken at Hamilton, was 73°·7; the hottest month was August, with a mean of 82°; the coolest, February, with a mean of 64°·6; and 64·73 inches of rain fell at Hamilton, which is only a few feet above the sea-level, during the year—7·4 inches in excess of what fell in the previous year. The maximum fall of rain for one day was on April 17, when 5·66 inches were registered. The heaviest monthly fall was in May, when 11·39 inches were registered; and the least in November, with a rainfall of only 1·34 inches. At Prospect Camp, which is about a mile from Hamilton, and 151 feet above the sea level, the rainfall during the year exceeded that of Hamilton by nearly 5 inches. Hail fell on March 10.

We learn from the above-mentioned returns that the value of the exports was £61,976 against £99,650 in the previous year (1888), and £88,921 in 1887. The exports to the United Kingdom were valued at £2367, to the British colonies £1487, to the United States of America £59,770, and to other foreign countries £614. The exports from these Islands consist almost entirely of fresh vegetables grown for the New York market, high prices for which are generally obtained, as they are generally brought into that market considerably earlier than the home-grown produce. Owing, however, to the mildness of the weather in the spring of the year in the United States, and to the opening up of railways to Florida and the other Southern States, exceptional facilities were offered to and taken advantage of by the American farmers for placing their produce earlier in the market; the result being that unremunerative prices were realised for last season's (1889) Bermuda crops. Indeed, so low were the prices obtained, that it is more than doubtful whether they were sufficient even to cover the expenses of raising the crop and putting it into the market. The only other article of any importance exported during the year were Lily bulbs, valued at over £3600, and arrow-root, principally for the London market, valued at over £1500.

In connection with the Flora of the Bermudas, we may refer to an excellent article in our columns on March 24 and April 7, 1888, from the pen of Mr. Hemsley. In this article a summary is given of the chief points of interest in the botany of the islands, such as the two native Palms and the interesting Pencil Cedar, Juniperus Bermudiana, of which an illustration is given at p. 657, May 26, 1888.

Since the above notes were written, the earthly paradise has been sadly disturbed by a hurricane, which inflicted damage to the extent of £20,000. The early Potato and the Onion crops are badly damaged. It is as well to remember that the paradise is an earthly one.

It is interesting to note here, in connection with our Jubilee year, that in our third number is an article on "Agriculture in the Bermudas," and especially on the "Economic Cultivation of the Arrow-root," and the "First Introduction of the Plough into these Islands."

ECHOES OF THE PAST, VOICES OF THE PRESENT.

(Continued from p. 104.)

LEGAL decisions in regard to horticulture have ever formed a valuable feature of the *Gardeners' Chronicle*, and the start was made solidly and well, with an important one by the Lord Chancellor of the day, to

the effect that no tithes can be claimed on coppice wood of over twenty years' growth, on its loppings, or its bark. The article is remarkable for valuable statistics on the differing ratios of growth between stools and seeds, and also between Oaks, Ash, Elm, Maple, Walnut, Spanish Chestnut, Lime, &c. Jael discourses learnedly on the Mexican Oak, and the uses made of its sweet exudations; and experiences of Suffolk gardeners on the pleasures and profits, classical and cultural associations of gardens and gardening. After dwelling on their great importance to labourers and mechanics, he adds, "The most uncultivated and refined seem to be equally capable of admiring a garden. Flowers are the first delights of childhood, and the last lingering pleasures of age. The followers of Mohamed have their famed paradise, the untutored savages of North America their pleasant gardens, the polished Greeks and Romans their Elysian fields, while our creation and maturation centred in a garden."

It would be difficult to state the merits of the gentle art more forcibly or in fewer words, after the gathered experience of another half century. The cultivation of winter and spring Cucumbers, descriptions with illustrations of Orchidaceous houses and stove-aquaria at Ealing Park, notes of various Firs in North Britain, culture of Poinsettia pulcherrima, ants, moss on gravel, Pears, &c., also appear in the third number. A spirited criticism also appears as to the spelling of names, and statements of facts in London's *Gardeners' Magazine* and Hooker's *British Flora*. In the note on Firs (p. 36) it is stated that in respect to sunshine, the climate of North Britain was better forty years ago than it was now, Jan. 1841. Also that the winters in the North of Scotland were generally mild on account of its proximity to the sea. In fact, this clever writer chiefly asks for more sunshine in summer and more frost in winter, as the more cold plants are exposed to in winter the easier they are excited in the spring, a proposition we are likely to be able to test within the next few months. A correspondent evidently writing approvingly of Christmas decorations, points out that the vestry of Marylebone had authorised £4 for Holly for the churches, states that the Hollies and other evergreens, which people bring into the cities, make a kind of summer in winter, and remind us that the poetry of earth is never dead—so severely reminded that such customs are "more honoured in the breach than in the observance," and told of wholesale disfigurement and destruction of shrubberies and orchards. Then the destruction was reckoned in general of twenty-five years' growth. Who shall say how many thousand acres were cut down for decorative purposes this year?

Specimens of Chaumontel Pear, equal to those grown in Jersey, were sent to the Editor from a standard; in proof of the great advantage of severe thinning after a record of five years' successes, the writer concludes, "I am sure we are not yet aware of the value of thinning choice Apple and Pear trees, so many objects are attained by it, nice large Apples and one core instead of the smaller ones and two cores, the flavour and beauty increased, and the tree not impoverished by overbearing. And yet fifty years after, notwithstanding all that has been proved as to the necessity of superior samples for profit, the thinning of fruit is by no means general."

The following are named as among the first-rate fruits distributed by the Royal Horticultural Society last year:—Apples, Pitmaston Golden Pippin, Adams' Pearmain, and Downton Nonpareil, the latter said to be the best of all the Apples raised by Mr. Knight. Pears, Délices de Hardenport, Beurre Bosc, said to be higher flavoured than Marie Louise, an estimate not sustained by ripeness; Winter Crassane, and Vicar of Winkfield, which has hardly maintained its original high character. Plums, Coe's Fine Late Red, Royal Hative, and Reine Claude Violette; it is said they rival the Greengage in flavour, and are the best purple Plums of their season. Cherries, the Late Duke, and Bigarreau Napoleon.

The Proceedings of the Horticultural Society of London, November 20, 1840, are notable for probably

the first articles of Mr. Rivers' on the root pruning of Pear trees, which laid the foundation of our present system of fruit culture; also a flourishing financial report of the Society; and a long extract from Mr. Rogers' mode of heating with hot water, which is based largely on Mr. Hood's work, and is worth reading even now after our many years experience.

"The Eastern Arboretum and Rural Register of all the remarkable trees, seats, gardens, &c., in the county of Norfolk," by James Grigor, is ably reviewed in about two columns. The author writes with enthusiasm as well as practical good sense on trees, which he says came down to us hallowed by the first circumstances of interest on earth, and, loaded as it were with the associations of poets, philosophers, and holy men of old. They wear at the lingering of the day apparel which Nature put on in budding infancy. He writes of the White Hawthorn with its fragrant flowers as the queen of our native shrubs, leaving us lively records of various sizes and colours that it has not flowered in vain, and describes a magnificent specimen of Pyracantha, clothing 24 yards of a wall at Scotton with its brilliant scarlet berries in November. Pity the birds should make such cruel and early raids on this, the best and hardest of all our berried plants.

Holkham, of course, is one of the first places described, and Mr. Grigor stands up boldly for the Lombardy Poplar and the Yew, and condemns strongly the bleak, bare, and neglected condition of the rural churchyards, a condemnation less needed to-day than fifty years ago, though still needed in not a few parts of East Anglia.

The *Gardeners' Chronicle* of January 23, plunges boldly and deeply into the subject of cottage gardens, and starts its Cottagers' Garden Calendars, well remarking in its second leader on the subject, "If we have thus in the outset of our undertaking given a prominent place to so humble a theme, it is because we are convinced that one of the most useful applications of gardening is to the improvement of the social and moral condition of the labouring classes." In this article, three successful examples of the management of cottage gardening are given—one in the North Riding of Yorkshire, another at Stone in Buckingham; and the third, that of the Neath and Swansea Society, already referred to. And these examples are so exhaustive and complete, as to rules, prizes, &c., as to be almost as useful to-day as fifty years ago. Special articles and Home Correspondence grew apace. The first of the able series on Entomology started with the Hawk-fly, the importation of seeds by the East India Company had special importance then, and the management of the Filbert had money in it then as now.

In proof of the catholicity of the Home Correspondence in the fourth number, it is only needful to cite titles:—Self-sown Rhododendrons, Wheat Midges, Management of Birch in Woods, Spirits of Tar as Manure for Carrots, Pelargoniums Striking from Leaves, Glazing, Old Decayed Fruit Trees, Fruit Trees in North Wales (with full list of varieties, probably by the late Robert Thomson of Chiswick), Digging the Borders of Shrubberies (in which the sensible advice, dig not at all, was given), Suckers of Gooseberries and Currants, and how to prevent them. Among these writers were Professor Henslow of Cambridge, Chas. McIntosh of Dalkeith, Hodson of Bury St. Edmunds, &c.

The *Gardeners' Chronicle* of January 23, contains the anniversary of the Gardeners' Benevolent Institution and a record of the fact that it subscribes ten guineas, thus beginning that liberal support it has never withheld. H. Pownall, Esq., V.P., the chairman, congratulated them that the press had taken up their cause with such earnestness, and spoke as a prophet as well as a most effective pleader, when he uttered these words at the anniversary dinner, "He had ever found that the press was the plough of every benevolent institution, and that when the plough was got to work the crop was generally very productive." The *Gardeners' Chronicle*, January 30, is thus thorough, giving reviews of Liebig's organic chemistry, naturally blossoms with a solid and serviceable leader on the

practice and theory of manuring, a subject that has always been handled with special ability in these pages. The list of Pansies in a previous number is here succeeded with the qualities and properties of the Stuart Pansy, with an illustration. Corbett's patent open troughs, and hot-water apparatus is carefully

progress, nor is this or other *Oxalis* so much grown for ornament as it used to be.

The Home Correspondence sustains its variety and interest, and is otherwise remarkable for the introduction of notable subjects, treated by such men as H. Groom, Mearns, Caie, Donald Beaton, Whiting,

ground (p. 69), in a note from Mr. Mangles, of Sunninghill. "About May 20 we plant out our *Geraniums*—about 7000—which are kept during the winter in small pots. The varieties are Ingram's deep scarlet, white and pink-flowered Ivy-leaf, cup-leaf variegated, pink variegated,

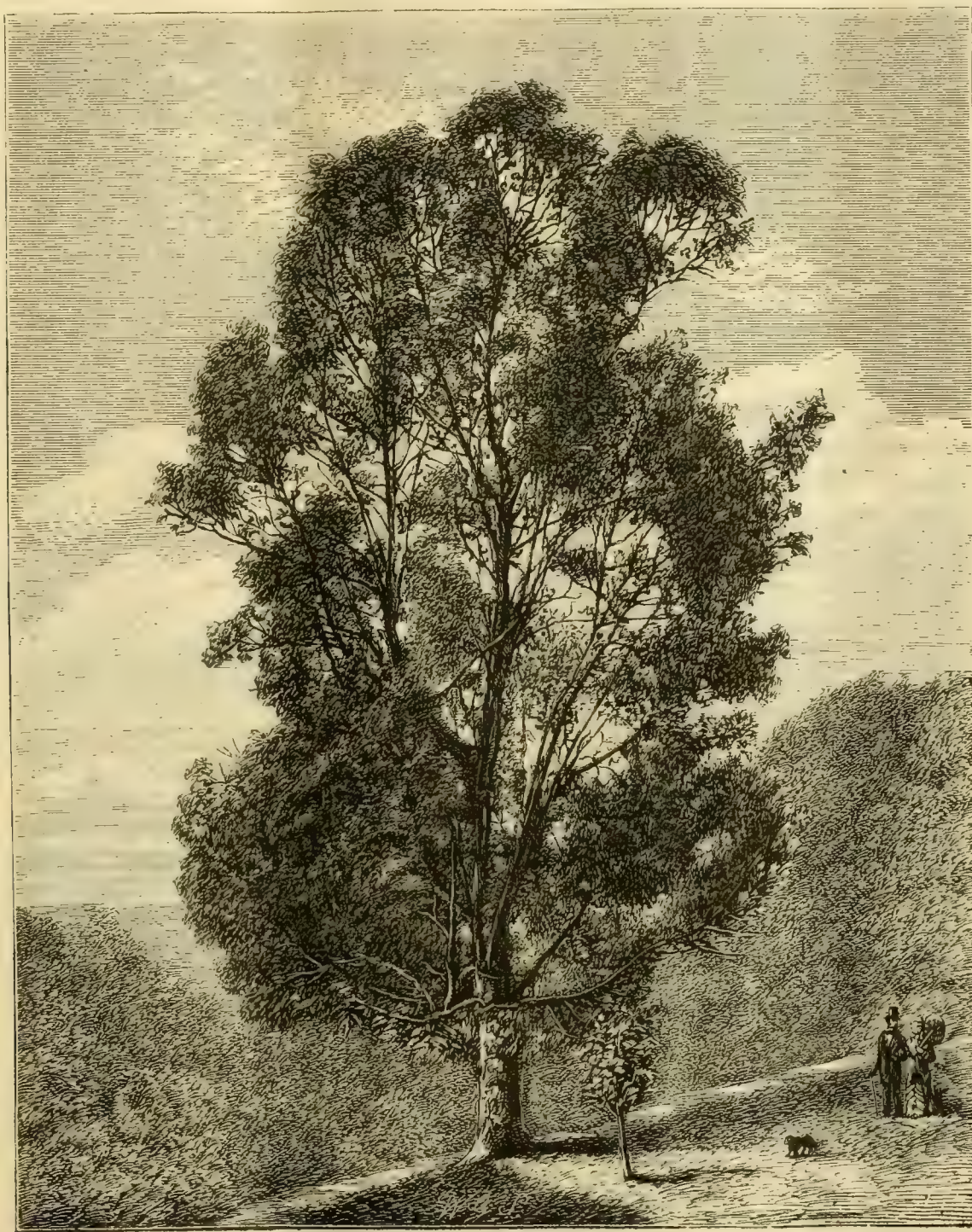


FIG 42.—*EUCALYPTUS COCCIFERA*, AT POWDERHAM CASTLE (SEE P. 176).

described; and the culture of herbaceous *Calceolarias* and of *Lilium lancifolium* or *speciosum* is exhaustively treated. Notwithstanding Professor Morren's able paper on the culinary uses of *Oxalis Deppei*, and the undoubted fact of the pleasing flavour of its young leaves and fresh flowers, the ordinary consumption of these or its roots have made but little

Mangles, Baxter, Tillery, Frost, Green, Marnock, Appleby, &c. The second article on cottage gardens gives lists of vegetables and fruits, the latter of which carefully selected by Mr. Thompson of Chiswick, the highest pomological authority in the country, then or since. In the home correspondence we find the first notice of *Pelargoniums* in the open

red variegated, *Yatmanni grandiflora*, and the gold-edged-leaf *Geranium*, each variety in distinct beds. We still bed out about 5000 of the pink variegated, or Mangle's pink, and presume that the gold-edged became the famous Golden Chain of Beaton and others." We also remember *Yatmanni*. But who shall estimate the influence of this garden

on the skirts of Windsor Forest on the garden-furnishing of the last fifty years? J. B. Whiting, of The Deepdene, writes of Pears. Paragraphs deal also with the Culin Broccoli, Smut in Corn, and a Cure for it. Flowering stove plants; Poinsettia pulcherrima, by Donald Beaton, who grew it splendidly at Shrubland for years; Musa Cavendishii, Chalk, Filberts, Grapes, Propagation by Leaves, Buds formed by do., Cure for Mildew and Scale on Peach Trees, British Oaks, American Blight, Patent Nets for Fruit Trees, Buck Rabbish as Manure, Manuring Pinks, and the Medical Properties of Birch.

Then follow Foreign Correspondence, Notices of New Plants, Miscellaneous, Garden Memoranda, Entomological Notes, Calendar of Operations, Reports of Covent Garden, and two and a half columns of Notices to Correspondents—a bill of fare capacious enough to satisfy, if not satiate, the most voracious readers. D. T. F.

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM EBURNEUM.

If some one who has had experience of the flower-spikes of this favourite plant damping-off when young, and has been able to overcome the evil, will give his mode of treatment, I shall be grateful; for although I have many times been, years ago, when foreman under an able practitioner, and since, and am still perplexed with this malady, I have not succeeded in preventing its occurrence. As a remedy, plants have been subjected to stove and also intermediate-house temperatures, kept during winter moderately dry at the root, and otherwise; but under all these varied conditions, we have lost some flower-spikes. This winter one nice plant which showed sixteen spikes, three of which were upon one growth, lost no fewer than nine of them. Moisture, when it reaches the axils of the leaves from which the spikes spring, will doubtless engender the mischief, and sometimes it may be the effect of fog; but while accepting these causes as being sufficient, I question whether these are the only ones.

I find little difficulty in growing this species in the same house as *C. Mastersii* and *C. Lowianum*. If treated in a liberal manner, with plenty of pot-room, and turfy loam mixed with a portion of fibrous peat and sand, not allowed to suffer from want of water, and afforded cool stove temperature, it quickly increases in size. As a stimulant, I have adopted the Glasnevin plan of using fish guano as a top-dressing, and with apparently good effect, for since making use of it, the foliage has grown with increased vigour and improved in colour. *C. eburneum* is not infrequently met with in a weakly state, and the points of its foliage a yellowish hue; in this case plants seem to need some more nutriment in the way of more soil, and perhaps manure. This brings to my memory a plant of this species I at one time had to attend to, which cost a very high price, probably it was the best plant of the kind in cultivation at the time. Although this plant was healthy, I am convinced by my subsequent experience, that it would have grown with more freedom than it did while I attended to it, if it had been afforded more nourishment. Timidity, due to the fact that the plant was a valuable one, prevented me from treating it in a more rational manner. Has not the name Orchid been a stumbling-block to many careful young gardeners? T. C.

LÆLIA EVERMANNIANA.

By far the best example of this plant which I have seen comes from Mr. Jas. Crispin, Nelson Street, Bristol, its features well bearing out the supposed parentage—*L. majalis* and *L. autumnalis*—which was given in the original description (see *Gardeners' Chronicle*, July 23, 1888, p. 91). It is, however, infinitely superior to the flower illustrated there at p. 100, and is minus the leafy bract therein depicted, and which it was supposed at the time was an abnormal development. Mr. Crispin's flower is nearly 4 inches across, and of very thick substance;

the petals almost circular, although irregular in outline at the tips, which are slightly pointed; the colour is white, suffused with bright rosy-crimson the distinct front lobe of the lip being the highest coloured part of the flower. There are two prominent keels running up the middle of the lip, and these appear to be white, but on brushing away the white powdery covering, the yellow colour of the keels is discovered. The original *L. Evermannii* had a pinkish colour over the keels, if I remember rightly. J. O'B.

CULTURAL NOTES.

ABUTILONS AND SPARMANNIA AFRICANA.

These plants, long in cultivation in gardens, have been very useful with us this trying winter. These two greenhouse shrubs are evergreen, and hardier than many suppose, and in a house having a temperature of 40° to 45°, a rare show of flower has been obtained from them from last October. They are treated alike, cuttings of half-ripened shoots being struck in sandy soil in spring, grown on as quickly as possible until the end of July, they are then stood outside until the middle of September, by which time the growth is partly ripened, and the plant has been rested. At this season they are brought into gentle heat, and flower in great profusion until March, particularly if assisted with liquid manure during the first months of the year. Early in April they are cut back, repotted, and grown on as before. These are so easily grown, and so free from blight and insects, that all amateurs should possess a few.

They may be grown in almost any shape, and will form a standard of, say, 6 to 10 feet high; in this style they are very useful for the back of groups in the conservatory. If you keep them growing, they are always in bloom, but our experience points to the above plan as being the best, because when treated so, you get the whole flowering energies of the plant during the dull winter months. A. P.

PANAX VICTORIAE.

This is one of the most useful decorative plants we have, as it stands for a good space of time without injury when used for table-work. It thrives in a compost of two parts good loam, and one part of well-rotted leaf-mould, with a dash of silver-sand, with a temperature ranging from 55° to 60° in the winter; it should be moved into a cooler house during the summer months, and given an occasional watering with liquid manure. Cuttings struck about the end of March make fine plants by the following spring. They should be inserted singly in 2-inch pots, and placed in a good moist heat under a bell-glass (I prefer this mode of propagation to any other); when struck, they should be moved into large-sized 60's, giving them a good shift each time. Water sparingly during the winter, but at no time allow the plants to flag. E. Neurte, Fulham.

EPHEDRA HELVETICA, C. A. Meyer.

An extremely remarkable plant, resembling *Equisetum aphylla*, dwarf, making its way into clefts of walls, which it covers with its green branches, and so spreads about that in the end it destroys the wall. Nothing is more singular than the appearance of this bushy, stiff little shrub, scarcely 6 inches high, and with branches jointed like those of *Equisetum*. It is a local plant, which is only found on rocks and old walls about Sion, in Valais. In the autumn, in the vintage season, the walls and dry slopes on which it grows appear quite red, owing to the fruits of *Ephedra*, which resemble those of Yew. These bright red patches on the walls can be seen from a long distance off, and the effect is most curious. Dr. Christ, in his *Histoire des Plantes de la Suisse*, shows that this plant, now essentially Swiss, had its origin in the region of the Steppes; its congeners live in Dzongaria and the African deserts.

The existence of this leafless plant, which breathes

only through its branches, which are covered with a green epidermis, indicates a climate hostile to more tender tissues, a climate consisting of warmth, cold, dryness, and wind. *Ephedra helvetica* cannot easily be transplanted, because of the difficulty of uprooting it from the rocks or walls into which it works its long and sturdy stolens.

It is necessary for him who would succeed with it, to raise it from seed, as can easily be done, and is done every year in the Alpine Garden. It should then be placed in light, calcareous, stony soil in full sunshine, and in a dry situation. It may be quite easily planted on an old wall with a south aspect, where it will grow rapidly. [For a figure of one of these curious plants see p. 792, vol. vii, 1890. Ed.]

ARTEMISIA VALESIIANA, ALLIONI.

is a curious *Artemisia*, which also is peculiar to the dry hills of Valais. It may be seen from afar, owing to its silvery-white foliage. This foliage is very finely cut, bi-tripinnatifid, strongly scented, as it contains a greater proportion than do its congeners of a bitter and very volatile essence, which is known as absinthine. This species bears a slight resemblance to *Artemisia maritima*, from which it seems derived, but it is much more brilliant in colour than its seaside relative. *Artemisia valesiaca* is an undershrub, and forms little shining white bushes, very close, and making a valuable ornament for rockeries, and even for the borders of gardens, where it must have a dry sunny position and light soil. It blooms in late autumn, in October, and puts forth small golden-yellow flowers, which are like numerous little heads arranged in close clusters; it is easily increased by cuttings and seeds, and also by dividing the clumps.

OPUNTIA VULGARIS, Miller.

This singular plant is found in immense quantities in the rocks in the neighbourhood of Sion, and gives to them a peculiar and most unusual appearance. How is it that a species belonging to an essentially American family and genus is found in the Valais? It is a mystery. It has been known for many generations, and has always been considered indigenous. It is found in abundance in Italian Tyrol, in the valley of Aosta, and on the southern slopes of the Simplon. It is a dwarf *Opuntia*, scrambling over the soil with short joints, which are broad, flattened, usually withered and puckered, furnished with little tufts of thorns; flowers large, brilliant sulphur-yellow, opening from June to September. Fruits edible, amaranth-red. It can easily be grown in the rockery, in a sunny position and loamy soil. Often *Opuntia vulgaris* is planted on the top of a wall, between the chinks of which it easily forces its long roots. H. Correvon, Geneva.

DIOSPYROS KAKI, THE PERSIMMON, OR DIVINE PEAR.

To those who take an interest in the introduction of new hardy fruit, and their naturalisation in British gardens, some information concerning a fine collection of the above-named interesting Japanese fruit will not, I hope, be unacceptable. That the Kaki is perfectly hardy, there can be no doubt, as it has stood uninjured during the last winter at Grenoble a temperature of 15° below zero. As the winters at Grenoble are much colder, so are the summers there proportionately hotter than ours, and it is therefore probable that, except in an exceptionally dry and warm summer, the Kaki would not with us ripen its fruit in the open air; that it will, however, do so perfectly under ordinary orchard-house culture has, I believe, been more than once proved by Mr. G. F. Wilson, F.R.S., of Weybridge, who has exhibited ripe Persimmons on more than one occasion at the meetings of the Royal Horticultural Society. [The fruit also ripens in an orchard house at Appley Towers, Ryde. Ed.] The fine collection of Kakis, numbering as many as twenty-two varieties, referred to at the commencement of these notes, has been formed for study and comparison at Meylau, near Grenoble, in France, by Monsieur Paul de Mortillet, formerly

president and founder of the Horticultural Society of Dauphine, and is, I should say, certainly by far the richest and most interesting collection of varieties of this fruit that has ever been formed out of Japan. Some of these varieties are yet unproved by M. de Mortillet, as they have not yet fruited with him;

shilling and sevenpence each. The varieties described by M. de Mortillet are:—

1. *Comte de Castillon*, a superb fruit of fine colour, and almost transparent, with flesh resembling jelly, and without the least astringency.

2. *Amiral Fisquet*, a spherical fruit, broader than

many years in Japan, the best of all the sweet-fruited Kakis.

4. *Hachiya Gaki*, a very large round fruit, said by our correspondents, who sent it to us direct from Japan, to be considered there one of the very best varieties.

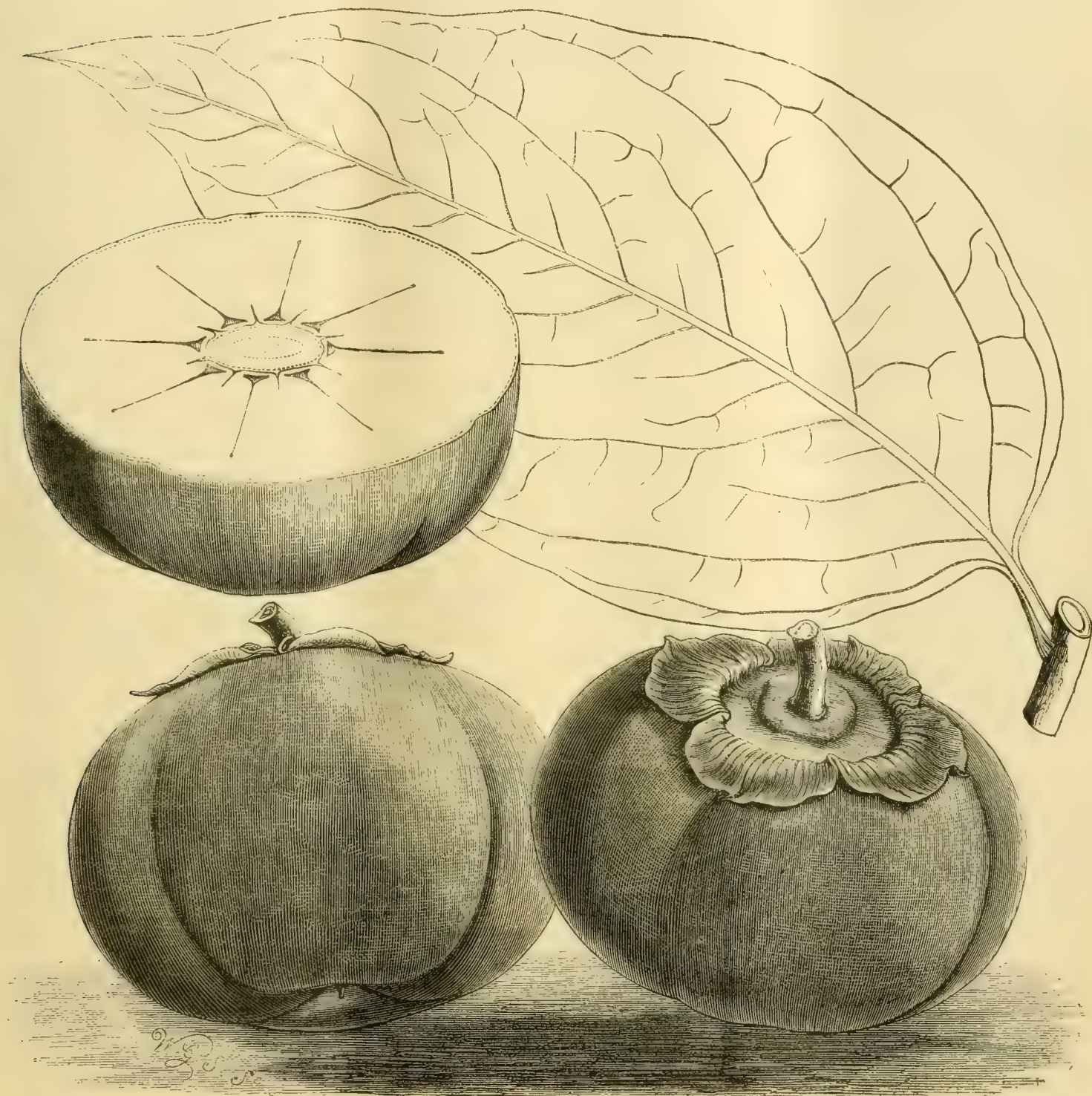


FIG. 43.—DIOSPYROS COSTATA; THE KAKI, FRUIT ORANGE FLUSHED WITH RED.

but of others he is able to speak very favourably indeed, and they should be well worth a trial by anyone having a large orchard house, as they are not expensive, young plants of six good varieties being offered for the moderate price of eight shillings, and twelve varieties for fourteen shillings and sixpence, and purchaser's selection at one

it is long, mammillated at its extremity, of a deep nankin yellow, very good flavour, and of a vigorous and pyramidal habit of growth.

3. *Gosho Gaki*, a large spherical fruit of a fine orange yellow colour, turning to red as it reaches maturity. Of excellent flavour. This is in the opinion of Monsieur Héaon, who has lived for

5. *Ingénieur Dupont*.—A very beautiful fruit, of a bright vermilion-red colour, and spherical shape, flattened at the apex, which shows a very accentuated navel. The fruit is slightly ribbed, and very good. This variety is very free bearing, and of an elegant pyramidal habit of growth.

6. *Kämpferi*.—A longish fruit, 3 centimètres broad

by 4 high, with a thin skin, wrinkled at maturity. It is very sweet, and rather like a date in flavour, and keeps well on straw during a portion of the winter.

7. *Pelliot*.—This variety fruited two years ago at Toulon, and bore fine and good fruit.

8. *Berlandier* (Société de Toulon).—A large fruit, slightly oblong, of a citron-yellow colour, passing into reddish-brown at maturity, a good and handsome variety, with long and brilliant foliage. Another variety, known as *Berlandier* (O O), with very large round and ribbed fruit, whose quality has not yet been proved, and whose foliage is rounded and dull; is quite distinct from No. 8.

9. *Docteur Turrel*.—A spherical fruit, broader than it is long, very sweet, and marked with little stripes, of pyramidal habit of growth with erect branches.

10. *Bruniquel*.—An oblong-pointed fruit, 3½ centimètres broad by 6 long, the colour is that of a Mandarin Orange.

11. *Lycopersicon*.—A large fruit, broader than it is long, spherical and flattened, of a pale-red colour, resembling a fine Tomato. Ripens in November.

12. *Acclimatation*.—Very large fruit longer than it is broad, mammillated at its apex, of a very beautiful red-brown. Ripens in November, and is very good.

13. *Yakouni*.—A very beautiful variety much esteemed in Japan, and with very ornamental foliage, but has not yet fruited with us.

14. *Kourououma*.—A large fruit of round shape, broader than it is long, orange-yellow shading into red, sweet and very firm flesh, which is also devoid of astringence.

15. *Pharmacien Honorat*.—A round fruit, lightly pointed, of a carmine-red colour, passing into a deeper shade at maturity, very sweet—a very early and free-bearing variety.

16. *Gabrielle Dupont*.—This is a seedling raised by the gentleman after whom the last variety is named, and has a very large fruit, which is early and perfect in shape, colour, and flavour. It is also of vigorous habit, and very free bearing.

17. *Zendji*.—This variety is much esteemed in Japan, but has not yet fruited here.

18. *Ghiombo*.—A very distinct-looking variety, which has not yet fruited here—highly recommended by Comte de Castillon.

19. *Tane Naski* (seedless) has not yet fruited here, is of weeping habit of growth, and is said to be one of the finest varieties of all by Japanese writers on fruit.

20. *Costata*.—This was the first and for long the only variety introduced into Europe, and is a fine tree, with large and fine-looking fruit, but of quite inferior quality to any of those above-named (see fig. 48, p. 171).

21. *Coronaria*.—This is not, properly speaking, a Kaki, but a variety of *Diospyros*; its fruit does not attain the size of any of the above-named sorts, but is none the less excellent.

The full address of Monsieur Paul de Mortillet is: à la Trouche, près Grenoble, Isère, France. W. E. Gumbleton.

PALMS FOR THE GREENHOUSE.

DURING the last five years or so, a considerable number of Palms and other plants has been transferred from the tropical Palm-house at Kew to the large temperate-house, a step rendered necessary by the crowded state of the former house. It was difficult to decide—particularly in the case of Palms—what species would be likely to thrive in a temperature which, during summer, is the same as that outside in this country, and in winter is heated only sufficiently to keep out frost. The experiment has proved most instructive, so many of the plants having not merely tolerated, but actually "luxuriated in the change." Palms are associated with the tropics, and many people think it is simply "fooling" to attempt their cultivation anywhere except under tropical conditions. The somewhat rough appearance of the Chusan Palm, when out-of-doors, is often pointed to as an example of how miserable Palms will inevitably become if not kept

warm. Yet, as a matter of fact, this species no more requires protection in the neighbourhood of London than the British Oak; it is certainly harder than the Japanese Aucuba. When first introduced in 1845 by Fortune, it was grown in a stove, then in a greenhouse, and finally out-of-doors; but even now, after forty-five years "experimenting," there are many cultivators who do not believe in the hardiness of *Chamærops Fortunei*.

"One never knows till one tries." A plant may never have known what frost was until introduced into England, when it probably astonishes us by enduring a considerable degree of cold with impunity. Most of the Palms successfully cultivated in glass-houses in which, during severe weather, the temperature falls to 55°, and even 50°, have never experienced a temperature below 70° in a wild state.

If we were working very much in the dark when selecting Palms for the temperate-house, we have the satisfaction of seeing that, with scarcely an exception, all that have been tried so far are a success. The question naturally arises, how many more of the stove Palms may be grown in a greenhouse? The temperature in the Temperate-house at Kew during the last eight weeks has scarcely once been above 50°; often it has fallen to 40°, and, on at least one occasion, it fell to 37°. Almost every one of the Palms is planted out in the beds, which are unheated, save by contact with the air. Of course, if in pots or tubs, they would be safer than when planted out, although no one need desire anything more satisfactory than they are when planted out in beds as at Kew.

From what I have seen elsewhere, I believe there are a considerable number of other Palms which might be grown with success in an ordinary conservatory, and it is intended to add, at least, some of these to the collection in the Kew Temperate-house as opportunity offers.

List of Palms Cultivated in the Temperate-house at Kew.

<i>Areca</i> Baueri, Norfolk Island	<i>Phoenix</i> acaulis, Burmah
" sapida, New Zealand	" canariensis, Canary Islands
<i>Brahea</i> dulcis, Mexico	" dactylifera, N. Africa
<i>Caryota</i> oehandra, China	" humilis, var. <i>Hanceana</i> , China
<i>Chamedorea</i> elatior, Mexico	" reclinata, S. Africa
<i>Chamærops</i> Fortunei, N. China and Japan	" spinosa, Tropical Africa
" humilis, S. Europe	" spinosa x <i>sylvestris</i> (Hort. Calcutta)
" hystrix, S. United States	<i>Rhapis</i> flabelliformis, China
" Khansaya, Khassia Mountains and Burma	" humilis, Japan
" Martiana, Himalayas	<i>Sabal</i> Blackburniana, Bermuda
<i>Coccoloba</i> capitata, Brazil	" mutica, S. United States
" coronata, Brazil	" sp., Brazil
" insignis (Glaziova), Brazil	<i>Scorfeothia</i> elegans, Australia
" flexuosa, Brazil	<i>Serenoa</i> serrulata, S. United States
" Yatai, Brazil	<i>Thrinax</i> parviflora, West Indies
<i>Erythraea</i> armata (Brahea Roezlii), S. California	" <i>rahiata</i> , West Indies
" edulis, S. California	<i>Washingtonia</i> filifera, S. California
<i>Jubæa spectabilis</i> , Chili	" <i>robusta</i> , S. California
<i>Levistonæ</i> chinensis, S. China	" <i>Sounei</i> , S. California
" australis, B. Australia	
" inermis, Tropical Australia	
<i>Oreodoxa</i> oleracea, West Indies	

To simplify matters, I have used the popular garden names in this list.

Beside the Palms, there are numerous other plants from tropical countries, and usually cultivated in stoves in this country, which are perfectly happy under the conditions supplied in the Kew Temperate-house. Amongst the most noteworthy of these are *Musa Ensete*, *M. Fehi*, and an undetermined species, native of Hong Kong; *Strelitzia Nicolai* and *S. Augusta*, *Pitcairnia ferruginea*, *Cereus peruvianus*, *Platynerium alcornocorne*, *Davidsonia pruriens*, *Macadamia ternifolia*, and *Dammara robusta*. These plants do not merely exist in this house, but they grow freely, and are at least as healthy as when grown in a stove temperature. W. Watson, Kew.

TREES AND SHRUBS.

RHODODENDRON JENNY, Lind.

THIS is one of the best *Rhododendrons* for early forcing; it sets its flower buds freely, which, if the plant be placed in a brisk heat, will open in about fourteen or fifteen days. On opening, the flowers are

of a bright rosy-purple, but if allowed to remain on the plant for a few days, they change to almost white, with the exception of a few dark spots in the throat. The flowers open very regular, and form large, compact trusses, which are very useful for cutting purposes. J. A.

ARAUCARIA INBRICATA.

Some instructive and interesting information regarding the culture and management of this tree has appeared in the *Gardeners' Chronicle* and other papers of late, and as the tree seems to be a general favourite, and as information is wanted as to the difference, if any, between the male and female trees before they produce cones or catkins, I wish to make the following remarks:—The only difference which I have noticed between the contour of the male and female trees is that the former exhibits a more bushy habit of growth than the latter; in fact, the diameter of the spread of the branches of the male tree is often equal to its whole height, but I have seldom seen the side branches of the female tree occupy so large a space. Some time ago I inspected a fine tree of this kind on the Brisbane estate, Largs, Ayrshire. This tree has been stem-pruned for a distance of 7 feet from the ground, the diameter of the spread of its branches is 30 feet, and I estimate its height at something over the diameter of the branches. The wounds where the branches were pruned off are completely healed up; the tree is in perfect health, but has not produced cones or female flowers, and I am strongly of opinion that it is a male plant. This tree was planted in the immediate proximity of a road or walk, so that in course of time it had either to be cut out or pruned, and the last method has answered the end in view admirably.

As a great many *Araucaria* trees are being planted in suburban villas, where, in many cases, the grounds are of limited extent, and as many of these trees are now filling more space than was originally intended, they will either have to be removed or cut down, unless as I have shown they can be pruned with impunity: these hints may be the means of saving some fine old specimen trees. When planting these trees for ornament, I never, as a general rule, plant them closer to each other than from 30 to 35 feet. Peat bog and stiff adhesive clay are inimical to the growth of the tree, but in cases where it is desirable to plant such ground, the staple should be well broken up with a pick, and a quantity of rich friable loam mixed with the original soil at the spots where the trees are to be planted. I need hardly say that draining should be well attended to, as they are very impatient of stagnant water at the roots. The *Araucaria* is one of the worst trees for planting in smoky districts about towns with which I am acquainted, therefore amateurs should use it sparingly, except in cases where there is a reasonable prospect of success. With regard to the hardiness of the tree: in 1861, I had three trees growing in one group at an elevation of about 80 feet above sea level, all of which had their lowermost branches killed by frost, and as they presented an ugly appearance, I had them cut off the following year, and the trees in after years exhibited no tokens of distress after the operation. None of the other trees of the same kind were affected in the least. Two young trees of *A. Cunninghamii* that had been planted out on trial, were both killed to the ground; they, however, produced suckers from the roots, the best of which was selected for the future tree, and the others cut away. This species never proved satisfactory; in fact, I looked upon it as an eyesore in place of an ornament. J. B. Webster.

LONICERA STANDISHII.

THIS is one of the many plants introduced from China by R. Fortune, and it is one of the sweetest scented of early flowering shrubs. It is hardy in our severest winters, but if room can be found for it on a south wall, it will flower more freely and earlier than in the open ground, and that during the duldest months of the year. On a wall it is also seen to better advantage than in the open. Ordinary garden

soil suits it, but if at the time of planting, some leaf-mould is added, growth is quicker. An important point is good drainage; in wet soils it becomes weak, sickly, and an unsightly object. During growth, water should be afforded abundantly, and an occasional syringing overhead. The flowers, of a creamy-white colour, are borne in pairs on slender stalks. Its leaves vary in size from three to four inches and a half in length, and are of a pale green colour, oblong, or ovate lanceolate. The plant is easily increased by cuttings of half-ripened shoots, made about four inches long, and put under a hand light in a sheltered border; or better still, in cases where the temperature is kept about 60°, when they will root in a few weeks' time. It forces very well, and a plant or two will scent a large house. *H.*

SOME GOOD OSMANTHUSES.

Osmanthuses are very pretty and useful Holly-like evergreens from Japan, and perfectly hardy in this country; they adapt themselves to our climate, and are easily cultivated, so as to be within the reach of all; and a border of shrubs, however small is greatly improved if some of the undermentioned species are planted in it. The plants, of neat growth, offer a variety of colour, may also be used with advantage as pot plants for balconies, &c.; and by judicious pruning they may be kept to any desired size for many years, but on the species *myrtifolia* and *rotundifolia* the knife must be used sparingly.

Propagation is chiefly carried on by means of cuttings and grafts, and if the first method is adopted, take well-ripened shoots about the commencement of September, with a heel of the old wood, if possible, and make them about 4 inches long, removing the bottom-leaves with a knife that is very sharp; the cuttings should then be put round the sides of pots of nice light compost, consisting of peat, loam, and sand, the drainage being made very good. The cuttings should be made firm at the base—a most important point to remember, as success or failure largely depends upon it—not merely pressing the soil at the tops of the pots. A good watering should then be afforded them, and the pots plunged up to the rim in Cocoa-nut fibre in a close case, having a temperature of 60° to 65°; occasionally dump the cuttings with a fine-rose water-pot, and take care to remove the dead leaves without delay. The case should be shaded from the fierce rays of the sun, by putting tiffany, not mats, over it. *Osmanthus* may also be struck with success in close, cold frames, if kept near the glass, and in a sheltered part of the garden.

Grafting is performed in autumn and spring on stocks of common Privet (*Ligustrum*), which ought to have been growing singly in pots for some time past, so as to become established, or they may be taken from their quarters where they were rooted, grafted, and placed in boxes about 4 inches deep, burying the stock up to the scions in cocoa-nut fibre and sand, and after watering them, place in close frames, and treat as recommended for cuttings. The lights should have the moisture wiped off them every morning, and by this way plants may be obtained much quicker than from cuttings. Suckers must be removed as they appear. When the grafts have taken, gradually harden them off by taking them out of the cases, and standing them on the side-stages of the house, and after a time in cold frames, where air should be afforded freely in mild weather, and there be kept until large enough for planting out. The following are a few good varieties:—

O. ilicifolius is a very suitable object for smoky districts and towns, deserving to be planted much more freely than it is at present. Its leaves are bright green, and leathery in texture. There is also another one under the same name, but the leaves are much darker in colour, and more deeply cleft. Both resemble each other in habit. *O. ilicifolius variegatus* is simply a variegated form of the above. *O. aquifolium* has thick, prickly-toothed, shining and sharp-pointed leaves, which are oblong or oval, and of a beautiful rich green colour, while the under-

surface is of a pale tint. It is a noble-looking shrub, and the flowers, produced in clusters, are fragrant.

O. myrtifolia, sometimes called *Phillyrea myrtifolia*, may be classed as one of the neatest of outdoor shrubs, and is useful for planting in front of taller growers. Its leaves, somewhat resembling the Myrtle, are thick and sharply-pointed, about 2 inches long, of a rich green above, and glaucous beneath. This is a plant that is well worthy of extensive cultivation.

O. rotundifolia, being a slow grower, makes a good companion for the last-mentioned, and both make good heads if worked on stocks about 4 feet from the ground, and if dotted about in various places in the shrubberies they show themselves to advantage. Its roundish, sharp-pointed, slightly-serrated leaves are of a vivid green colour, and three-quarters to an inch long.

O. latifolius marginatus is a grand variety, of more upright and stiffer growth than those previously mentioned, and the leaves are edged with a soft creamy-yellowish colour.

O. fragrans, this fine species is not sufficiently hardy to stand our severe winters unless against a south wall or in some very favoured spot. It is a good thing for a cool greenhouse or conservatory, and should be placed out-of-doors in summer. The leaves are lanceolate, serrated, and about 2 inches long. The perfume of the blossoms is very sweet. *H.*

FLORISTS' FLOWERS.

THE AURICULA.

OLD writers on the Auricula dwell upon the trying effects of extremes of temperature, sunbeat by day and frost by night—extremes which tell most unfavourably upon the expanding pips. If there were no means of artificially heating the house or the plants therein, it were well covered up in cold weather so that the plants might be kept as snug as possible. It is the usual practice to permit the plants to become frost-bound up to January; the best preservative from harm is to keep the soil about the roots dry, but not dry enough to cause the leaves to flag. Early in February—and especially if the weather be mild, activity manifests itself in the plants, and the cultivator watches the progress of development with increasing interest. The practice of top-dressing, which was an indispensable part of the cultural process with the forefathers of the Auricula, is not so much followed in these days. Probably artificial heat now supplies to some extent the stimulus imparted by the practice of top-dressing in early spring; but I am decidedly of opinion that, in the case of flowers grown in unheated houses or frames, top-dressing is very helpful, and I maintain the practice with leading varieties. As soon as the plants show signs of activity, then top-dressing is applied. There is one advantage that plants, in an artificially warm temperature, have over those in a cold-house—they do not stand in so much danger from damp, and the growth of green do not so much disfigure the plants. I am not certain, however, that artificial heat favours longevity; and it must not be supposed that growers of Auriculas, who apply artificial heat in late winter and spring, do not lose plants thereby.

The old growers agreed in the main with some of the modern cultivators, that the bloom of green and grey-edged Auriculas are seldom so fine and true as when produced from a stem rising from the centre of the plant, as from one rising from the side of it. Those of us who grow green-edged Auriculas know the advantage of seeing a truss formed in November becoming bare, but not rising up until early spring. I always get my finest and most correct trusses from such appearances, and it is a known fact, that the fine grey-edged Lancashire Hero will, if it becomes truss-bare in November, almost invariably bloom in a green-edged character. Very fine and correct trusses on self-coloured plants that become

bare in autumn join with the greens and greys in presenting themselves in fine character. On the other hand, the delicate white-edged flowers appear to come best on trusses thrown up from the centre of the heart of the plant. I am far from saying this holds good in every case, but generally so.

The avoidance of stimulating composts, thorough drainage of the pots, and keeping a sharp look-out for traces of decay in the foliage through unhealthiness, were all matters insisted upon by the old florists; they were close observers of their plants, and quick to note any sign leading to the conviction the cause laid at the root. *R. D.*

TOBACCO DISEASE.

PERONOSPORA HYOSCYAMI, De Bary.—Hithert Tobacco cultivators have been remarkably fortunate in not having their crops affected by the numerous pests which prey upon plants of the same family, but there is now some anxiety in Australia lest a mould, which has made its appearance there on Tobacco leaves, should become established and do a vast amount of damage, of which, unfortunately, it is quite capable, since it is a close ally of the dreaded mould of the Potato disease. The leaves of Tobacco are spotted, curled, and distorted, which means a great deal when applied to Tobacco leaves, as they are the particular part of the plant which is of commercial value, and if they are damaged or destroyed the Tobacco crop is spoilt. This is not a new mould entirely, since it is known in Europe as attacking the leaves of *Hyoscyamus*, but confined, apparently, to that plant. Up to now we have not heard of any complaints, either in Europe or the United States, of its falling foul of Tobacco, and hence its occurrence in Australia will induce a stricter watch for all affected plants of *Hyoscyamus* in proximity to Tobacco. Like all its allies, it is deeply seated in the plant, and permeates the tissues before the mould breaks through and appears on the surface. The threads which bear the conidia are thick, being divided upwards from five to eight times, in a dichotomous or forked manner. The branches are spreading, gradually attenuated upwards, either straight or but slightly curved; the last pair of branchlets are short, and tapering, diverging so as to form a very obtuse angle between them. The conidia are comparatively small and ellipsoid, from 13 to 24 micromillimetres long, and from 13 to 18 broad, with a very slight tint of violet. No resting-spores have as yet been discovered, although it is probable that they are produced, or capable of being produced, on the mycelium within the stems of the plant. The only remedy which suggests itself is to prevent the spread of the disease by all means, removing the diseased leaves and burning them, besides which, having regard to the possibility of resting-spores being produced, under favourable conditions, to burn up the stems of all diseased plants. It is certainly worth the trouble to make an effort to check the pest at first, and before it becomes universal, disregard of all precaution being at the risk of untold damage to the Tobacco crop. It is by no means probable that sulphur will be of any service with a mould of this kind, or indeed the external application of fungicides of any kind. *M. C. C.*

LADY HUTT (WHITE), AND APPELEY TOWERS (BLACK) GRAPES.

THESE two fine new varieties of Grapes, which have gained the First-class Certificate of the Royal Horticultural Society, and which I have recently tasted, will, I venture to predict, enjoy wide popularity. In appearance, Lady Hutt is a white counterpart of Gros Colmar, having large round berries of a white or pale yellow colour, tender, sweet, and without the least trace of the disagreeable ivy-berry flavour of Gros Colmar—in fact, much superior in flavour to Trebbiano, White Nice, and other late white Grapes.

Appley Towers has large roundish black berries,

set on short stout footstalks, partaking partially of the characteristics of both parents; colour and bloom good; flesh tender and sweet; the skin not tough, but stout enough, apparently, to ensure the satisfactory keeping of the fruit when cut and placed in bottles. Both varieties are vigorous growers, set their flowers freely, and are not inclined to crack or spot; in short, they possess all the points of good-keeping Grapes, and as such, are sure to come to the front. Justice, I am told, has not been done them in cultivation, the Vines having been inarched on others; but now, Mr. Myles, the raiser, having proved their worth, is planting canes raised from eyes, from which still better results may be expected. Doubtless, had he expected them to be such fine Grapes, he would have worked them on other and healthier stocks, instead of such as were producing inferior fruits. For instance, Appley Towers was inarched on a Black Hamburgh Vine which had done so badly, that an Alicante had been tried on it with poor results; whilst Lady Hutt was inarched on another bad stock, the currant Grape. However, on this Vine the new comer flourished, and made a strong cane right across the roof—a three-quarter span—the Vine being planted at the back of the house. This cane is now layered in a properly-prepared border, its head being turned upwards on to the roof. The effect of standing on its own roots will be carefully watched; and this cane besides others are being planted in various houses. Other, as yet untested, seedlings of this cross are in Mr. Myles' possession. It is very singular that these varieties should have originated in the simple artificial fertilisation of six flowers of Gros Colmar with the pollen of Merredith's Alicante. It is a valuable object-lesson, and one that hybridisers should not lose sight of, the field of improvement in Grape raising being a wide and profitable one. I suppose we must always have thick-skinned Grapes if we would keep Grapes to the latest possible date, but what we want besides, is a Grape with a Muscat flavour, having some close resemblance to Muscat of Alexandria or Madresfield Court; and seeing how the Muscat flavour was fixed in the latter by crossing the Muscat with the Black Morocco, I am sanguine enough to believe that this will be realised in the near future by some of our skilful and enthusiastic hybridisers. *William Crump, Madresfield Court.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

ASPARAGUS BEDS.—No time should be lost in clearing these of weeds, afterwards raking the surface-soil off the beds to the depth of 2 inches into the alleys. Then apply a dressing of rotten manure 2 inches thick, taking care to break any lumpy portions of the manure, so that it does not interfere with the egress of the heads from the soil. Replace the soil first, digging the alleys, and then throw over as much of the clean soil as will cover them to a depth of 2 inches. The alleys may be manured before they are lightly dug, the roots running freely into them, and rendering deep digging inadvisable. The beds should be marked off with the line, and put perfectly straight at the sides with a spade, and the edges made firm with the back of the spade.

TUBERS AND ROOTS.—The remaining roots of Parsnips left in the ground should be dug up soon, the sound ones being stored in moist earth or sand in a cool place. The remaining Artichoke tubers should be dug up and stored as advised for Parsnips. Planting tubers may be put into a heap, protecting them with litter from frost, until the ground is in readiness for planting. In digging up the crop of Artichokes, it is better to open a trench at one end of the piece of ground, and clear out every tuber or bit of one. The trenches may be manured at the time of digging, thus making the land ready for other crops. Artichokes are much improved by planting them on fresh soils; and to obtain fine ones they should be planted 6 inches deep, 15 inches apart, and 3 feet between the rows, on ground that was trenched and manured in the autumn. Planting may be done any time this month or early in March, using whole or cut sets

with two or three eyes to each. Should the soil be heavy and adhesive, plenty of road scrapings, wood or other ashes, or old potting-shed soil should be worked into it at planting time.

BORDERS WITH A SOUTH ASPECT.—These are the best for the earliest vegetables, and when they are well drained and consist of rich soil, the crops with which they are planted, will be ready for use two or three weeks before those in the main quarters. The borders should be laid out so as to form an incline, adding fresh soil if necessary for securing this advantage.

SEED SOWING.—A sowing in shallow drills, 9 inches apart, of French Horn or Early Nantes Carrots, should be made on the south border. In preparing the ground, take advantage of a fine day, so that the surface soil may become somewhat dry before sowing the seed; and a dressing of wood ashes may be applied before the drills are closed, as a manure, and remedy against wire-worms. Early Milan Turnip seed should be sown in drills 1 foot apart, a small sowing only should now be made, and again in three weeks. Large breadths are undesirable at this early date, as the plants run to seed readily. Radishes should be sown on the south border, the Turnip-rooted varieties being employed. Cover the Radish beds with dry litter until the seeds come up, when it should be taken off in the day and replaced at night.

PEAS.—The early varieties, as William Hurst and American Wonder, should be sown in quantity, in accordance with the requirements, on south or sheltered borders, 2½ feet apart in the rows, and 2½ inches deep; other early varieties, that grow 3 feet or higher, should be planted 4 feet apart. I always open Pea-drills with the spade to the required depth, so that some dry soil and wood-ashes may be strewn in the drills before and after sowing, thus often saving the seed from perishing in a cold soil in the event of much snow or rain falling this month.

BROAD BEANS.—These should be planted for early and main crops, the driest and warmest situations being selected for the early kinds; but most of the Longpod section are nearly as early as those and much more profitable. Plant in double rows 6 inches apart, 2 inches deep, with 3 feet spaces between the rows. Should pods be required for early exhibition, a row of Mammoth Longpod or Leviathan should be planted, the Beans being put in at 9 inches apart in the rows.

FORCING PITS.—If desired, Seakale may be forced where it is growing by placing pots or boxes over the roots, and covering them with mild fermenting materials. Put pots over the whole of the roots now—before they start into growth, to prevent the shoots becoming purple; only a portion should be covered with the fermenting material at one time. Keep the young plants of French Beans well up to the glass, top dress and stake those that need it, and apply plenty of water to those in bearing.

Salading, Lettuce, and Endive are now scarce, which will demand the frequent sowing of Mustard and Cress. Sow the seed in shallow boxes filled with light soil made firm; put the boxes in any forcing house, with a slate or piece of board over each till it germinates—when the plants are 2 inches high, the boxes may be removed to a cooler place. Chicory and Witloef are now valuable; if the roots are put in the Mushroom house or other forcing quarters in the dark. *C. J. Waite, Glenhurst, Esher.*

FRUITS UNDER GLASS.

CHERRIES, PEARS, AND PLUMS.—The first-named fruits, when grown by the aid of glass, as Mr. Rivers grows them, are of great excellence. Those who would take up the growing of Cherries in this manner, in pots, could readily secure choice fruits for the dessert with but little trouble in any rough kind of house. The great difficulty is in growing these in a mixed house, as the blossoming of the trees at various times would cause considerable trouble, abundant air being a necessity when Cherries are in bloom; therefore, to do them well, a house should be set apart for them. If the trees are not in pots, but planted at the back of the house, a large house is not necessary, what is termed a "case" being just the kind of structure needed, the front part being utilised for other subjects—fruit trees in pots, Strawberries, and in the winter for protecting salad plants. When the Cherry is grown in pots, great carefulness is needed in watering them when the fruits are stoning to prevent dropping, but at all

other times their culture is simple enough. Keep a low temperature till the fruit is of good size, as it is fatal to the crop if high temperatures are maintained; air must also be freely admitted when the outside temperature is high, and a little at all times may be admitted if there be no frost. The Cherry, being subject to the attacks of green and black aphid, a decoction of tobacco-water and quassia must be employed to syringe the trees with. Of course, this must not be used after the fruits show the least sign of approaching ripeness.

To make quassia-water, some persons pour boiling water on the chips, but this is not necessary; a half-dozen pounds of chips put into 25 gallons of cold water will make a wash of fair strength, unless the trees are badly infested. Always syringe the trees with clear water immediately after using the wash, also daily in favourable weather, as advised for Peaches; and in dull weather, artificial fertilisation of the blooms must be resorted to. After the fruit is set, afford the trees, if in pots, weak liquid manure. At starting, 35° to 40° is a safe night warmth, and by day, 45° to 50°—the minimum in severe weather. Damp down not later than noon, so as to get rid of most of the moisture before sunset.

Pears are splendid fruits when flowered and grown in a cool-house, or stood in beds of coal-ashes in the open after June. Some sorts too tender for our climate produce fine fruits of good flavour on walls or in pots under glass. Many varieties of Pears that are grown in this manner are scarcely recognisable. I saw a few cordons of Pears growing in a cold Peach-house last year which showed fine examples of fruits. Pears grown indoors require abundant watering and feeding, and to be kept clear of red spider and other insect-pests; ample ventilation, and good loam at the roots. I do not say they should be largely grown, but space should be found for a few of the best kinds in gardens, or such varieties as do not finish well in the open or on walls. *G. Wythes, Syon House, Brentford.*

[We would remind our readers that Apples and Pears are much grown in pots at some fruit nurseries in this country, but the most of them are plunged in the open during the summer, and the fruits are thereby greatly improved in flavour, only such varieties as will not ripen properly in our climate being kept under glass always. Most of our nurserymen who grow these trees are great believers in surface feeding for these fruits, and to this end they put on the surface of the soil manure and loam, keeping it in place by a palisade of large old labels or strips of slate stuck in round the edge of the pot. This manurial dressing is repeated once at least in the summer, and in winter, or sooner, it is cleared off with all the contained little feeding roots. A plant of Apple or Pear may stay in a 10-inch pot for years, getting a partial renewal of soil and clean drainage every winter, early. When Cherries and Plums are treated in this manner, and put outside to mature their fruits, a cage of netting or a balloon of the same, must be made use of. Ed.]

THE FLOWER GARDEN.

CHRISTMAS ROSES.—After so much hard weather one would hardly expect to find flowers already in the open air; but, with the snow gone, the Hellebores have revealed themselves from under their covering but little the worse for being covered up for so long a time. Good strong clumps afford quantities of bloom, and keep on flowering in succession. To have them at their best, however, it is necessary to protect them with handlights, or cover a number of them together with a frame. In either case, damp must be dissipated by affording a little air in mild weather. Much difference of opinion seems to prevail as to the right time to divide and propagate the Hellebores. I think it is with them as with most other plants, they submit to the process best when just starting into growth; but the less disturbance these plants get the better, as they take a long time to establish themselves. If division be decided on, the clumps should be lifted, and have all the soil shaken or washed out, when each crown will be seen, and separation is easily done. Good loamy soil will grow Helleborus niger well, and it succeeds either in full sun, if its roots can find plenty of moisture, or in partial shade. This is evidenced by those at Hardwick, where Mr. Fish has fine strong clumps along the foot of a low wall, facing south, and when I saw them they looked as if they would afford a fine harvest of bloom.

PLANTING SHRUBS AND ROSES.—The most pressing work at the present time is the bringing to a close the planting of deciduous shrubs and Roses.

Although it is necessary to have the soil rich for Roses, raw fresh manure should not be made use of, especially if it will come in contact with the roots; and therefore, unless the dung used is well rotted, it should be put deep in the ground, or, better still, used as a mulching. Applied in this way it answers a double purpose, as it protects the newly-moved plants from frost, prevents evaporation in summer, while it affords the necessary manure for the plants.

DAFFODILS, CROCUS, ETC.—Nothing adds so much to the decoration of borders containing choice shrubs, and miniature trees, as Daffodils, Narcissus, Crocus, &c., when planted freely. In these places they seem to thrive if not planted too near to the roots of the trees and shrubs. The best way to plant them is in bold patches of one kind, as by so doing the effect is finer, and there is not that kind of incongruity one sometimes sees where the kinds are mixed up together. As bulbs are now fast pushing up their leaves, the ground should be raked clean; but digging is not advisable, as it injures the outside bulbs. Instead of digging, top-dress the border during the autumn, or in early spring, with leaf-mould or decayed manure, which will be soon lost to sight.

EDGINGS TO WALKS.—Nothing looks better than turf as walk margins, but it will often happen that there are parts under trees where grass will not grow, and some other kind of edging must be employed, and *Hypericum* is a very suitable plant, also *Ivy*, of the small-leaved kinds, to be used either with or without any rough stones or burrs for them to run on and cover; but in the open, very good effects may be produced by the aid of burrs or rough stones, as there are so many plants which, like *Ivy*, root readily under, and trail about among the stones. Amongst such, mention may be made of the *Aubretia*, *Saxifrage*, *Rock Roses* or *Cistus*, *Daphne encaurum*, the lovely *Phloxes*, such as *setacea* and *Nelsoni*; hosts of *Sedums*, the lovely *Lithospermum prostratum*, *Allysum saxatile*, the *Armerias*, and *Gentiana acaulis*, *Iberis gibraltarica*, and the pretty *Omphalodes verna*.

PLANTS TO BE RAISED FOR BEDS AND BORDERS.—There are many plants that may now be raised from seed, and others be started for cuttings, chief among the latter being *Dahlias*, roots of which should at once be placed in a warm pit or house, and as soon as the shoots made are 3 inches long they should be taken off and struck in very small pots, singly, in sandy soil, in bottom-heat of 75° to 80°, in a close frame. *Hollyhocks* may be treated in the same manner, but as these can be so readily obtained from seed, it is hardly worth while to strike cuttings, unless it be to keep choice kinds. Autumn-raised *Hollyhocks* are the best; but very useful plants may be had in flower in autumn by sowing seed in heat at once, keeping them under glass till May, when they should be planted in well-prepared soil. *Cannas* must not be forgotten, as they make a grand show; and the fine *Lobelia cardinalis* is a most useful and distinct plant for grouping in beds, or forming bold masses. *J. Sheppard, Woolverstone Park, Ipswich.*

THE HARDY FRUIT GARDEN.

ARREARS OF WORK.—Push forward all arrears of pruning, Pears on walls especially being taken in hand and finished off. Those in the open, I am doubtful about, believing that many of the fruit-buds have been much damaged, and in some instances killed outright. Time, however, will prove, and I hope beyond my expectation. In pruning neglected old trees, some of those which have very long fruit spurs, should be shortened back to within half an inch of the main branches, and provided the roots are sound, the trees will in a few seasons become well furnished with healthy fruit-buds. Lifting tree roots may still be done, but the roots should not be much curtailed, indeed it is better to lift only half the roots, the other half being left till November. In doing this work, any roots met with that are tending downwards, should be cut asunder, trimmed off, and laid out at various depths, the holes being filled in with good loam, made very firm. Any planting remaining to be done, should be pushed forward; trees which will be grafted this spring, should be headed back. Grafting is to be recommended when poor varieties are growing on healthy stocks; but to work up a lot of old trees as is frequently observed, is a sure waste of time and labour, it being in many cases better to root out the old trees, and replant with young ones. Any grafts which will be made use of in March should be selected now, and put into the north border till wanted, seeing that all such are properly labelled with the name of the variety.

Peach and Nectarine Trees.—These may still be lifted of any size, with good results, but no time should be lost. *H. Markham, Mereworth Castle, Maidstone.*

THE ORCHID HOUSES.

EAST INDIA HOUSE.—A change to spring-like warmth, following so suddenly the wintry weather of last month, will soon begin to make itself apparent in the colour of the foliage, and in the new roots that will be breaking into activity. Such species of *Vanda* as seem to do best when grown in the warmest house, amongst which are *V. Sanderiana*, *V. Denisoniana*, *V. cœrulescens*, and *V. lamellata Boxallii*, should now receive attention; and whether growing in baskets or pots I make a practice of annually removing all spent sphagnum moss, also as many of the crocks as possible. Some few crocks are sure to be found firmly bound to the pot or basket by the new roots, which should be very carefully preserved. After removing every particle that is possible I immerse the pot or basket in a pail of tepid water. In re-potting the plants, much care is necessary, especially if the specimens are large ones, in placing large crocks again in the position they are to occupy, for if these are carelessly dropped in, some of the roots are sure to be injured thereby. In re-potting *Vanda Sanderiana* and *V. lamellata Boxallii*, the pots should be filled to about one-fourth their depth with crocks, then a layer of sphagnum moss, the roots being then placed in the pot, and the whole filled up with sphagnum and crocks in about equal quantities; the addition of a small portion of coarse silver-sand will assist in keeping the sphagnum moss sweet.

MISCELLANEOUS ORCHIDS.—*Saccolabium bellinum*, with its curious and beautifully-formed flowers now open, is one of the best varieties, growing well in baskets hung up near to the roof and the top ventilators. The show of *Phalenopsis* has been much spoiled by fog and sunless skies, those varieties which suffered the most being *P. grandiflora* and *P. amabile*; *P. Schilleriana* and *P. Stuartiana* in great part being not sufficiently forward for the buds to be much injured. *Epidendrum bicornutum* is now sending up its spikes freely, which clearly proves that this maligned beauty is not so difficult to flower as was at one time generally believed. A warm corner must be found for it, and a little more moisture afforded it than the other plants in this house require during the winter. Under this kind of management the plants thrive, and each year get stronger. Our plants stand during winter in a store. Moisture should be slightly increased in the house, also the temperature by day and night may be increased to some slight extent, if a minimum of 53° be kept. *A. G. Cutt, Parkfield, Worcester.*

PLANTS UNDER GLASS.

COOL CONSERVATORY AND GREENHOUSE CLIMBERS.—Should any addition be contemplated in the number of these plants, it would be advisable to plant them as early as convenient, so that the plants may have a long season of growth, and time afforded for the stronger-growing ones to cover their allotted space before the end of the summer. Established plants will now be starting into growth, and the soil at their roots should be examined, and as much of the old soil removed as can be conveniently done without causing injury to the roots; afterwards lightly prick the borders over with a fork, after which may be added a top-dressing of good loam and peat, according to the requirements of the different subjects. Should the borders be dry, thoroughly soak them with tepid water.

Much judgment is required in selecting species and varieties of climbers for the different positions to be planted, as in most conservatories they form the chief attraction. The following is a select list of such plants, which will in most cases be found sufficient in number and variety to furnish any ordinary conservatory or large greenhouse:—*Tacsonia Van Volxemii*, *T. Exoniensis*, *Tecoma capensis* and *jasminoides alba magna*, *Bignonia grandiflora* and *speciosa*, *Claianthus puniceus*, *C. magnificus*, *Ficus repens*, *Bougainvillea glabra* and *speciosa*, *Mandevilla suaveolens*, *Passiflora racemosa*, *cœrulea*, and *coccinea*; *Cobæa scandens* variegata, and *scandens*; *Clematis coccinea*, and *C. indivisa lobata*; *Tropæolum speciosum*, and *T. tricolorum*, *Habrothamnus elegans*, and *Lapageria alba* and *Roses*.

THE FORCING PIT continues to bring in fresh batches of plants of the different kinds from the reserve quarters, such as *Hyacinths*, *Freelias*, *Tulips*

in variety, *Polyanthus Narcissus* and *Paper-white Narcissus*, *Lily of the Valley*, which will come on freely now; also a few more plants of *Indian Azaleas* and *A. mollis*, *Deutzia gracilis*, *Solomon's Seal*, *Cactus Epiphyllum truncatum*, *Hortia japonica*, hybrid *Rhododendron*, *Richardia æthiopica*, and also a few pot *Roses* which have been coming on gradually; before being brought into this structure, keep the temperature from 65° to 70° by night, with a rise of 10° by day with sun-heat.

GLOXINIAS.—Where there are plenty of old tubers at hand, it will be advisable to start them at different times, so as to secure a succession of bloom. The first portion may now be potted, using large or small pots, according to the size of the tubers. Last year's seedlings may be put in 4 and 6-inch pots. The best kind of soil consists of equal parts of peat and loam, with sharp sand in sufficient quantity to make it very porous; make the soil moderately firm about the tubers, which should stand level with the surface of the soil. After having potted them, place them in a dung bed frame, hot water pit, or on a shelf in a Pine stove, where the temperature does not fall below 65°. Here they will soon start into growth, after which time they must always be stood close to the glass to prevent drawing of the leaf and leaf stalks, and loss of substance in the blooms.

CLERODENDRON THOMPSONÆ.—By having several specimens of this species of *Clerodendron*, the flowering season may be made to extend over a long period, if one or two plants are started about this time, and others at later dates. The temperature may range from 60° to 65°, and with this degree of warmth they may be had in bloom by the end of the month of April, or in May, it generally taking from nine to eleven weeks to get them into flower. By bringing the plants on gradually in an intermediate house, the flowers will last much longer than when forced in a higher temperature. During the resting period, the soil will have become very dry, and require to be thoroughly soaked with tepid water before putting the plants into heat.

Any plants requiring it should be re-potted before they commence to make fresh growths, using good turfy loam, with a portion of well-rotted manure, and sufficient sand to keep the soil porous. Sprinkle the plants abundantly, to induce them to break; for should the shoots break irregularly at starting it is impossible to get plenty of shoots afterwards. *R. Milner, Penrice Castle Gardens, Swansea.*

THE APIARY.

HIVES AND HIVE-MAKING.—A great many more people would keep bees were it not for the outlay incidental to starting in the pursuit. It is surprising however, what a small expenditure will suffice when hives are made at home, and how great an addition to the pleasure this creates. Hive-making is quite an elementary form of carpentering, and anyone at all handy with ordinary tools, ought to be able to turn out a serviceable article. The best plan is to buy a hive of an approved pattern to start with, and make all others exactly like it. As there are scores of hives in the market, it is rather confusing, especially to a beginner, to decide on the best form of hive to adopt, and his first difficulty will have been overcome when he has made up his mind whether he gets a long or combination hive, or a storyfying one. Good results can be obtained with proper management from either, but for various reasons I am very glad that I started on the storyfying system myself, and should not care to change it, as I am convinced of its superiority in every way. Simplicity should be the leading feature in hive construction. A hive called the Eclipse is in the market. In form this hive is square, and therefore the frames can be made to hang either parallel or at right angles, to the entrance, and in the case of doubling to each other. The entrance is through the floor-board, about 2 inches from the front, and can be extended to full width of hive, or contracted at pleasure, and forms a porch, giving perfect shelter from wind and wet. The standard bodies are made exactly alike, and can therefore be built up to any height required to prevent swarming, and when not wanted on one hive, can be used on another; in fact every part is interchangeable. If preferred, shallow supering bodies 4½ inches deep are supplied, constructed to take either twenty-eight one pound four-way sections or shallow frames 4½ inches deep, for extracting; or two of these used together take standard frames, being of course the required 9 inches in depth. These shallow bodies can be utilised for wintering, by placing one underneath the brood chamber to give an air space, and the other above to contain packing. *Expert.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Advertisements should not be sent to the Editor, but to the Publisher.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY,	FEB. 10.	Royal Horticultural Society: Committees at 12 noon, and Annual General Meeting at 3 P.M.
		National Dahlia Society, Annual General Meeting, at Horticultural Club, 1.30.
		Horticultural Club, Annual Dinner, Hotel Windsor, Victoria Street, S.W., at 6 P.M.

SALES.

MONDAY,	FEB. 9.	Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	FEB. 11.	Roses, Dutch Bulbs, Fruit Trees, Border Plants, Imported Lilies from Japan, &c., at Stevens' Rooms.
		Lilies and Kentia Seeds, at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 12.	Orchids in Flower and Bud, at Stevens' Rooms.
FRIDAY,	FEB. 13.	Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	FEB. 14.	Roses, Dutch Bulbs, Fruit Trees, Border Plants, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—59°·1.

On many occasions we have been called on to notice the conscientiously elaborated work of Baron Sir FERDINAND VON MUELLER on the Eucalypts of his adopted country. The "Eucalyptographia" indeed, is, and must long remain, the standard work on the subject. Thanks to a large extent to his zeal and energy, many of the species have been distributed in India, in our colonies, in Algeria, and along the shores of the Mediterranean generally. Some, such as *E. coccifera*, *E. Gunnii*, and *E. cordata*, are hardy in various parts of Britain, whilst in the Isle of Wight and in Arran, other species are found capable of resisting a climate which, in any case, must be less favourable than that in which they grow naturally.

In many of our colonies, such as the Cape of Good Hope, and in Southern France and Algeria, many more species may be grown with advantage than is the case here. It becomes, therefore, a matter of great importance to be able to discriminate the species, and apply to them the correct names. Many circumstances render this anything but an easy task, even in Australia. Our highly-valued correspondent, M. CHARLES NAUDIN, published, in 1883, a memoir dealing with about thirty species, as then known to him in cultivation. Since that time many new species have been introduced, and much fresh information has been gathered concerning those previously known. M. NAUDIN, by natural qualifications, long practical experience as a botanist and as a cultivator, and by favourable conditions for study, is specially well fitted to deal with these puzzling plants. He has grown many of them in the rich garden of the Villa Thuret, at Antibes, from the seedling to the fruiting stage; he has had them constantly under

observation for many years, and been able to follow their vagaries and unmask the protean disguises assumed by some at least of them in successive stages of their growth.* The great value of the Eucalypts, depends upon their rapid growth. If they are planted for sanitary purposes, this rapid growth is all important, as the trees affect the drainage of the soil by their roots, purify the air by their leaves, and possibly act beneficially by exhaling balsamic vapours, which are prejudicial to microbes, or which render noxious vapours harmless. If they are planted for timber, the planter has the satisfaction of knowing that no tree that he can cultivate will "grow into money" in so short a time, and that no tree will furnish a return for the outlay expended upon it in so brief a period as these so-called Gum trees. About a hundred species are known, but of these only a few are suitable for cultivation and in making a plantation of them, the use to which the trees are to be put eventually must be borne in mind. If for timber species remarkable for their rapid growth must be selected, such as *E. globulus*, *E. Muelleri*, and *E. gomphocephala*. If timber of great solidity, density, and durability be required, preference should, according to M. NAUDIN, be given to *E. marginata*, *E. rostrata*, and *E. polyanthema*. If planting for ornamental purposes, then such species as *E. robusta*, *cornuta*, *botryoides*, and *leucoxydon* are to be recommended. Outside the region of the Olive, of course, only the hardiest species can be cultivated, such as *E. coccifera*, *E. viminalis*, *E. Gunnii*, *E. urnigera*, and *E. cordata*. *E. globulus* is the best known species in this country, and of that, as we have recorded recently, there are some thriving trees in the Isle of Wight and elsewhere. *E. globulus* is also largely employed in this country in decorative gardening, the silvery foliage being very effective in the flower garden. A fine tree at Hyères was figured in our volume for May 7, 1881. Of the large tree of *E. coccifera* at Powderham Castle, Devonshire, we give an illustration at p. 169 of our present number. *E. urnigera*, of which there is a fine specimen in Mr. Secretary BALFOUR's garden at Whittinghame, was figured at p. 461, April 14, 1888; see also p. 628 of the same volume. At Menabilly, in Cornwall, is a large tree of *E. Gunnii*, with a fine head and well-furnished from ground to top and of which Mr. Rashleigh obligingly sent us fruiting specimens some time since.

There are some who think that the rôle of systematic botany, at least as regards flowering plants, is played out, and that minute anatomy and physiology are the only departments of botanical science worth the attention of serious students—a singular reversal of what was the feeling or the practice at the time when the *Gardeners' Chronicle* was founded, and for a score or more years after. Looking at the matter, however, from a purely practical point of view, without reference to abstract science, we could hardly point to any case in which the necessity for observation and classification are more important than in the case of these Eucalypts. To know which are the right species to plant, we must know what are the qualifications which render them valuable, what are the discriminating marks which will enable us to identify them, and what are the names by which they are called. To effect all this, we need the assistance of the systematic botanist, and M. NAUDIN tells us in the present pamphlet what are the points to which special attention should be

directed. The foliage is very variable at different stages of growth, and an observation of the different modes of attachment, and of the different shapes of the leaves at different ages, is often useful in the task of discriminating one species from another. Thus, M. NAUDIN makes three groups:—1, those in which the leaves are opposite and all of the same shape; 2, those in which the leaves are alternate and uniform; and, 3, those in which the leaves present two different shapes. These, however, are to be taken as indications, not as absolute statements, for, as usual, Nature refuses to be tied down by any hard and fast lines and exceptional instances are not infrequent. The configuration and texture of the leaves afford other "characters," as also does the shape of the cotyledons or seed leaves. There are differences also in "habit," in the mode of branching, the nature of the bark, and the way in which it is cast off. The inflorescence or manner in which the flowers are arranged, offers better characters, and the differences in the size, colour, and construction of the flower and fruit, are all valuable aids to the descriptive botanist. Acting on these criteria, M. NAUDIN furnishes us in the present treatise with a threefold synopsis, one in which the species are grouped according to the disposition and modification of the leaves; another in which they are arranged according to the inflorescence and flower, and a third in which the grouping is made in accordance with the peculiarities observable in the fruit or capsule. These tables are, of course, purely artificial guides to facilitate research. By combining the data thus obtained, a more natural grouping is obtained as follows:—

Section 1. Inflorescence in cymes or axillary umbels.

Capsules longer than the calyx-tube.

Capsules shorter than the calyx-tubes.

Cymes three-flowered,

Leaves uniform, opposite,

Leaves uniform alternate,

Leaves of two shapes.

Cymes 3 to 7 or more flowered.

Cymes 7-flowered.

Leaves uniform opposite.

Leaves of two shapes, opposite at first.

Leaves uniform, always alternate.

Cymes or umbels, axillary, more than 7-flowered.

Leaves uniform.

Leaves of two shapes.

Section 11. Flowers in terminal panicles or corymbs.

To this tabular statement, which we have abridged for our purpose, is added a detailed description of the fifty-six species known to the author as growing in the gardens of Provence. Other species are alluded to as not sufficiently known to be adequately treated of at present.

It will be seen that M. Naudin has once more enriched botany and horticulture with a treatise which demands and will ensure the gratitude of their followers.

General articles on the subject have been given in our columns on July 31, 1883, and December 24, 1887, and the appended list of species, illustrated in the *Gardeners' Chronicle*, may be of use to those interested in these plants.

Eucalyptus coccifera, June 30, 1888, pp. 799, 801. *E. cordata*, June 30, 1888, p. 803. *E. globulus*, November 22, 1873, p. 1587; December 24, 1887 (Supplement), p. 777. *E. Gunnii*, December 24, 1887, p. 781. *E. resinifera*, August 3, 1872, p. 1541. *E. Staigeriana*, April 6, 1889, p. 437. *E. urnigera*, April 14, 1888, pp. 460, 461; June 30, pp. 799, 802. *E. viminalis*, November 24, 1888, p. 597.

* *Description et Emploi des Eucalyptus introduits en Europe*, second mémoire. Par CHARLES NAUDIN (de l'Institut), Antibes, J. MARCHAND, 1891, 8vo, pp. 72.

LAKE AT BIRKENHEAD PARK.—Our illustration (fig. 44), shows one of the many pretty features of this fine example of a public park, the creation of Mr. E. KEMP. Few things about an extensive pleasure ground or park add so much to their beauty as a well-managed piece of water, and there are few inland places in which water, either as still pools or lakes, or running streams, cannot be made to afford pleasing effects. In this instance a lake has been constructed in what appears to be a natural hollow of the land—the most suitable and appropriate of all situations, because the most natural, and as affording a receptacle for the drainage-water of the adjoining land. Usually, it will happen that a position such as this affords scope for the planter's art, the long slopes on one or several sides being available for planting with groups of trees and shrubs, exotic or native. The main endeavour of the planter should

looking than *Pinus strobus* and the Scots Fir. In speaking of planting by the margin, dot planting is not meant, the effect of it being an unsatisfactory frittering away of perhaps good materials and the production of a monotonous mixture. The better way is to mass the trees, and keep deciduous trees pretty much by themselves, as also the evergreen trees, although, for the sake of warmth of colour in winter, a few evergreen trees should find place in groups of deciduous ones. Flowering trees and shrubs, or those which fruit well, should not be overlooked. Amongst the last-named we would name *Hippophae rhamnoides*, which likes water; *Sorbus torminalis* and *S. aucuparia*; all the many species and varieties of the Crabs and Thorns. The flowering water-plants that are not likely to become troublesome weeds must not be omitted, as these add a great deal to the pleasures of a piece of ornamental

have been manifested to us on this occasion, and we particularly value the kind words which have been addressed to us in the columns of our contemporaries at home and abroad. For the moment we confine ourselves to this general acknowledgment, but we shall take another opportunity of expressing our sense of the honour done us.

"THE BOTANICAL MAGAZINE."—This time we do not allude to the patriarch among botanical journals, but to the monthly periodical of the Tokio Botanical Society, which bears the same name. It is a substantial-looking publication, written partly in Japanese, partly in English, and beginning, like Hebrew books, at what we consider the end. Coloured and uncoloured lithographs are provided, showing the details of the flower, as in the English periodical. In the number before us, a new genus of Saxifrages



FIG. 44.—LAKE IN BIRKENHEAD PARK.

be, not to crowd trees and shrubs on the margin of the water, and least of all on the points open to the sun, as this would cause long shadows to be cast on the water, rendering it almost inky in its blackness; but to let the groups approach the water at wide intervals, with broad spaces of turf, or contiguous masses of some low-growing plants, as *Hypericum*, *Mahonia*, *Ivy*, *Euonymus*, *Box*, &c. When trees are planted at the margin of a lake or broad stream, the selection should be made from such as have a striking habit—weeping, as the Willow, Birch, *Sophora pendula*, pendulous Ash, Beech, and Elm; heavy-crowned, as the Maple, *Bignouia*, *Paulownia*, American and English Oaks, and deciduous Cypress; or erect-growing, as red Cedar, which looks well in groups; Silver and Balm of Gilead Firs, Douglas Fir, and *Sequoia gigantea*; and as flat-headed trees, when aged, there is nothing more massive-

water. Few flowering plants, either herbaceous or bedding, seem to be quite at home on the banks of either lake or stream, and when they are planted largely, there is usually felt a sense of incongruity; and the wilder the surrounding, the fewer should be these floral adjuncts.

THE COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY.—At the general annual meeting to be held on February 10, it is recommended that the following gentlemen retire from the council, viz.:—Sir C. W. Strickland, Bart., Col. R. H. Beddome, and T. F. Rivers, Esq.; and, that the following gentlemen be elected in their places:—Sir John Llewelyn, Bart., George Bunyard, and D. Morris, Esq. No change is recommended in the list of officers.

OUR JUBILEE.—We are deeply gratified by the expressions of good-will and encouragement which

is described and figured by Mr. RIKICHI YATABE, Sc.D., under the name of *Kirengeshoma palmata*, which must be a handsome plant, in spite of its name.

BAILLON'S "DICTIONNAIRE DE BOTANIQUE."—This very useful botanical dictionary, published by HACHETTE & Co., of Paris, has now reached as far as the letters *Phy*, so that two thirds of it must be completed. As usual in works of this character, there is occasionally a certain disproportion between the length of the articles and the importance of their subject, but this does not detract from the value of the work, which is copiously illustrated, and well got up. The list of popular names in various languages is very full. No botanical library can afford to dispense with this work.

THE GARDENERS' ORPHAN FUND.—The usual monthly meeting of the committee took place at the Horticultural Club, Hotel Windsor, on the 30th ult.,

William Marshall, Esq., in the chair, there being a large attendance of members. The following special donations were announced, amounting to £79 13s., as follows:—Mrs. Todd, proceeds of flower stall at Edinburgh Chrysanthemum Show, £15; The Scottish Horticultural Association, per Mr. McKenzie, £5—it is anticipated this will become an annual donation; Ealing District Gardeners' Society, proceeds of concert, £15; Mr. Jamieson, on behalf of Messrs. R. A. Scott & Co., skating at Elm Grove, Acton, £5; proceeds of skating *fête* in the grounds of Hanger Hill House, Ealing, per Mr. Chadwick, £7 13s. Liverpool Horticultural Association, per Mr. R. W. Ker, £2 2s.; Bristol Chrysanthemum Society, per Mr. Vallance, £2; Mr. M. Dunn, Dalkeith Palace Gardens, donation, £1 1s.; Mr. H. Herbst, Kew Road, Richmond, donation, £1 1s.; Mr. McFarlane, artist, to make his son and daughter life members, £10; Mr. A. J. Brown, proceeds of a concert at Chertsey, £1 16s.; and the following proceeds of money-boxes:—Mr. J. Hughes, Birmingham, £6 10s.; Mr. D. T. Fish, Hardwicke, Bury St. Edmund's, 19s.; Mr. T. Turtton, Maiden Erlegh, Reading, 8s. 2d.; Mr. Gibson, Morden Hall Gardens, Mitcham, 9s. 6d.; Mr. Lemmon, Brighton, £1 5s. 8d.; Mr. T. Ware, Wimbledon, 12s. 4d.; box at Chiswick Gardens, Royal Horticultural Society, 7s.; Sevenoaks Gardeners' and Amateurs' Society, per Mr. Denning, £1 10s.; Tunbridge Gardeners' Society, per Mr. Fennell, 14s. 6d.; and Leeds Paxton Society, per Mr. W. Franklin, £1 1s. A letter was read from Mr. H. J. Veitch, chairman of the Williams Memorial Fund, stating that at a recent meeting of the executive committee to dispose of the Fund, they had, in the full belief that it was a desirable way of doing honour to the memory of the late Mr. B. S. Williams, voted the sum of £250 to the Gardeners' Orphan Fund, in order that two orphans might be placed upon the Fund at once—Mr. H. Williams to nominate them. It was unanimously resolved, that the offer be accepted, subject to the conditions named in Mr. Veitch's letter. The Secretary reported, he had already received nine applications on behalf of orphan children, some of them being of a very urgent nature. Mr. A. J. Brown made a statement on behalf of Dr. Hawkesley, the Director of the School of Handicrafts for Destitute Boys at Chertsey, and a vote of thanks was passed to Dr. Hawkesley for his communication.

"CASSELL'S STOREHOUSE OF INFORMATION."

—Messrs. CASSELL have issued the first part of a popular cyclopædia of general information which promises to be of great utility to those whose means do not allow of the purchase of more expensive works, and whose needs will be met by short but accurate summaries rather than by learned treatises. It is a book of which we recommend the purchase in all garden libraries as a very convenient work of reference. It is well printed, and has numerous illustrations, but the coloured plates are hardly good enough in proportion to the text.

THE LATE WILLIAM COURT.—A handsome monument of red granite has been erected in Brompton Cemetery to the memory of the late Mr. W. COURT. The monument has been erected at the cost and at the request of his American friends, who had learnt to appreciate his worth while he acted as representative for Messrs. VEITCH in the United States. This expression of sympathy is the more agreeable, inasmuch as it not only worthily commemorates the memory of one who did much to advance horticulture by his success as a hybridist, but affords testimony of that feeling of national good-will which is so cordially reciprocated on this side of the Atlantic.

"LINDENIA."—The first part of the English edition of this publication has appeared, with a sympathetic preface from Mr. LUCIEN LINDEN, who alludes in becoming terms to the great services rendered to horticulture and to botany by his father. The plants represented are *Cattleya rex*, a magnificent species or variety (which is it?), of which we

have already spoken; *Cochlioda Roezliana*, a very showy Orchid, with numerous orange-coloured flowers in drooping panicles; *Peristeria aspersa*, and *Cattleya Warocqueana* var. *amethystina*. We are glad to see that the numbering of the plates is continuous with that in the French edition, and we wish all success to the new enterprise.

EMPLOYÉS' SUPPER AND BONUS DISTRIBUTION.—On Monday evening, February 2, Mr. GEORGE PHIPPEN, F.R.H.S., nurseryman, Reading, invited the whole of his staff, numbering more than seventy, to a supper at the "British Workman," Abbey Square, Mr. G. PHIPPEN presiding. An important feature of the evening was that of the employés receiving a participation of the profits of the business of the past year, which showed a considerable increase on that of the preceding one.

CHINESE PRIMROSES.—Messrs. CANNELL & Co. send us flowers of large size, good substance, approved form, and brilliant in colour, ranging from white to ivory white, and pale rose to crimson.

SHREWSBURY FLORAL FÊTE.—The result of this *fête* and show, 1890, shows the largest profit yet made, the receipts being nearly £3000, and the profit of the summer show over £850. After deducting the loss on the spring and autumn shows, which are free to subscribers and their families, the net profits of the year amount to £709. By reference to our advertising columns, it will be seen that the schedule for this year has been greatly augmented, and the cash prizes offered, open to all, amount to £640.

SULPHUR IN PLANTS.—Messrs. BERTHELOT & ANDRÉ, in a communication to the *Comptes Rendus*, state that sulphur is an essential constituent of all plants, especially of the albuminoid principles, and it occurs also in vegetable mould. It occurs in greatest proportion at the flowering period, after which it diminishes. It is presumably taken up from the soil in the form of sulphates, or from organic sulphur compounds.

POMOLOGICAL BOOKS.—The library collected by the late André Leroy, the author of the *Dictionnaire de Pomologie*, will be sold at Angers by M. Larcher de Coupigny, on Friday, February 20, and the sale will be continued daily, except Sunday, till the 24th inst. The collection is very rich in pomological and horticultural literature, and especially so in French and German publications, ancient and modern.

DENDROBIUM NOBILE.—Messrs. George Paul & Son, The Old Nurseries, Cheshunt, send a flower of *Dendrobium nobile*, with the information, that it appeared among the common kind; it has the side petals marked in a similar manner to the labellum, and is, in point of fact, *D. n. Cooksonii*, if it can be perpetuated as that variety has been. *Trilabellia* or *Peloria* in *D. nobile* has occurred in several gardens of late years, among plants which had been cultivated without sporting for many years previously.

TILLANDSIA LINDENIANA.—A plant of this in the Birmingham Botanical Gardens, now in flower, is an object of interest there, as it is so little known and grown. It is a small-growing species, throwing up a flat spike, with the flowers betwixt the bracts, and of a beautiful pale lavender-blue colour, with white centre. Even more beautiful still is *T. Lindeniana* vera, of dwarf, compact growth, with recurved olive-green leaves, and the flower-scape bears an ovate, flattened spike of a bright rosy hue, from the bracts of which issue in succession beautiful lilac-blue flowers, and the bracts are of a much brighter colour than in *T. Lindeniana*. It is a stove plant, requiring the same treatment as most other Bromeliaceous plants. *D.*

ORCHIDS AT MESSRS. WILLIAMS' NURSERY.—This large Holloway establishment has a good array of Orchids in bloom at the present time, not-

withstanding the fact that fog and darkness robbed the plants of the earlier bloom. There are certain species which suffer but little, and these would appear to be such as have varnished surfaces—notably, *Cypripedium*. In bloom were noticed recently:—*C. melanophthalma*, *C. Wallerianum*, *C. vernixium*, *C. Warnerianum*, *C. Boxalli*, *C. B. atratum*, a beautiful variety; *C. Sallieri*, *C. Sedeni*, *C. S. superbum*, *C. selligerum*, *C. s. rubrum*, and many others, both old and new. *Laelias* were coming generally into bloom, and we observed plants with flowers of *L. albida* and *L. a. Marianne*, so useful for their gracefulness and colouring. *L. Dawsoni*, *L. Sanderiana*, and *L. Williamsi* were likewise in bloom. The long-enduring flowers of *Epidendrum Wallisi* were open in a few instances; also those of the hard-to-do-well *Sophranitis violacea*, and the much brighter and better *S. grandiflora*. Several specimens of the fragrant *Lycaste costata*, *L. lanipes* of the same colour (white) were noted, and *L. Skinneri* purpurea, a handsome dark variety. The handsome *Paphinia cristata* was flowering. In *Masdevallias*, a few were flowering, including the rare *melanopsis* and *M. Backhousiana* one of the *Chinara* section. The *Vandas*—well done here—had not apparently been injured by fog and confinement without ventilation, but it is yet early to find many of these Orchids in bloom; still, *V. Pattersoni*, *V. tricolor insignis*, and *V. suavis* were showing good trusses. A splendid plant of *Phaius grandifolius*, with some thirty spikes, was a fine object. In *Dendrobiums*, mention may be made of *D. Findlayianum*, *D. endocharis*, *D. superbiens*, and *D. Wardianum*. Several *Cœlogynes*, unharmed by fog, were commencing to bloom; also *C. cristatum*, the Chatsworth variety, *Angraecum citratum*, and *A. sesquipedale*. A good stock of *Cymbidium Lowianum* exists here, and these are in wonderful health, the larger examples bristling with bloom-spikes not yet open. *Cattleyas* in bloom were not many, but well-sheathed examples of *C. Trianae*, *C. Warneri*, gave abundant promise. The handsome novelty, *C. Warocqueana*, was present in established plants. *Odontoglossum Alexandræ*, and others, were beginning to flower; and many more Orchids are in flower, little or much; but space forbids their mention on this occasion.

OVERLAPPING.—Gardeners know how to set seasons at defiance. Here is an illustration. We have on our table a really good Chrysanthemum, together with Tenby Daffodils. The flower-shops have Snowdrops, Chinese Primroses, Tulips, Hyacinths, &c. Spring is coming, but it would seem that autumn has not gone.

MR. PETER BARR.—This energetic Daffodil hunter proposes to visit the maritime Alps, and parts of Spain and Portugal, on a botanical trip.

MISSOURI GARDENING SCHOOL.—With reference to the School of Botany and Horticulture, established at the Missouri Botanic Garden, St. Louis, U.S.A., we learn that Prof. BAILEY BALFOUR has been appointed examiner of candidates for admission as pupils from Scotland.

PUBLICATIONS RECEIVED.—*Die Hypogæen, Deutschlands.* By Dr. R. HESSE. (HALLE, A. S., Germany: Ludw. Hofstetter.)

GOSSIP FROM THE SALE-ROOM.

Many a rare plant, exceptionally well-flowered or reputedly difficult to grow, may be met with in robust health in the sale-rooms which draws supplies from all quarters. On Friday, January 30, at Messrs. Protheroe & Morris' Central Auction Rooms, Cheap-side, a grand plant of the rare *Cypripedium Lindleyanum* in flower made its appearance, and *Calanthe vestita gigantea*, and the pretty *Sophranitis violacea* were among the things exceptionally bloomed. Altogether there was a fine display of bloom, some of the specimens of white-flowered *Lælia anceps* having several spikes each. A few *Disa longicornu* were sold, and by the drawing and dried specimens this should be a good thing and easy to grow—flowers

large and blue, leaves broad like those of *D. grandiflora*. Every sale now has a good show of plants in bloom; so numerous are the entries, that the auctioneers announce their special flowering Orchid sales, that of Mr. J. C. Stevens being fixed for Thursday, February 19. Outdoor stuff is now eagerly looked after, and there will, doubtless, be a large attendance at the sale of Hollies, Rhododendrons, Conifers, and other hardy trees and shrubs at the Woodford Road (near Snarresbrook Station), on Tuesday, February 17, and two following days. The sale, in consequence of Mr. John Fraser's lease of that branch of his nursery approaching termination, is without reserve.

exhibitor was Mr. C. Ritchings, gr. to C. Lindsay, Esq., The Brandries, Beddington, who gained the 1st prize with a total score of 141 out of a possible 144. The Chairman expressed his gratification in seeing so large an attendance of members, and was pleased to find how prosperous the Society was; he trusted it would continue to fulfil its object as successfully in the future as it had done in the past. A very hearty vote of thanks to the Chairman for his kindness in being present concluded the meeting.

NATIONAL CHRYSANTHEMUM.

THE annual meeting took place at Anderton's Hotel, Fleet Street, on the 29th ult., Mr. R. Ballantine in the chair. Mr. R. Dean, Secretary, read

to Mr. R. Ballantine, the chairman of Committee; and to Miss Holmes, for their great services to the Society during the centenary year. Lord Brooke, M.P., was re-elected President; Mr. R. Ballantine, Chairman; Mr. E. C. Jukes, Vice-Chairman of the Committee; Mr. R. Dean as General, and Mr. C. Harman Payne as Foreign Corresponding, Secretaries; and Mr. J. R. Starling, as Treasurer. The following members were elected on the Committee for the ensuing year: Messrs. Newton, D. aia, juur.; Briscoe-Ironside, Payne, Long, Sanders, Witty, Needs, Bingham, Reeves, Neary, and Vince, the foregoing in the room of the twelve who retire by rotation, and Mr. Davey in the place of Mr. R. Dean, appointed Secretary. Messrs. J. Crane and F. Cobbold were elected Auditors. Some alterations were made in the rules on the recommendation of the Committee, and five new members were elected.

SCOTLAND.

THE MARKET GARDENERS OF EDINBURGH AND WAVERLEY MARKET.

A VERY largely-attended meeting of the market gardeners of Edinburgh and district was held in the Hall of the Chamber of Commerce, Edinburgh, on the 28th ult. Councillor Blackie, Leith, President of the Edinburgh Market Gardeners' Association, occupied the chair. It was unanimously agreed to petition against the Bills of the North British and the Caledonian Railway Companies in so far as they propose to acquire the Waverley Market for railway purposes. The petitioners claim that the Waverley Market is conveniently and centrally situated for market gardeners, fruiterers, florists, greengrocers, and the public generally, and that it is largely appreciated, and taken advantage of by all. They express their desire that it should in no way be interfered with as a market-place, inasmuch as from its central position it is essentially requisite for their trade and for the wants of the public. They hold that there is no justification for any interference with it on the part of the promoters of the Bills, or for appropriating it for railway purposes, and declare that serious loss of business to them (the gardeners) would result were the market acquired by the companies.

SCOTTISH HORTICULTURAL ASSOCIATION.

The monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on the 3rd inst., Mr. James Greive, Vice-president, in the Chair. A paper on "Flower Gardening," was read by Mr. Porter, Leuchie Gardens. The main argument of the paper being that variety in the flower garden was essential to obtaining the fullest measure of enjoyment. The general effect every year should differ from that of the preceding, not only in the varied materials employed, but in their relative combinations.

The paper elicited a very interesting discussion, in which Messrs. Dunn, Todd, McHattie, Fraser, and others, took part.

Among exhibits, was a collection of blooms of about two dozen species and varieties of Orchids from Mr. Mitchell, gr. to Jas. Wilson, Esq., Bantaskin, Falkirk. Mr. M. Todd exhibited a very fine spray of *Myrsiphyllum asparagoides* about six feet long, and in flower.

HOME CORRESPONDENCE.

BURNT EARTH AND TOMATOS.—I consider this substance as a most valuable ingredient for mixing with heavy soils. I make a practise of collecting all prunings, old Chrysanthemum stools, potting-shed refuse, &c., adding almost any kind of soil, and burn in a similar way to that described by Mr. Divers. I have found it answer well for mixing with our ordinary soil for Tomatos. I used it last season for part of my Tomatos, and was so well pleased with the effect it had, I intend to use it largely this season. I had last season quite three times the weight of Tomatos from plants where free admixture



FIG. 45.—*DAVALLIA MOOREANA*. (SEE P. 180)

SOCIETIES.

THE CROYDON GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT.

THE first annual general meeting of the members of this Society was held at the County Hotel, West Croydon, on Tuesday, January 27. The President, Sir Thomas R. Edridge, J.P., occupied the chair, and there was a large attendance of members. The report of the proceedings for the past season was considered highly satisfactory. Several of the leading workers in the horticultural world had delivered instructive lectures to the members at their meetings, and the members themselves had added interest to the meetings by bringing specimens of their skill in gardening; for these latter marks were given in accordance with the degree of cultural excellence displayed. The most successful

the report for the past year. It was stated that a copy of the Catalogue and thanks to Mr. Briscoe-Ironside, marked with all the varieties of the Chrysanthemum exhibited at the Centenary show of the Society, were among the documents.

The financial statement shows an income of over £1000, and an expenditure of nearly that amount. Members' annual subscriptions realised £238 16s., exclusive of foreign members; donations and special prizes amounted to £150 4s. 6d., and the Royal Aquarium Society contributed nearly £300. Fees from affiliated Societies amounted to £38 16s., and the sum of £74 7s. 8d. was realised by medals, certificates, &c., supplied to the same. The sum of £521 4s. 6d. was awarded in prizes at the four exhibitions; and the cost of medals with engraving, packing, &c., came to £132. A substantial balance is carried forward to the current year. The number of members is nearly 800, of these 109 joined during the past year; 79 Societies are affiliated, and 25 of these were received during 1890.

Votes of thanks were passed to the auditors, and

of burnt earth was used to what I had from the same variety without it. I should like to know if Mr. Divers, or any of your correspondents, have tried it for Tomatos, and with what results. *S. G. Rantall, Skegness.*

THE FROST AND REPUTED HARDY PLANTS.—I fear that there will be many moans from the borders all over the country, and I send an early one. Looking round our plants at Oakwood yesterday, I found that many species of *Cistus* and of *Veronica* had been killed—at least to the ground; *Veronica parviflora*, sometimes wrongly called *salicifolia* (which has broader leaves and larger flowers), which we always thought winter-proof, has been killed to the root in most places—in dwarf hedge-borders of this, every plant seems dead; we hope, however, that some plants among shrubs may have escaped, or at worst, as it sows itself so freely, that seedlings will spring up. Even *V. Traversii* has some branches which are already brown, though a hedge of this in a most exposed windy situation shows hardly any signs of injury. Of all the *Cistuses* the old Gum *Cistus* seems to have stood best. On the other side of the account some plants of doubtful hardiness, specimens of which have died in other winters, appear not to have been seriously hurt, but of course it will be several months before these can be considered safe. In my note at p. 117, I feared that *Iris Bakeriana* would not have stood this winter, but it is now in beautiful bloom in the open border, its only protection a few Oak leaves; the colours are even brighter than those of the flowers grown under glass. This winter will afford some valuable lessons in regard to the situations that will best enable plants to resist severe frosts. Notwithstanding large air-holes made in the ice, our ponds are studded with dead carp and roach, but trout have survived. *George F. Wilson.*

PEACH STIRLING CASTLE.—Mr. Sheppard, writing of old varieties of Peaches (p. 116), says he has grown Stirling Castle for at least twenty-five years, and questions if it was new even then. It may interest Mr. Sheppard and others to know that this fine Peach was raised at Dunmore Park, Stirlingshire, as long ago as the year 1822 by the then gardener, the late Mr. John Taylor, and is known there by the name of Dunmore Peach, but was not put into commerce for many years afterwards, when it was sent out—I believe by Mr. Parkes, of Tooting—under the name of Stirling Castle. This is a most desirable variety in every respect, being of good quality, a certain setter, exceptionally hardy, and, when forced to ripen in April, "colours up" better than any other variety I know. Mr. Sheppard tells us he has a tree of this variety about twenty-five years of age—no bad record—and if anything further were wanted to prove its hardy constitution, it is the fact of the original tree being still growing in an early house at Dunmore, and yearly producing heavy crops of fruit. *Alex. Miller, Rood Ashton Gardens, Trowbridge.*

NOVELTIES.—Permit me to correct an erroneous statement on p. 148 of your paper concerning *Arnebia macrothyrsa* and *Onosma albo-roseum*. The former was discovered by Mr. Sintenis in Northern Koordistan, named at my suggestion by Dr. Stapf of Vienna [now of Kew], and the seeds were introduced by myself. The *Onosma albo-roseum* is not a new plant, being described in the *Flora orientalis*; seeds of this were collected in 1888 by Mr. Sintenis, and the plants produced from these seeds flowered for the first time in Europe in my garden here in May last. The seeds now distributed were collected by Mr. Bornmüller and Mr. Sintenis, and were again introduced by myself. I do not wish to detract from the merits of other collectors, but, on the other hand, I do not like the honour, which I think to have been honestly won by the introduction of such beautiful plants, to be attributed to the wrong persons. *Max Leichtlin, Baden-Baden.* [The statements we made were on the faith of Mr. Thomson's catalogue. Ed.]

SKIN IRRITATION BY DAVALLIA MOOREANA (fig. 45).—My experience in respect to this is similar to that of both your correspondents, and I am able to fully corroborate them as to the unpleasant sensation produced by *Davallia Mooreana*. The irritation presented itself when I was perspiring freely, as many are wont to do when busy preparing plants for removal at exhibition times. I never knew it to occur in an ordinary way by just handling the fronds. Mr. J. Robertson is correct as to the increased irritation caused by rubbing the affected parts, and also

as to its further spreading in this way, but I will not vouch for the spores being the source of evil, although I thought that these were the cause. Whatever it may be, it arises from the older fronds chiefly, in my opinion, because in a large specimen these form the outer margin of the plant, and it was when tying up a specimen for transit that I experienced the effects described by Mr. Elkins. *James Hudson.*

—I have myself experienced a considerable irritation of the skin on the arms and face, the latter especially, whenever I have come in close contact with the fronds of this Fern, as in moving the plant about for exhibition, the irritation lasting for half an hour or more, and dying away gradually. I know of no reason for it doing so, although I have repeatedly examined the fronds at the time to try and find out, but never yet able to discover anything. *W. Davey, Cedar House Gardens, 124, Stamford Hill, N.*

THE KIEFFER PEAR.—Some five years since, a tree of this Pear was purchased from the firm who sent it out, was planted at the base of a south wall and trained as a cordon. Last season it bore fruit for the first time, the skin was of a russety-brown colour, and when ripe a pleasing fragrance was emitted, but the flavour was poor. Except for the novelty of the thing, this Pear is certainly not worthy of a place in the garden where space is a consideration, so far as its flavour is concerned. *E.*

CHRYSANthemum MRS. ALPHEUS HARDY.—"F. T. C." who enquires about this *Chrysanthemum*, is like many other persons, considering it is a long way off fulfilling its promise of last year. Certainly the fewness of the blooms seen in England during the late season gave but a poor return for the labour and money spent on the plants, and the attention given to them during its season of growth. Never did any variety of late years create such a *furor* as did this one in the autumn of 1889 and in 1890. My advice to all those who were so disappointed of obtaining a single good bloom is to give it another trial before consigning it to the rubbish heap. Doubtless, the cause of failure in most instances was due to the fact of the cuttings being very weak, owing to the manner it had been propagated, everyone seeming to require it at once. In this manner the plants were incapable of growing with any amount of vigour, and the blooms were poor in consequence. It is not possible, in a general way, to obtain good blooms of any variety from weak plants, but this season I shall expect to see many good blooms of Mrs. Alpheus Hardy. The reason of more success being obtained with this variety in America than over here, is due to the facts above stated—a better opportunity of obtaining good cuttings, the variety having been grown there a year previously. From my remarks as to the cause of non-success, I trust that your correspondent "F. T. C." will rest easy as to the worth of the variety. I can assure him, if he is successful in obtaining blooms as good as I saw last season of this variety, he will be glad he did not discard it. In a very short time I shall expect to see other varieties possessing the same peculiarities as this one in the matter of hairiness, as I am told by friends in America that it seeds freely. I have by me now some seeds from which I hope to raise plants during the coming year; and also plants the results of crosses obtained a year since. Another American friend informs me that good blooms of Mrs. A. Hardy were obtained there by striking the cuttings late in the spring, planting them out in beds in a light airy greenhouse, and restricting the growth to a small number of shoots to concentrate the energy of the plants into just a few blooms. In this position the plants produced clean, well-formed blooms. *E. M.*

DISA GRANDIFLORA.—I quite agree with Mr. Thomas, where he states, on p. 116, that he finds *Disa grandiflora* does best during the winter with a minimum temperature of 40°, as I have found the same good results by growing them in a cool temperature. At Davenham Bank, Malvern, where I was under Mr. Jaques, the present gardener to Baron F. de Rothschild, at Waddesdon Manor, there were some of the finest specimens of *Disa grandiflora* ever seen in this country; they were grown on a shelf in the Heath-house, and the temperature sometimes fell as low as 38°, artificial heat being only used to keep the frost out of the house; and I believe I am right in stating, that some of the plants were photographed, and an illustration appeared in the *Gardeners' Chronicle* at the time. I have also grown the *Disa grandiflora* in frames, both with a southern

and northern aspect, but I am in favour of the latter; I find by growing them cool, the flowers are more brilliant in colour, and a stronger and sturdier growth is obtained, and the plants keep in good vigour for a greater number of years. *W. Davies, Botanic Gardens, Glasgow.*

PROTECTING FRUIT BY WIRE NETTING.—In an article on "Ornithology," by Mr. Aplin, in a recent issue, he winds up by saying, "Let this be our rule, to protect our crops from the birds when absolutely necessary, and at the same time to protect the birds." To attain this object, about eighteen months ago I covered over the end of my garden with sparrow 1-inch wire netting to a distance of about 60 yards long by 16 yards wide. I had a wall on each side to fasten it on to, and formed the ends of wirework—each end having a removable door. The roof is supported by rows of old discarded 1½-inch water-pipes, 9 feet out of the ground. Underneath are fruit bushes, standard fruit trees cut down to 9 feet; Strawberries, Raspberries, and wall fruit. The whole cage cost me about £20, and I consider that I have received a very good interest upon the money, so far. As long as the doors were away, the cage was well supplied with birds, and these doors were put up as soon as the buds began to show, and taken down again when set—once more put up as the fruit reddened, and kept up till all fruit was gathered. By this means all fruit was fully ripe, and picked when required, lasting much longer than usual. I had a yellow standard Plum inside the cage, and his brother out, but the outside one had no fruit, but the other a good crop; a Coe's Golden Drop Plum on the wall was bisected by the wire, half of the tree outside and half in. The outside half had not a single Plum; the inside several. *Alex. H. Hutchinson, Major-General, Outhorpe, Bournemouth.*

CHRYSANthemum GOLDEN GEM.—I send you a head of bloom of this variety, which I distributed in 1885. I always grow a large quantity of it each year, and if properly managed, it begins flowering soon after Christmas, and continues to February. It never fails to give a large quantity of good heads of bloom of reddish-bronze, changing to yellow with age. The only secret about its cultivation is, to have the plants well ripened during autumn, and the points of the shoots taken out up to first week in August. *R. Owen.* [Capital full blooms of this showy variety. Ed.]

COBBLER'S HEAL.—The book that Mr. Outram quotes the All-heal from (p. 116) is, I think, an edition of the *English Physician*, by Nicholas Culpeper; I have one with the same descriptions, and I think must be another edition, as the spelling of some of the words is a little different. The one I have is dated London, 1741. The plant All-heal is called by Miller in his *Dictionary*, *Pastinaca sylvestris altissima*, and is supposed to be the *Panacea syriacum* of the ancients, from whence the *Opopanax* was taken, and its name of the present day is *Opopanax chironia*. Self-heal—of course, this is *Prunella vulgaris*. Other heals I find in Gray's *Botany* (1822) are Horse-heal, *Inula grandiflora*, and Clown's All-heal, *Stachys palustris*. *E. Sandford.*

MISTLETO.—As "Subscriber" remarks, the berries of this popular evergreen obtained at Christmas are quite useless for propagation; the reason is they are not ripe. It would be quite as wise to collect green berries of any shrub, and expect them to germinate, as those of the Mistleto at Christmas. The end of February and early in March are the best times to insert the seed, and ripe berries should be procurable from some of the large Herefordshire fruit growers; though during the past severe weather the birds have doubtless eaten all they could get at. Choose a healthy young branch on an Apple, Thorn, or Lime tree (Apple preferred), and make two short cuts in the shape of the letter V. This is best done on the under side of the branch; lift up the bark at the point where the cuts meet and insert a berry, letting the bark fall back into its place again. It is as well to cover with a piece of loose muslin to prevent any small birds from picking at the seeds. If your seed was good, the young plant will soon appear, and if the coming summer should be very bright and your young plant is not thoroughly shaded by the tree, it is well to afford some artificial shade, otherwise the young plant will often wither and die. The seed will often grow if merely squeezed upon the outside of the bark, but in this case are almost certain to be discovered and eaten by the birds. *A. P.*

— This is easily grown if ripe seeds be procured in April; they can be got from the nurseries in Worcester, the greatest difficulty being to keep the birds from destroying the seed. After sticking the seed to a healthy branch of the Apple tree, cover the seeds with a piece of muslin. I cannot say the same as your correspondent, that the Mistletoe and the nightingale appear together. Here, in the north of Yorkshire, we have the Mistletoe, but not the nightingale. We learn, by some authors, that Doncaster is the northern limit of the nightingale; I have also seen it written that the Yorkshire girls are such good singers that the nightingale cannot face them. *William Culverwell, Thorpe Perrow, Bedale.*

VEGETABLES.

BROCCOLI AND CAULIFLOWERS.

It may be assumed that the losses amongst Broccoli will be very heavy, and only the hardiest varieties will survive the rigours of the present winter. To compensate in some degree for these losses, as far as possible, Cauliflower plants should be raised to come into use early in the summer, and to take the place of the latest Broccoli. Seed may be sown forthwith in pans placed in a warm house, and close to the glass, to prevent drawing. Prick the seedlings off before they get crowded, and put them later singly into 60's, growing them on gently. In April these plants may be put out when hardened off at the foot of a south wall, and on warm borders of deeply-worked rich soil. Those of the Erfurt type which produce compact white heads, Early London, and Walcheren, are all useful varieties. Those that have a good stock wintering in frames will find them most useful, as the plants are usually more hardy, and less liable to bolt.

EARLY PEAS.

Mr. Douglas' notes on early Peas, in a recent issue, I read with interest, as supporting my opinion that there is no use in sowing Peas in the autumn, they being in the best of seasons a precarious crop that scarcely pays for the labour bestowed upon it. My reason for penning this note was to call attention to a good early Pea not named by Mr. Douglas. He recommends American Wonder—a capital Pea, but Chelsea Gem is a great improvement on that; as I have proved by having sowed them together. It is an improvement on American Wonder in every way, and comes in for use a few days in advance of it. Indeed, if the price was less, I would sow all Chelsea Gem and omit Wonder, but as we use a good quantity I have them both, yet Chelsea Gem is decidedly our best early Pea. For frames it is very useful, and is a heavy cropper so grown; the pods are nearly half as long again as those of the old variety when grown in a good soil and aspect, and properly thinned. This Pea being only a foot in height, or 2 or 3 inches higher than American Wonder, may be sown at the same distance apart. *G. Wythes.*

BEEF CHELTENHAM GREEN-TOP.

I was favourably impressed with the appearance of this variety when it was shown at the Vegetable Conference in the autumn of 1889, and last year I gave it a trial, which has been very satisfactory. It is, in fact, the best Beetroot that I have grown for the general crop, and I strongly recommend it to those who have not hitherto grown it. It is of a fine bright colour when cooked, very crisp and juicy, and of excellent flavour. The roots keep well. The plant is rather robust, but not coarse in the least; but when it is grown in rich soils, I think it should be left pretty close together in the rows. On our light shallow loam, resting on gravel, it grows to a good average size, and last year, with more than an average fall of rain during the greater part of the growing season, it was a most satisfactory crop. The colour of its foliage—a pale green—is distinct from that of other Beets, that it might be taken for a selection of Yellow Globe Mangel Wurzel. This appearance should not in any way prejudice

anyone who grows it for the first time. As an early Beet, I have for years cultivated Veitch's Chelsea Black, a superior variety, coming into use early, and better, in my opinion, than the Egyptian Turnip-rooted, which, by reason of its shape, is not one of the best in slicing for salads. *Jas. Hudson.*

Obituary.

M. JEAN SISLEY.—At the ripe age of 87 years, M. Jean Sisley, of Lyons, has recently passed away. He was an earnest horticulturist, and his name, if not his person, was well-known in this country. He appears to have been greatly interested in the culture, and in the improvement of various races of plants, such as the Rose, the Carnation, the Pelargonium, &c. I never saw him; but many years ago, he appeared to have felt an interest in some experiments which were at that time engaging my attention, and he introduced himself to me, stating that he was old, "70," and had long been interested in such matters, &c. At various times he kindly sent me seeds and plants of various kinds, amongst others, tubers of an *Amorphophallus*, &c., and a packet of seeds of *Rosa polyantha*, which he had just received from his son, then resident in Japan, and from which I succeeded in raising some very pretty dwarf varieties, as well as some of more vigorous growth. M. Sisley was a genial, educated man, and who exercised considerable influence in the horticultural world of France, and especially of Lyons, and which was always in the right direction. He was an occasional correspondent to English gardening periodicals, and always, of late years, sent me his New Year's greeting, French fashion, the enclosed photograph of himself being one of these. *P. G.* [We hope to publish a copy of the likeness of our old correspondent shortly. *Ed.*]

VARIORUM.

STATE-MANAGED RAILWAYS.—Free railways will add enormously to the value of land [in N. S. Wales], will rapidly multiply the population of the country districts, and so increase the net profits of agriculture, of mining, and of pastoral pursuits, that it will not be a matter of any difficulty to raise from the land a sum sufficient to cover the cost of the change. Suppose the present value of private lands to be £200,000,000, and again suppose that the value is only doubled by free railways, then we have added £200,000,000 to the value of private lands. A tax of 5 per cent. upon this added value alone would return as a revenue £10,000,000 per annum, and no landowner could object to it, because it would secure the added value of £200,000,000 to the land. With a revenue of £10,000,000 from the land, we could afford to run the railways free, and that would secure to the landowners the additional advantage of untaxed traffic. They would no longer be fined 10, 20, 50 per cent., or even more of the value of every ton of produce they sent to market, nor would they have to pay a similar fine on all their purchases; so that they will receive more and pay less than they now do. *T. H. Johnston, "Agricultural Bulletin," N.S.W.*

THE AMERICAN SEED TRADE.—The *Philadelphia Press* of November 13, cited by the *American Florist*, says:—A syndicate of Englishmen has been for several weeks trying to secure control of all the leading seed warehouses in this country. A number of interviews with the different firms have been had, but as yet nothing definite has been arrived at. There is upwards of 20,000,000 dols. represented in the syndicate, and it is the intention to buy the plants outright, but each firm can take a certain number of shares, and retain an interest in administering the affairs of the branch which was once their own. The largest number of seed houses are located in this city, and over 2,000,000 dols. is invested. About five times as much business is done here as in New York. The entire capital invested in the seed business in this country, that is, in the principal eastern cities, is estimated at 10,000,000 dols. The English syndicate has offered more than this

amount to secure control of the business. A prominent seed merchant said yesterday:—"The syndicate has been trying for some time to secure control of the seed business, but they have been so long about it, that I think the thing will fall through."

A WATCH AS A COMPASS.—Hold the watch in such a position that the hour-hand is pointed in the direction of the sun, then the point midway between the position of the hour-hand and XII., will be due south. If, for instance, the hour-hand point to V., due south will be between II. and III., or half-way between XII. and V.

THE WEATHER.

By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
	Above (+) or below (—) the Mean for the week ending Jan. 31.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.				
1	3 +	11	23	— 13 + 29	6 +	24	5.0	12
2	4 +	10	24	— 21 + 32	2	—	14	1.3
3	4 +	22	13	— 4 + 52	3	—	15	1.0
4	5 +	25	13	— 3 + 9	2 +	19	1.8	26
5	5 +	23	12	— 8 + 60	3 +	14	1.9	35
6	4 +	22	6	— 19 + 87	6 +	17	2.6	27
7	4 +	11	7	— 15 + 9	3 +	18	4.0	24
8	4 +	21	10	— 12 + 46	1	—	13	2.0
9	4 +	16	2	— 29 + 72	5 +	15	3.4	27
10	2 +	24	12	— 21 + 27	2	—	19	1.9
11	2 +	32	7	— 31 + 39	0 aver.	17	2.4	43
12	3 +	28	0	— 31 + 42	4 +	17	2.3	46

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending January 31, is furnished from the Meteorological Office:—

"The weather has been mild and very unsettled in all parts of the Kingdom. Rain has fallen almost daily in the west and north, and very frequently elsewhere; intervals of sunshine have occurred, however, in nearly all districts.

"The temperature has been above the mean, the excess having varied from 2° in Ireland, to 4° in most parts of Scotland, and to 4° or 5° over England. The highest of the maxima, which were recorded on very irregular dates, ranged from 49° in 'Scotland, N.', to 53° in most of the other districts, and to 54° in 'Ireland, S.' The lowest of the minima were generally recorded on the 25th, and varied from 28° in 'Ireland, N.', and 29° in 'Scotland, E.', to 31° in 'England, N.E.' and to 40° in the 'Channel Islands.'

"The rainfall has been rather less than the mean in 'Scotland, E.', 'England, N.E. and N.W.', as well as in 'Ireland, N.'; while in 'Ireland, S.', it has [just equalled the normal. In all other districts an excess is shown, that in the north of Scotland and the south and southwest of England being large.

"The bright sunshine has again been fairly prevalent for the time of year, except in the extreme N., the percentage of the possible duration having ranged from 46 in the 'Channel Islands,' 43 in 'Ireland, S.', and 39 in 'Ireland, N.', to 22 in 'England, N.E.' and 12 in 'Scotland, N.'"

MARKETS.

COVENT GARDEN, February 5.

[We cannot accept any editorial responsibility for the subjoined reports, which are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the price on any particular day, but the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted must not be taken as indicating the prices at any particular date, still less can they be taken as anything more than guides to the prices in the coming week. Ed.]

Our market remains the same, with short supplies generally. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 5-sieve	3 6-6 0	Lemons, per case	15 0 20 0
Nov. Scotia, brl.	15 0-25 0	Melons, each	0 6-2 0
Cobs, Kent, 100 lb.	45 0-50 0	Pine-apples, St. Michael, each	2 0 8 0
Grapes, lb.	0 9-3 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4-0 6	Lettuces, per dozen	3 0-...
Bans, French, lb.	1 6-...	Mushrooms, punnet	2 0-...
Beet, red, per dozen	2 0-3 0	Mustard and Cress, punnet	0 4-...
Brussels Sprouts, lb.	0 4-...	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Seakale, per basket	2 0-3 0
Cauliflowers, each	0 9 1 0	Shallots, per lb.	0 6-...
Celery, per bundle	2 4-3 6	Spinach, per bushel	7 0-...
Cucumbers, each	0 9 1 3	Tomatoes, per lb.	0 9-1 3
Endive, per dozen	2 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Foliage plants, various, each	2 0-10 0
Aspidistra, doz.	18 0 42 0	Genista, per dozen	10 0-18 0
—speci. plants, each	7 6-10 6	Hyacinths, per doz.	9 0-10 0
Azalea, per dozen	24 0-42 0	—Romain, per doz.	9 0-12 0
Bouvardias, p. doz.	9 0-18 0	Lily of the Valley, per dozen pots	12 0-24 0
Cineraria, per dozen	9 0-12 0	Marguerites, doz.	6 0-12 0
Cyclamens, doz.	9 0-18 0	Vignnette, per doz.	4 0-6 0
Cyperus, per dozen	4 0 12 0	Myrtle, per doz. pots	6 0-12 0
D. acuta terminalis, per dozen	30 0-60 0	Palms in variety, each	2 6-21 0
—viridis, per doz.	12 0 24 0	Poinsettias, doz.	9 0-15 0
Eaonymus, in var., per dozen	6 0 18 0	Primula, per dozen	4 0-6 0
Ericas, various, doz.	8 0-18 0	Primula sinensis	4 0-6 0
Evergreens, in var., per dozen	6 0-24 0	Spirea, per dozen	9 0-12 0
Ferns, in var., per dozen	4 0-18 0	Solanums, per doz.	9 0-15 0
Ficus elastica, each	1 6-7 0	Tulips, per doz. pots	6 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Azalea, 12 sprays	0 6-1 0	Marguerites, 12 bun.	3 0-6 0
Bouvardias, per bun.	1 0-1 6	Narcissus (paper white), 12 sprays	0 9-1 6
Callaethiopica, 12 bl.	3 0-6 0	—French, 12 bun.	6 0-12 0
Camellias, white, 12 blooms	2 0-4 0	Mignonette, Fr. bu.	1 6-2 6
—colord., 12 blms.	1 6-2 0	Pelargoniums, scarlet, 12 spr.	1 0-2 0
Carnations, 12 blms.	1 0-3 0	Poinsettias, 12 blms.	4 0 12 0
Christmas Roses, 12 blooms	0 6-2 0	Primula, single, 12 sprays	0 9-1 6
Chrysanth., 12 bun.	4 0-6 0	Primulas, double, 12 sprays	0 6-6 9
Cyclamens, per doz.	0 3 0 6	Roses, Tea, per doz.	1 0 4 0
Dandelils, various, 12 blooms	1 0-2 0	—coloured, dozen	3 0-6 0
Eucharis, per dozen	3 0-6 0	—yellow (Marechies), each	0 9-1 3
Gardenias, each	2 0-4 0	—red, per dozen	3 0-6 0
Heliotropes, 12 spr.	0 6 1 0	—ditto, per dozen	1 0-3 0
Hyacinths, Rom., 12 sprays	0 6-1 0	Tuberose, 12 blms.	1 0-2 0
—various, 12 spikes	3 0-6 0	Tulips, various, 12 bl.	1 0-2 0
Lily of the Valley, 12 sprays	0 6-1 3	Violets, 12 bun.	2 0-5 0
Maiden Hair Fern, 12 bunches	4 0-9 0	—Purme, Fr., bun.	4 0-5 0
		—dark, Fr., bun	2 0 3 6

ORCHID-BLOOM in variety.

POTATOS.—The supplies of best samples have increased; but late prices are still maintained, from 100s. to 110s. Main crops, Bruce and Reading Grants, take the lead in value. Ordinary and inferior samples are selling at prices above their intrinsic value in consequence of exceedingly short supply of this description, price from 80s. to 95s.

NEW POTATOS.—The supplies from the Canary and Malta Islands are beginning to arrive in fair quantities, samples being better than the first arrivals in previous years. Quick sales have been effected at much higher averages. Prices: Kidneys, 20s. to 35s.; Magnums, 10s. to 25s.; Rounds, 6s. 6d. to 9s., per cwt. Large arrivals from these Islands are now on the way, and will come on the market next week. *J. B. Thomas.*

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending January 31, and for the corresponding period last year:—1891: Wheat, 32s. 8d.; Barley, 28s. 10d.; Oats, 18s. 1890: Wheat, 31s. 1d.; Barley, 32s. 2d.; Oats, 18s. —Difference, Wheat, + 1s. 7d.; Barley, — 3s. 4d.

FRUIT AND VEGETABLES.

SPITALFIELDS: Feb. 4.—Good supply of fruit. Moderate demand. Fresh vegetables scarce, brisk demand. Potato trade fair. Prices as under:—English Apples, 6s. to 10s. per bushel; American do., 18s. to 28s. per barrel; foreign Tomatoes, 1s. 6d. to 2s. per box; forced Rhubarb, 2s. to 2s. 6d. per dozen bundles; Savoys, 5s. to 8s. per tally; Curly Kale, 2s. to 2s. 6d. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Cauliflowers, 2s. to 4s. per dozen; Brussels Sprouts, 3s. to 3s. 6d. per half-sieve; Greens, 3s. to 5s. per dozen bunches; Turnips, 2s. to 3s. do.; Carrots, 2s. 6d. to 3s. 6d. do.; Parsley, 2s. to 2s. 6d. do.; Horseradish, 1s. to 1s. 3d. per bundle; Celery, 4d. to 9d. do.; Beetroots, 3d. to 4d. per doz.; Parsnips, 1s. 6d. to 2s. 6d. per score; Cabbage Lettuces, 1s. 6d. to 2s. per doz.; Leeks, 3s. to 4s. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Endive, 1s. 6d. to 2s. per dozen; English Onions, 5s. 9d. to 6s. 3d. per cwt.; Bordeaux do., 6s. to 6s. 6d. per case; Spanish do., 7s. 6d. to 8s. 6d. do.; Belgian do., 4s. to 5s. per bag of 110 lb.; Dutch do., 4s. 3d. to 5s. 3d. do.; Carrots, 25s. to 50s. per ton.

STRATFORD: Feb. 3.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the undermentioned quotations:—Cabbages, 3s. to 4s. 3d. per tally; Savoys, 4s. to 6s. do.; Greens, 1s. 6d. to 2s. per sieve; do., 3s. to 4s. 6d. per dozen bunches; Turnips, 2s. to 4s. do.; do., 40s. to 60s. per ton; Carrots, household, 40s. to 50s. do.; do., cattle-feeding, 30s. to 35s. do.; Parsnips, 1s. to 1s. 6d. per score; Mangels, 18s. to 21s. per ton; Swedes, 18s. to 24s. do.; Onions, English, 110s. to 130s. do.; do. Dutch, 3s. 6d. to 5s. per bag; Apples, English, 3s. to 10s. per bushel; Celery 7d. to 1s. per roll; Watercress, 7d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: Feb. 3.—Quotations:—Hebrons, 75s. to 120s.; Magnums, 80s. to 135s.; Regents, 80s. to 120s.; Imperators, 80s. to 105s. per ton.

SPITALFIELDS: Feb. 4.—Quotations:—Magnums, 80s. to 100s.; Regents, 80s. to 95s.; Champions, 70s. to 80s.; Imperators, 90s. to 120s.; Hebrons, 80s. to 100s. per ton.

STRATFORD: Feb. 3.—Quotations:—Magnums, 80s. to 100s.; Imperators, 80s. to 105s.; Hebrons, 75s. to 95s.; White Elephants, 80s. to 90s.; Scotch Magnums, 100s. to 110s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior, do., 46s. to 75s.; hay, best, 60s. to 87s.; inferior, do., 20s. to 50s.; and straw, 24s. to 38s. per load.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

LA FACE DE JUDAS.—A tree under this name is mentioned as growing in Réunion (Bourbon). What is it? O.

NOTICES TO CORRESPONDENTS.

AMORPHOPHALLUS CAMPANULATUS: *E. A. W.* It is a stove plant, and will not flower out-of-doors anywhere in these islands. It might be stood out for a time whilst in bloom without injury, and that might even be desirable, as the odour of the spathe is very unpleasant at that time. The same plant will not flower again, but a young one springing up from its base.

BEGONIAS: *E. F.* The leaves have the appearance of being either scalded or frozen; but, we will look into the matter. Are the roots quite healthy?

BOOK ON GRAFTING: *J. B.* "Scientific and Profitable Culture of Fruit Trees," from the French of M. Du Breuil. Lockwood & Co., 7, Stationers' Hall Court, Ludgate Hill.

"CASSELL'S POPULAR EDUCATOR": *W. A. C.* La Belle Sauvage Yard, Ludgate Hill, E.C.

CHRYSANTHEMUM SPORTS: *D. M.* The Chrysanthemum plant, say Golden Queen, is an entity, however much it may be divided and scattered widely over the country. It is the same body, although divided, and whether it and its subdivisions remain in your garden or not, when the determining agency of sporting, whatever that may be, is brought into play, the plant or plants exhibit it in many places.

CRICKETS: *W.* Buy a trap; or catch them in glass jars with treacle in the bottom, sunk in the ground. Use carbolic acid on the floors and in their haunts.

DICTIONARY OF GARDENING: *H. G.* Apply to the publisher, L. Upcott Gill, 170, Strand, W.C.

FORCING: *J. W.* Hyacinths should be potted early and well rooted in darkness, before putting them in heat. Your plants will do no good. Lapaeria is a cool greenhouse plant, and it will not force. Dielytra spectabilis, must be potted in good time in the autumn. If taken out of the ground and forced forthwith, the amount of bloom will be small.

GAS-LIME: *W. A. C.* If fresh, it may be used broadcast, just before cropping, at the rate of half a bushel per square rod; but before digging the ground, 1 bushel is not too much.

HARES EATING BARK ON APPLE STEMS: *J. Colebrook.* Smear the stems with a mixture of clay, cowdung, lime and water, not too thin; and to each gallon of this paint put half-pint of petroleum, or a wine-glass full of spirits of tar. It is said that if the bark be smeared with the fat of bacon, hares and rabbits will not touch the trees. Gas tar may be applied to old trees, but not young ones. A better preventive than the above, consists of Thorn branches put round the stems to a height of 4 feet or higher, if stock use the orchard, binding them securely to the stem with wire.

NAMES OF PLANTS: *W. G. T.* Dendrobium primulinum.—*Jos. M.* Thunbergia Harrisii.—*G. Abbey.* 1, Camellia Bonomiana; 2, C. C. H. Hovey, Mesembrianthemum spectabile var. probably, Cattleya Percivaliana.—*West Indian.* Polypodium incanum.

PANCRATIUM DISEASED: *W. F. G. & Co.* The specimens sent are affected by the fungus which also attacks the Eucharis, and is described at length with figures in our issue for March 27, 1886. It is known as Saccharomyces glutinis, and is allied to the yeast fungus. You should remove and burn the soil in which the bulbs are at present; diseased portions of the plants (leaf or bulb), cut out and destroy likewise. The bulbs may be then soaked in a solution of potassium sulphide, and the best means should then be taken to increase the vigour of the stock. Badly-affected samples should however be burnt at once.

PENNSYLVANIA LAWN MOWER COMPANY: *G. A.* No such firm is to be found in the *London Directory* for 1890.

PINE-APPLES FROM SEPTEMBER TO THE END OF JANUARY: *G. T.* It is above all things necessary to be possessed of strong Charlotte Rothschild, Black Jamaica, and Queen Pine plants of, at this date, from nine to twelve months, the first two of the latter age; and these must be grown on rapidly, the Queens for two months, Rothschild for three months, and Black Jamaica for five months, giving each variety a rest in a cooler temperature with little water for six weeks or two months, when they may be again set in motion in heat and moisture for fruiting. Pine growing cannot be learnt by a novice from a notice in this column, and we would advise you to get practical instruction, as well as read up the subject carefully. Much that is necessary for you to know, is to be found in last year's Calendar of the *Gardeners' Chronicle*.

COMMUNICATIONS RECEIVED.—*H. N.* Ridley, Singapore.—*C. S. S.*, Boston, U.S.—*C. B. P.*—*W. N. & Co.*—*T. M.*, Philadelphia.—*J. D. S.*, Baltimore.—*F. B. H.*, Kentucky.—*H. J. G.*, Zieriksee, Holland.—*Alph. de C.*, Geneva.—*A. O.*—*R. J.*—*W. C. L.*—*Dr. Schinz*, Zurich.—*W. S.*—*A. B.*, Limerick.—*J. W.*—*J. V.*—*A. A.*—*E. S. W.*—*J. S.*, Grinstead.—*W. Ingram*,—*H. J. D.*—*M. J. R.*—*G. F.*—*Visitor*—*A. D.*,—*Oswestry*,—*M. T.*—*D.*, Birmingham.—*S. W. Farr*,—*I. S.*—*W. K.*—*D. D.*—*P. G.*—*W. C.*—*Wild Rose*,—*P.*—*J. P.*,—*S.*, Castle.—*M. H. A.*—*E. M.*—*I. Wood*,—*W. C. L.*—*W. W.* PHOTOGRAPHS, SPECIMENS, &c., received with thanks.—*H. N. R.*

DIED.—On the 3rd inst., FLORA, fourth daughter of WILLIAM BULL, F.L.S., of Belmont, Edith Grove, and King's Road, Chelsea, aged 10 years.

R. Sankey & Son.

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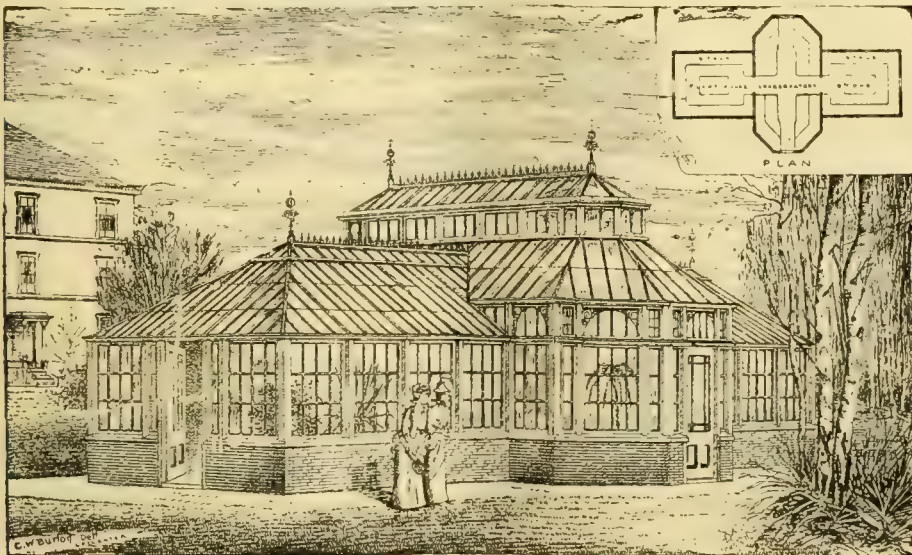
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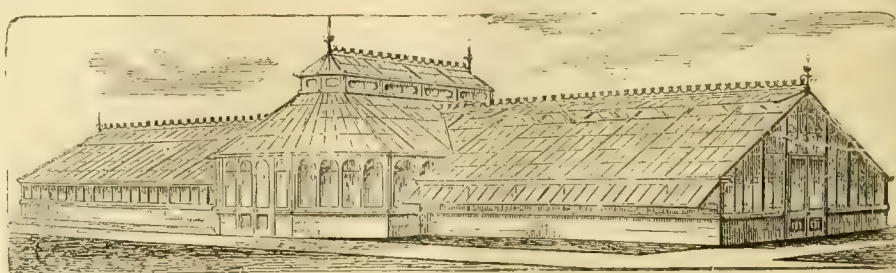
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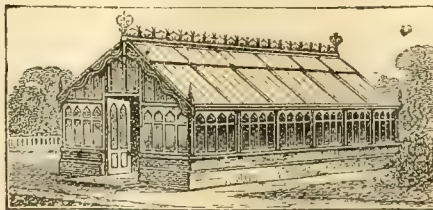
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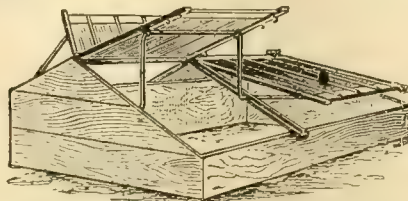
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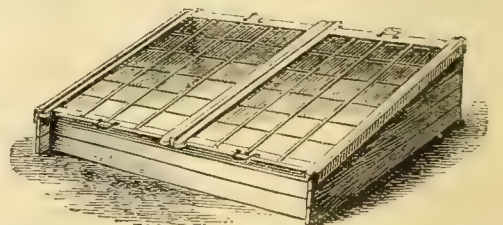
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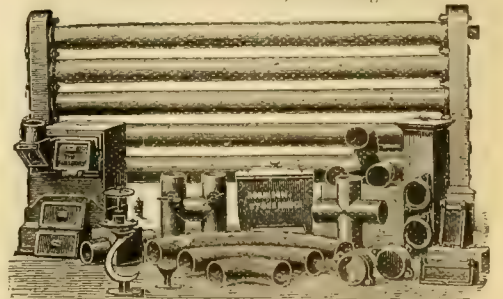
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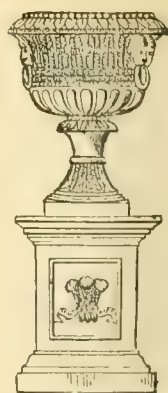
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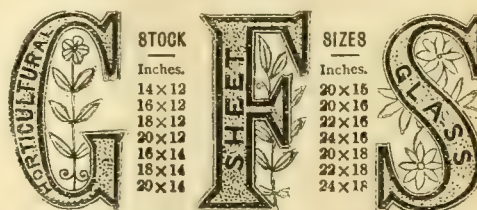
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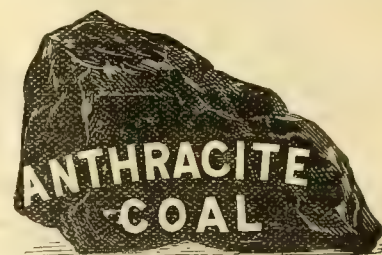
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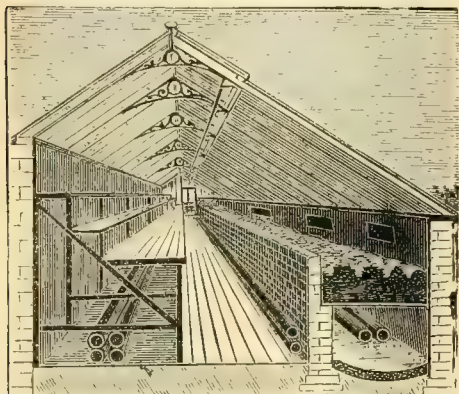
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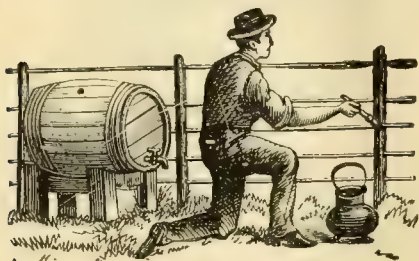
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B. S. WILLIAMS AND SON beg to intimate that they have at present in their Nursery and upon their Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Victoria and Paradise Nurseries, Upper Holloway, N.

GARDENER (HEAD).—CHAS. HERRIN, Droppore, Maidenhead, will be pleased to recommend his Foreman, E. Tapping, to any Lady or Gentleman requiring a thoroughly efficient and reliable Man. Highly recommended by the Lady Louisa Fortescue and the Hon. Miss Grosvenor.

GARDENER (HEAD).—Age 39; married; over twenty years' experience; seeks re-engagement. Nearly ten years in present situation.—J. ROBINSON, The Gardens, Hutton Hall, Preston, Lancashire.

GARDENER (HEAD), age 32.—G. CURTIS, six years Head Gardener to Hon. R. H. Dutton, seeks re-engagement. Practical experience in all branches: Forcing, Hardy Fruit Culture, and requirements of good establishment. Married. Abstainer. Excellent references.—Timsbury Manor, Romsey, Hampshire.

GARDENER (HEAD); age 28; married.—WILLIAM MEREDITH is in want of a situation as above. Well up in all branches; first-class characters from last and previous places; can be highly recommended by several well-known horticulturists.—High Ashes, Abinger, near Dorking, Surrey.

GARDENER (HEAD).—A Lady can highly recommend a superior and conscientious Man for the routine of establishment. Most excellent Fruit, Orchid, and Exotic Plant grower. Has served her over ten years; unimpeachable testimonials, and prizes may be seen.—M., 20, Pelham Terrace, New Eltham.

GARDENER (HEAD); age 37, married, no family.—A LADY wishes to highly recommend her Head Gardener, leaving through a death; been with her seven years. Life experience in large places; excellent on Orchids, Roses, Chrysanthemums, and good all-round Man.—B., 16, Eliot Place, Blackheath.

GARDENER (HEAD), or ORCHID GROWER.—Age 31; seventeen years' experience in Orchids, Stove and Greenhouse Plants, Early and Late Forcing, Hardy Fruit, Flower, and Kitchen Garden.—WILLIAM LAKER, Quorn Lodge, Loughborough, Leicestershire.

GARDENER (HEAD); age 28.—A. HENDERSON, Gardener to John Deacon, Esq., Mableton Park, Tonbridge, Kent, would be pleased to recommend his Foreman, G. Fenner, to any Lady or Gentleman requiring a thoroughly experienced man.

GARDENER (HEAD).—Age 37, married; twenty years' thorough practical experience in all branches of Gardening. Good references.—C. CANDLER, 12, Hartford Road, Bexley, Kent.

GARDENER (HEAD), or GARDENER and BAILIFF.—A GENTLEMAN wishes to recommend the above, who has been with him eight years. A thorough practical man. Understands all his duties under Glass and Outside. Good at Laying-out Grounds, or any Special Work.—HUGHES, Shamley Green, Guildford.

GARDENER (HEAD); age 30, married.—A Gentleman highly recommends the above. Abstainer.—T. J., Crown Lane, East Acton.

GARDENER (HEAD).—Mr. G. BURT, Purbeck House, Swanage, will be pleased to highly recommend his late Head Gardener, who has been with him six years, as a thorough practical Gardener.—GARDENER, 6, Purbeck Place, Swanage.

GARDENER (HEAD).—A Gentleman, giving up his house in the country, wishes strongly to recommend his Head Gardener; equal to any cultivation; excellent head of a staff of men. Five years' very high character. He also recommends strongly two of his Under Gardeners, one for a single-handed place, the other as journeyman in houses, where several are kept.—Apply by letter, to the Hon. Mr. Justice WILLS, Royal Courts of Justice.

GARDENER (HEAD).—Age 30; fifteen years' practical experience in Fruit, Plant, Kitchen and Flower Gardens, and Table Decorations. Highly recommended; four years as Foreman.—F., Mark Bush, Shepperton.

To Nurserymen and Horticulturists.

JAMES MOON'S APPOINTMENT as HEAD GARDENER, to The Misses Arkwrights, Mark Hall Gardens, Harlow, Essex, has CEASED.

GARDENER (HEAD, or SINGLE-HANDED); age 30, single; fourteen years' practical experience all round.—Lieut.-Col. R. A. FARRINGTON, Esq., Mairiebonne House, Wigan, will be pleased to recommend his Under Gardener, J. Jones, as above.

GARDENER (HEAD), and ORCHID GROWER.—Age 32, married. Enthusiastic and successful grower of Orchids, Grapes, Choice Plants, Fruits, Flowers and Vegetables. Five years in present place. Highly recommended.—GARDENER, Mr. Nash's, 6, Station Parade, Hornsey Rise, N.

GARDENER (HEAD WORKING).—Age 48; £5 given to an institution or person procuring Advertiser situation as above. Thoroughly experienced. Good character.—GARDENER, Holden, Southbrough, Tnnbridge Wells.

GARDENER (HEAD WORKING).—Age 35, married; several years' practical experience in all branches of Gardening in good places in England and Scotland. Good all-round man; first-class character and references.—J. T., 39, Blenheim Grove, Peckham, S.E.

GARDENER (HEAD WORKING), where one or two are kept, or good SINGLE-HANDED.—Age 26, married; twelve years' practical experience Inside and Out; excellent references.—GARDENER, Sturminster House, Tottenham Road, Portsmouth.

GARDENER (HEAD WORKING), or good SINGLE-HANDED.—Age 30, married; fifteen years' experience in Vines, Fruit, Flower and Kitchen Gardening, Alpines, &c. Excellent references; also understands laying-out grounds.—F. FIELD, Burey Cottages, Eastworth, Chertsey.

GARDENER (WORKING).—Age 40, married; a thoroughly practical Man. Twenty-six years' experience; highest references from present and last employers.—LAMB, Morton Terrace, Gainsboro, Lincolnshire.

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GARDENER (HEAD WORKING); age 28; fourteen years' experience.—Mr. J. FRIEND, gardener to the Hon. P. C. GLYNN, Rooksnest, Godstone, can with every confidence recommend his present foreman, W. PENTON as above, where not less than four are employed.

GARDENER (HEAD WORKING).—Age 44, married, no family; thoroughly experienced in all branches, including Forest Work. Eight years' good recommendations.—J. PENFORD, Thruxton, Andover, Hants.

GARDENER (HEAD WORKING).—Age 42, married, family; twenty-six years' experience in all branches of the profession. Nine years in present situation.—WILLIAM BROWN, Woodhall Gardens, Downham, Norfolk.

GARDENER (HEAD WORKING).—Age 35; married; twenty years' experience in Stove and Greenhouse Plants, Vines, Melons, Peaches, and Kitchen Garden. Good character.—B. S., Roughwood Park, Chalfont St. Giles.

GARDENER (HEAD WORKING).—Mr. ECCLESTON, Gardener to A. B. Foster, Esq., Canwell Hall, near Tamworth, would be pleased to recommend his present Foreman, W. Goodhite, to any Lady or Gentleman requiring the services of a thorough practical gardener. Well up in all branches of the profession. First-class references.—Address as above.

GARDENER (HEAD WORKING).—The late BISHOP OF WINCHESTER wishes to recommend highly his Head Gardener, who has lived with him ten years. Leaving through breaking up of establishment.—W. SMITH, Farnham Castle, Surrey.

GARDENER (HEAD WORKING), where three or four are kept; age 28.—Mr. MITCHISON, Gardener to the Hon. A. C. G. Calthorpe, Perry Hall, Birmingham, will be pleased to recommend his present Foreman to any Lady or Gentleman requiring a thoroughly practical, energetic, steady man.—Address as above.

GARDENER (good HEAD WORKING), seeks re-engagement; was twelve years with the Earl of Strathford, and can have first-class reference from same.—E. LOVELOCK, near Lake House, Byfleet, Surrey.

GARDENER (HEAD), or good SINGLE-HANDED.—Age 38, married. Well up in all its branches. Eleven years' good character. Thirty years' experience.—J. PANNELL, Sydney Cottage, Caterham Valley.

GARDENER.—Mr. BRIND wishes to recommend his Head Gardener, who has been in his present situation twelve years, and in his former one nine years; equally good under Glass, with Fruit, Orchids or Stove Plants, or in the Vegetable and Flower Garden. Married, trustworthy, and the highest personal or written character given. Buckhurst, Redhill, Surrey.

GARDENER (SINGLE-HANDED).—Age 27; twelve years' experience in all branches. Good character from present situation. Suburbs of London preferred.—A. THOMAS, 4, Park Terrace, St. Leonards Road, Eastbourne.

GARDENER (SINGLE-HANDED), or otherwise.—Age 30, married; understands Vines, Melons, Cucumbers, Flower and Kitchen Gardens.—Good reference.—W. G., 13, Charlton Road, Harlesden, N.W.

GARDENER.—J. W. SILVER can most confidently recommend a thoroughly reliable all-round Gardener, who has the highest references for ability and high-class character.—Streatham and Norbury Nurseries, S.W., and Marlborough Mansions, Victoria Street, Westminster, S.W.

GARDENER, where help is given; or SECOND, in good place.—Age 30; over six years in present place. Good references.—S. CRANN, The Gardens, Down House, Blandford.

GARDENER.—Age 21, single; good knowledge of Greenhouses, Flower and Kitchen Gardens. No objection to a horse. Good character; well recommended.—GARDENER, Salem Cottage, Keston, Kent.

GARDENER (SECOND), in good establishment, where four or more are kept.—Age 27. Good character.—A MYHILL, The Gardens, Bowden Hill House, near Chippenham, Wilts.

GARDENER (SECOND), in a large Establishment.—Age 21; Inside and Out preferred. Well recommended.—Mr. W. RICHARDSON, Nunnery Gardens, Douglas, Isle of Man.

GARDENER (SECOND or THIRD), Inside and Out.—Age 23, single; seven years' experience. Good character.—FERGUSON, Gosbury Hill, Hook, Surbiton, Surrey.

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GARDENER (UNDER).—Age 24; good knowledge of Gardening both Inside and Out; experienced with Roses.—G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (THIRD or UNDER).—Age 21; has very good knowledge of Vines, Kitchen Garden, &c. Two years', and three years' eight months, previous good characters.—W. HARDY, Aston-le-Walls, Byfield, R.S.O., North Hants.

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GARDENER, where two or three are kept.—Age 32, married; experienced in Vines, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Garden.—GOOD, Marl Place, Brenchley.

GARDENER (UNDER), Inside and Out, or Inside.—Age 27; ten years' experience. Good character.—A. B., Albion House Stables, British Grove, Chiswick.

GARDENER (UNDER), Inside and Out in a good Establishment.—Age 21; two years' good character from present place.—S. BISHOP, Elm House, Forest Road, Walthamstow, Essex.

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FOREMAN.—J. TULLETT, gardener to Sir Edward Blacket, Bart., can confidently recommend H. Jenkins, who has been for two years General Foreman at Maffen Hall Gardens, Newcastle. Good moral and practical character, and total abstainer.

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FOREMAN, or **JOURNEYMAN**; age 27.—Mr. H. Lisle, The Gardens, Hesleyside, Bellingham, Northumberland, would be glad to recommend R. Wright, who has been with him three years, to any Head Gardener requiring an energetic young man.

FOREMAN, in the Houses, or **GENERAL**, in a good Establishment.—Age 26; ten years' experience. Good references.—H. W. R., Frythesden Gardens, Berkhamstead, Herts.

To Nurserymen.

GROWER, FOREMAN (or SECOND).—Age 24; eight years' Nursery experience. Wreaths, Bouquets, &c.; general Propagation and Growing.—H. ALCOCK, 35, Ordish Street, Burton-on-Trent.

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PROPAGATOR and GROWER, age 23, German, seeks re-engagement; understands Binding. One year in London. Wales or North of Great Britain preferred.—C. D., 45, Austin Road, Battersea Park Road.

JOURNEYMAN, in the Houses, under a Foreman.—Age 22; nine years' experience; two years in present situation in the Houses. Excellent character.—G. WADESON, Crag Bank Nurseries, Carnforth.

JOURNEYMAN; age 21.—D. MCINTOSH, The Gardens, Ashby Hall, Lincoln, can confidently recommend A. West, who has been with him three years as above.

JOURNEYMAN; age 19.—Seeks situation in good place; five years' experience; under glass one year and a half at Royal Nursery, Exeter.—W. FOOTE, 71, Paris Street, Exeter.

JOURNEYMAN (FIRST), in the Houses.—Age 25; seven and a half years' experience Inside and Out; good character.—R. NOTLEY, The Gardens, Felthorpe, Norwich.

JOURNEYMAN, in a Gentleman's Garden.—Age 19; has a knowledge of Vines, Cucumbers, and Tomatoes. Four and a half years' personal character; bothy preferred.—W. SMITH, 57, Woodcote Place, West Norwood, Surrey.

JOURNEYMAN, in a Gentleman's garden, Inside and Out.—Age 21; six years' experience, and first class character.—THOMAS CARTMELL, Botcherby, Carlisle.

JOURNEYMAN (FIRST), in good establishment.—Age 21; seven years' experience under Glass. Three in present situation. Highly recommended.—W. WORNE, Bicton Gardens, Budleigh Salterton, Devonshire.

JOURNEYMAN, in the Houses.—Age 22; eight years' experience; two years in present situation in the Houses. Good character.—J. W. SOUTHFIELD, Westbury-on-Trym, Bristol.

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JOURNEYMAN (FIRST), in good Establishment.—Mr. SEGG, The Gardens, Bearwood, Wokingham, Berks, wishes to recommend A. Uphill, as above, having been with him three years.

JOURNEYMAN (FIRST); age 22.—H. PARROTT, Gardener, Wood End, Chichester, wishes to recommend young man as above. Two and a half years in present place; six years previously.

JOURNEYMAN, in the Houses, or Inside and Out.—Age 23; strong, active, and obliging. Bothy preferred.—Head Gardener, R. V. SMITH, The Gardens, Margery Hall, Reigate.

JOURNEYMAN, in the Houses, in good Establishment.—Age 21; two years good character, five years' previous.—HOLDEN, 6, Park Road, Esher, Surrey.

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JOURNEYMAN.—Age 20; six years' experience in Ferns and General Stuff. Market preferred. Good Character. Disengaged.—C. COWLIN, 4, Havelock Houses, Hollington, St. Leonards-on-Sea.

JOURNEYMAN (FIRST), in the Houses; age 27.—Mr. PERKINS, The Gardens, Thornham Hall, Eye, would be pleased to recommend J. Nichols. Four and half years in present situation.

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IMPROVER, or GARDENER (UNDER); Inside and Out; age 22, single; four years' experience total abstainer. Good reference.—H. JACKSON, Withycombe, Exmouth.

IMPROVER; age 19.—A GARDENER wishes to recommend young Man as above. Three and a half years' experience; excellent character; strong and willing.—H., 10, Morley Road, Charlton, Kent.

IMPROVER, Inside; age 19; six years' experience; good reference; bothy.—J. WELLER, gardener, Longstock House, Stockbridge, Hants.

TO GARDENERS.—Wanted, by a Youth (age 18), a situation as IMPROVER in a Gentleman's Garden. Highly recommended.—V. KENT, Taplow Court Gardens, Maidenhead.

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TO NURSERYMEN.—Situation wanted in a Market Nursery by a young Man (age 25), experienced in growing Tomatoes, Cucumbers, and Soft-wooded plants.—M. SKIPPER, Belton, near Great Yarmouth.

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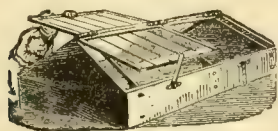

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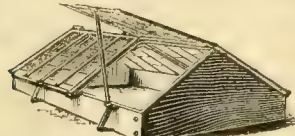
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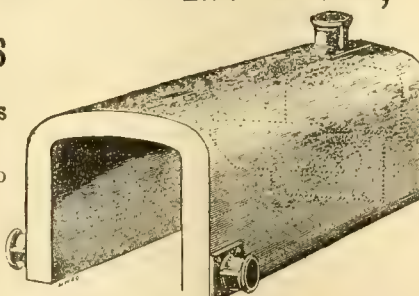
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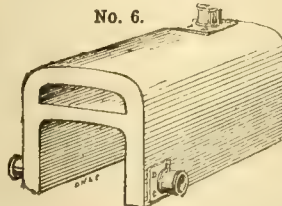
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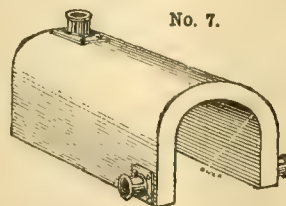
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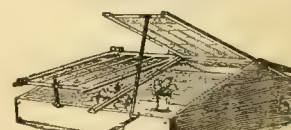
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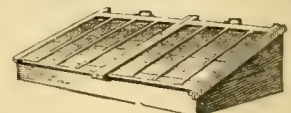


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The GARDENERS' CHRONICLE

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Now ready, in cloth, 11s. 6d.
THE GARDENERS' CHRONICLE,
Vol. VIII., Third Series, JULY to DEC., 1890.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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National Chrysanthemum Society.
IMPORTANT NOTICE.

IT is requested that for the future all Com-
munications in reference to the above Society be
Addressed to the undersigned.

RICHARD DEAN, Secretary,
42, Ranelagh Road, Ealing, London, W.

**BRIGHTON and SUSSEX HORTICUL-
TURAL ASSOCIATION.**

SUMMER SHOW, July 1 and 2.
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EDWARD CARPENTER, Secretary,
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TURAL SOCIETY.**

PRIZE LISTS for the GREAT INTERNATIONAL FRUIT
and FLOWER SHOW to be held in the Waverley
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can be had free, by applying to—
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JAMES CARTER AND CO. have one of the largest and
most perfect stocks in the country. For full particulars, see
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2s. 6d. per 100.
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Highest Market Prices guaranteed. Prompt cash.
HENRY RIDES, Covent Garden, W.C.

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FLOWER and VEGETABLE SEEDS.
CATALOGUES free on application.
FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

Gentlemen.

MY DWARF ROSES are the finest Plants I
have ever grown. Many kinds are bushes 3 to 6 feet high.
CHARLES NOBLE, Bagshot.

SEVERAL THOUSAND LAUREL and HOLLY,
2 to 4 feet; AUCUBA, LAURUSTINUS, and PRIVET,
well grown and bushy; also Standard ROSES. Prices and
sample of G. ATFIELD, Knapp Hill, Woking.

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Lilies, &c. WREATHS and CROSSES made to order.—
Apply to—
F. PITMAN, Castle Cary, Somerset.

ASH (Common), from 2½ to 4 feet, good
stuff, very Cheap, to clear; also English and Wych
ELMS, 10 to 12 feet, 4s. to 6s. per dozen. CORSICAN PINES,
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C. BUTLER, Nurseryman, &c., Wellington, Salop.

SPECIAL OFFER.—PRIMULA ROSEA
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Brilliant pink.
F. E., Messrs. Street & Co., 30, Cornhill, E.C.

J. W. BARNHAM receives on Commission,
GRAPES, TOMATOS, and other Choice FRUITS; also
FLOWERS. His personal attention securing highest Market
Prices. Account Sales daily, and cheques at option. Baskets
and labels found.
Long Market, Covent Garden, W.C.

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Garden, FRUIT SALESMAN and COMMISSION AGENT.
Importer of Bananas, and all kinds of Madeira and Canary
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WANTED, GERANIUM CUTTINGS, or
from stores—Bronze, McMahon, Tricolor, Sophia
Dumaresque. GENISTAS for Potting on. Send sample and
price to MANAGER, Calcot Gardens, near Reading.

WANTED, 1500 2-year-old BLACK
CURRANT BUSHES.
TODDINGTON ORCHARD CO., Winchcombe.

WANTED, WEEPING ELM, about 10 feet
stem, well transplanted tree. Price, &c., to—
R. Hill Lodge, Notting Hill Square, W.

WANTED, CUT FLOWERS, daily.—
ROSES, ORCHIDS, &c. Best Market prices.
W. RAVENHILL, 157, Norwood Road, Herne Hill, S.E.

WANTED, large plants of VANDA TERES,
ASPARAGUS PLUMOSUS NANUS and TENUIS
SIMUS in EXCHANGE FOR ORCHIDS. Apply, with all par-
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FROM SEED.

Full descriptions, with numerous Illustrations and Price List
of upwards of 1500 varieties, see SUTTON'S AMATEUR'S
GUIDE in HORTICULTURE for 1891. Price 1s., post 7½d.;
gratis to Customers ordering goods value 20s.

SUTTON'S SEEDS Genuine only Direct from SUTTON
AND SONS, the Queen's Seedsmen, READING.

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DICKSON AND ROBINSON offer the
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Early Ruby (New), Golden Queen,
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at 1s. per packet each, post-free. For descriptions of above,
see Catalogue, free on application.
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for acclimatisation, for 10s.; see my list No. XI., now
ready for distribution. Single plants, see list No. V., 20
pfennige each. Plants despatched from May to October.
G. TREFFER, in Luttach, Port Sand, Tyrol, Austria.

SUPERB ORCHIDS, CHEAP.—Thousands
to select from. Write for List, free.—P. MCARTHUR,
The London Nursery, 4, Maida Vale, London, W.

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prices. Inspection invited. Kindly send for CATALOGUE.
JAMES CYPHER, Exotic Nurseries, Cheltenham.

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KELWAY'S GOLD MEDAL COLLECTION.
Grand Bulbs, selected from a Stock of 25 Acres.
Twenty large Exhibition sorts, in good variety, for 10s.;
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prices), from a List of 400 varieties, gratis upon application.
Gold Medal, Paris, 1889.
KELWAY AND SON, Langport, Somerset.

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the following PRIMULA SEEDS in separate packets:
The Queen, Emperor, Marquis of Lorne, Princess Louise, Lady
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addition of Purity, Red and Pink, Queen, &c., in mixture,
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Nurseries, Crop of 1890.
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DREADNOUGHT CUCUMBER, the finest
prickly Market Variety in Cultivation, long, dark
green, and straight. 1s. per packet.
POPE AND SONS, Seedsmen, Birmingham.

Standard Roses.
CHARLES TURNER can offer the above
with tall stems and strong heads.
The Royal Nurseries, Slough.

SEEDS! SEEDS! SEEDS!—Select Stocks of
Vegetable and Flower Seeds at Wholesale Prices. Every-
one with a garden, and every market gardener, should send
for a Catalogue before ordering elsewhere.—B. L. COLEMAN,
Seed Merchant and Grower, Sandwich, Kent.

LOVEL'S YORKSHIRE STRAWBERRIES.
—Strong plants of Thury, Noble, Paxton, President,
and others. Price, 3s. per 100; 12s. 6d. per 500; carriage
paid. Sample dozen, 6d.; pamphlet, 3d.; descriptive list free.
W. LOVEL AND SON, Strawberry Growers, Driffield.

Holmes, Frampton Park Nurseries, Hackney.
CHRYSANTHEMUMS.—Strong Plants,
all best sorts; cuttings, half price. Catalogue on
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THOMSON'S IMPROVED VINE and PLANT
MANURE.—This valuable Manure is made only by us.
Every bag and tin has our name on it. To be had of all Nursery
and Seedsmen, and direct from us, 1 cwt. and over carriage
paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.P.

SALES BY AUCTION.

Monday Next.—Carnations and Hardy Bulbs.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **MONDAY NEXT**, February 16, at half-past 12 o'clock, a choice collection of **CARNATIONS**, **PICOTEES**, **PÆONIES**, **DAHLIAS**, **NARCISSUS**, **CALOCORTI**, early flowering **GLADIOLI**, **ANEMONES**, and many other beautiful varieties for outdoor planting. A magnificent collection of **IRIS**, including all the best in cultivation; **LILY OF THE VALLEY**, **CYPRIPEDIUM SPECTABILE**, home-grown **LILIES**, consisting of **GIGANTEUM**, **BROWNII**, **HUMBOLDTI**, **HANSONI**, **KRETZERI**, **SPECIOSUM**, **PARDALINUM**, and others; **HARDY PERENNIALS**, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

SPECIAL TRADE SALE OF LILIES, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION** at their Central Sale Rooms, 67 & 68, Cheapside, London, E.C. on **TUESDAY NEXT**, February 17, at half-past 12 o'clock, 8000 **LILIUM AURATUM** (some exceptionally large bulbs), 3000 **L. LONGIFLORUM**, 1000 **L. RUBRUM CRUENTUM**, 200 **L. SARRANA KAMSKATICA**, also **L. ALBUM KRETZERI**, **LEICHLINI**, and **AURATUM VIRGINALE**, all from Japan. 10,000 Special American Dwarf Pearl Tuberoses, Dwarf and Standard Roses, **MARECHAL NIEL** Roses, 10 to 12 feet, **CYCLAMEN**, in flower, **PALMS**, &c. A few lots of **DUTCH BULBS**, **SPIREA JAPONICA**, **BERLIN CROWNS**, **LILY OF THE VALLEY**, **GLADIOLUS** in immense variety, **BEGONIAS**, **GLOXINIAS**, &c.

On view morning of Sale, and Catalogues had.

Isleworth.

CLEARANCE SALE OF GLASS ERECTIONS, PLANTS, &c.
MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Spring Grove Nursery, London Road, Isleworth (four minutes' walk from Isleworth Station, L. & S.W. Ry.) on **TUESDAY**, February 17, at 12 o'clock precisely, without reserve, by order of Mr. J. Palmer, 10,000 **MAIDENHAIR FERNS**, 200 Double White **AZALEAS**, 1200 **CARNATIONS**, 800 **ROSES** (La France and General Jacqueminot), and other **PLANTS**; the Erections of 14 **GREENHOUSES**, 5000 feet **HOT-WATER PIPING**, mostly 4-inch; 6 **BOILERS** and **BRICKWORK**, &c.

May be viewed day prior to Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone.

N.B.—The beneficial interest in the **LEASE** of the **NURSERY**, comprising 2 Acres of Land, Dwelling-house, &c., will be offered on the Premises prior to the Disposal of the Stock and Greenhouses.

Woodford Road, Essex, E., near Snarebrook Station, Great Eastern Railway. Without Reserve.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser (the Lease of this portion of his branch Nursery being about to terminate) to **SELL** by **AUCTION**, on the Premises, Woodford Road, Wanstead, on **TUESDAY**, February 17, and two following days, at 12 o'clock each day, the First Portion of the exceptionally well-grown **NURSERY STOCK**, containing an extensive assortment of **Hardy Shrubs**, 4000 **Hollies**, 2 to 8 feet, bushy, handsome plants, beautifully rooted; 3000 **Rhododendrons**, finest named sorts, probably one of the best collections in the country; 2000 **Flowering and Ornamental Trees**; 4000 **Conifers**, containing numerous good specimens; 3000 **Evergreen Shrubs**, a splendid lot of **Rotundifolia** and **Common Laurels**, **Aucubas**, &c.; 5000 **Fruit Trees**, consisting of **Standard**, **Pyramidal**, and **Expander Apples**, **Pears**, **Plums**, **Cherries**, and **Nuts**, many in a forward state for fruiting; 4000 **Standard** and **Dwarf Roses** of the choicer sorts.

May be viewed. Catalogues had on the Premises, at the Lea Bridge Nurseries, Leyton, E., and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.

LILIES, PLANTS, ROSES, and PALM SEEDS.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, February 18, at half-past 12 o'clock, 8000 **LILIUM AURATUM**, very fine bulbs; 800 **L. PLATYPHYLLUM**, and 2 cases of **L. MEDIOLEDES**; also 400 **CYCAS REVOLUTA**, and several cases of **EURALIA JAPONICA** (dried Grass) from Japan; 15,000 **American PEARL TUBEROSES**, just received from New York; 1000 **Double** and **Semi-double BEGONIAS**, from Belgium; 500 **Standard** and **Dwarf ROSES**, **Roses** in pots, **English-grown LILIES**, **Herbaceous Plants**, **DAFFODILS**, **CARNATIONS**, **PICOTEES**, **GLADIOLUS**, 50 lots of **FERNS** and **GREENHOUSE PLANTS**, 200 **CAMELIAS** in bud, **AZALEA INDICA** and **PALMS** from Belgium, 28,000 **Seeds of COCOS WEDDELLIANA**, received direct; a fine collection of **HYACINTHS** and **GLADIOLUS** (surplus stock), new **Border CARNATIONS**, "Sacharias;" choice **BEGONIAS** and **GLOXINIAS**, &c.

On view morning of Sale, and Catalogues had.

Titchfield, near Fareham.—Notice of Withdrawal.

The English Apple and Fruit Growing Company.

MESSRS. PROTHEROE AND MORRIS beg to announce that the **SALE OF GREENHOUSE PLANTS**, &c., advertised to take place at Fosbrooke Gardens, Titchfield, on Wednesday next, February 18, is **WITHDRAWN**, the whole having been sold by Private Contract.

Auction and Estate Offices, 67 and 68, Cheapside, London, E.C.

Thursday Next.

SALE OF NURSERY STOCK AND GREENHOUSE PLANTS FROM SAMPLE.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION** at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **THURSDAY NEXT**, February 19, at half-past 12 o'clock.

1000 Dwarf Roses in variety	700 Limes, extra fine
1500 <i>Aucuba japonica</i>	600 Lombardy Poplars
1500 <i>Thuja</i>	Fruit Trees
1000 <i>Cupressus Lawsonii</i>	500 Double white Primulas
20000 <i>Privet</i> , 2 years	1200 <i>Senforthis</i> , small plants
5000 <i>Raspberry canes</i>	

Samples will be on view morning of Sale. Catalogues of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

VALUABLE NEW ORCHIDS.

LÆLIA GRANDIS.

By Order of **MESSRS. CHARLESWORTH, SHUTTLEWORTH AND CO.**

The entire consignment will be sold at **MESSRS. PROTHEROE AND MORRIS'S ROOMS**,

On **Friday Next, February 20.**

For Particulars, see

DESCRIPTIVE ADVERTISEMENT ON NEXT PAGE.

Friday Next.

CYPRIPEDIUM LATHAMIANUM in flower.

MESSRS. PROTHEROE AND MORRIS will include the above valuable Plant in their **ORCHID SALE** on **FRIDAY NEXT**.

On view morning of Sale, and Catalogues had.

Exeter.

FINAL CLEARANCE SALE OF NURSERY STOCK by order of Messrs. Lucombe, Pince & Co., who are relinquishing the Business at Lady Day.

MESSRS. PROTHEROE AND MORRIS are instructed to **SELL** by **AUCTION**, on the Premises, the Exeter Nurseries, Exeter, on **TUESDAY**, February 24, and two following days, at 12 o'clock each day, without the least Reserve, the **FINAL PORTION** of the thriving and well-grown **NURSERY STOCK**, comprising **Standard**, **Dwarf**, and **Pot Roses**, 500 Vines, 11,000 **Manetti Stocks**, **Fruit Trees**, **Carnations**, **Tree Carnations**, **Pansies**; 1200 **Azums**, fine plants; 200 **Azaleas**, for cutting; **Clematis** and **Cyclamen**; 12,000 **Ferns**, **Ficus**, **Elasticas**, 1500 **Palms**, including 250 **Kentias**; **Pelargoniums**, and several thousand **Herbaceous Plants**.

May be viewed any day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

N.B.—The **NURSERY** to be **LET**, or the **FREEHOLD** to be **SOLD**, the **Frontage** being available for **Building**. Particulars of the Auctioneers.

Leamington.—Preliminary Notice.

GREAT CLEARANCE SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Leamington Nurseries, Leamington, on **TUESDAY**, March 3, the exceedingly well-grown **NURSERY STOCK**, by order of Mr. E. Perkins.

Full particulars will appear next week.

South Hampstead.

(Opposite Swiss Cottage Railway Stations.)

GREAT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, Sunnyside, Upper Avenue Road, South Hampstead, on **TUESDAY**, March 3, at 12 o'clock, by order of F. J. Schuster, Esq., who is leaving the neighbourhood, the whole of the choice **STOVE** and **GREENHOUSE PLANTS**, 120 fine **EUCARIS**, specimen **PALMS**, large pieces of **ASPIDISTRA** (*Jurida* and variegata), 100 **IMANTOPHYLLUM MINIATUM**, specimen **CAMELIAS** and **AZALEAS** in bud, **GLOXINIAS**, choice **FERNS** and **ORCHIDS**, in variety, **GARDEN UTENSILS**, **LAWN MOWER**, **ROLLER**, 2 light **BOXES**, 6 very large square ornamental iron **VASES**, &c.

May be viewed day prior to Sale. Catalogues had of Mr. COPESTAKE, the Head Gardener, on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Paignton, Devon.—Without Reserve.

Highly Important SALE of well-grown NURSERY STOCK, by order of Mr. W. Rossiter (who is transferring the Business to his Son at Midsummer Next).

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Branch Nurseries, at Paignton, Devon, on **WEDNESDAY**, March 4, and following days, at 12 o'clock each day, the whole of the well-grown **NURSERY STOCK** in three branch establishments, consisting of an extensive assortment of **Conifers** and **Hardy Shrubs**, 5000 **Green Hollies**, 1 to 5 feet, bushy, handsome plants; 12,500 **Laurels** of sorts, 1 to 6 feet, extra bushy; 10,000 **Laurestinus**, 1 to 3 feet; 500 **Pinus insignis**, 3 to 6 feet, extra fine; 7000 **Fruit Trees**, comprising the choicest varieties of **Standard**, **Pyramidal**, and **Dwarf-trained Apples**, **Pears**, **Plums**, and **Cherries**, correctly named; 13,000 **Standard Flowering and Ornamental Trees**, 70,000 **Larch**, **Spruce**, and **Scotch Firs** and other **Forest Trees**; 80,000 **Thorns**, 1 to 3 feet; 1500 **English Yews**, 3 to 4 feet, bushy; 5000 **Eunymus**, 1 to 2 feet; 500 **Araucaria imbricata**, 1 foot; and quantities of other Stock.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—A conveyance will leave the Paignton Station for the Nurseries on each morning of Sale at 11 o'clock.

East Dulwich.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Orchid Nurseries, Lordship Lane, East Dulwich, on **WEDNESDAY**, March 4, at half-past 12 o'clock, by order of Messrs. Seeger & Tropp, a large selection of well-grown **ORCHIDS**.

Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Lowestoft.

CLEARANCE SALE. Short Notice.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, The Roman Hill Nursery, Roman Hill, Lowestoft, at an early date, without reserve (the Nursery having been let), the whole of the **STOCK IN TRADE**, comprising **Camelias**, **Azaleas**, **Roses**, **Bedding Plants**, **Fruit Trees**, **Nectarines**, **Frames**, and **Utensils**.

Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

American Nurseries, Leytonstone.

FINAL CLEARANCE SALE of **RHOODENDRONS**, **LAURELS**, **AUCUBAS**, with other **EVERGREEN** and **CONIFER** SHRUBS, fine **London PLANTS**, **LIMES**, **FRUIT TREES**, **Standard** and **Dwarf ROSES**, **BORDER SHRUBS**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, as above on **THURSDAY**, March 5, at 12 o'clock punctually.

Now on view. Catalogues had on the Premises, and of the Auctioneers, Leytonstone, and 67, Cheapside.

N.B.—The **LEASE** of the Branch Nursery at Wanstead, and the whole of the **STOCK**, will be offered in one Lot, at an upset price. See separate Advertisement.

Wanstead, E. Upset Price, £400.

In a choice and open position within easy and convenient access of the City and Covent Gardens.

MESSRS. PROTHEROE AND MORRIS will offer by **AUCTION**, on the Premises, The American Nursery, Leytonstone, on **THURSDAY**, March 5, 1891, previous to the Sale of the remaining Stock (unless an acceptable offer be made previously). The beneficial interest in the Lease of the Wanstead Nursery, abutting on Wanstead Park, about fifteen years' unexpired, with brick-built Cottage standing thereon, and the whole of the thriving young Trees, **Evergreens**, **Conifers**, and other **Shrubs**, in beautiful condition in one lot. The soil is of a deep rich loam. Ground Rent £45 per annum.

Particulars, with Conditions of Sale, may be had of the Auctioneers, 67 and 68, Cheapside, and Leytonstone.

Orchids in Flower. Special Sale, February 24.

MESSRS. PROTHEROE AND MORRIS respectfully announce that they purpose recommending their Special SALES OF **ORCHIDS IN FLOWER**, on **TUESDAY**, February 24, and will be glad to receive an early intimation from their Clients who may desire to **INCLUDE PLANTS**. **ENTRIES** should be made **NOT LATER THAN THE 18th INST.**

Thursday Next.

ONCIDIUM BRUNNEIANUM.

A most beautiful and rare species; a Plant in Flower.

ODONTOGLOSSUM ASPERSUM.

Splendid Variety in Bloom; the grandest ever seen.

MR. J. C. STEVENS will include the above in his **SALE**, by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, on **THURSDAY**, February 19, by order of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Thursday Next, February 19.

IMPORTATIONS OF ORCHIDS FROM NEW DISTRICTS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, to **SELL** by **AUCTION** at his Great Rooms, 38, King Street, Covent Garden, on **THURSDAY** next, February 19, at half-past 12 o'clock precisely, the finest imported Plants ever offered as under:—

DENDROBIUM FORMOSUM GIGANTEUM in wonderful health and condition, the bulbs are enormous, and the masses gigantic, eyes plump and dormant, flowers very sweet scented and colossal in size, of a brilliant shining white and rich orange, the best Orchid known for cutting purposes.

DENDROBIUM JAMESIANUM FLORIBUNDUM.—The large, handsome, pearly white and orange-coloured blossoms of this grand Dendrobe, last two months in perfection, the plants are the finest ever collected, and are from a virgin forest, where no European has ever before collected. The plants are magnificent, pseudobulbs enormous, eyes sound and dormant.

ONCIDIUM SPLENDIDUM, just to hand in the very finest order and condition, with big plump bulbs and thick green leaves, full of native vigour; this is the finest golden winter-blooming Orchid, and now very rare. All are offered.

CYPRIPEDIUM from Bhootan, gathered on limestone mountains during a survey, and not seen in bloom. All are offered. One box only could be found. Leaves are similar to *C. bellatulum*.

THUNIA, with large crimson flowers, larger than those of *T. Marshallae*, and very free-flowering. All are offered as received.

CALANTHE SECTION OF VESTITA sold as received. No doubt many new kinds are among the plants now offered, which have been sent from unsearched forests.

DENDROBIUM DALHOUSIANUM, the finest lot ever seen, gathered in a virgin district; the plants now offered, are much superior to established specimens, as they are well furnished with magnificent unblossomed bulbs.

DENDROBIUM NOBILE (Sander's superb strain), in magnificent masses, the finest lot ever seen in Europe.

DENDROBIUM discovered in Chucatan, with bulbs in the way of Guiberti; only a few found, all of which are offered. From the very distinct knotted bulbs and old flower-seats, this is probably a new variety.

300 **DENDROBIUM WARDIANUM**, in fine condition. Twenty-five plants of *LÆLIA GRANDIS*, true, all having flower-seaths.

Fifty plants of *PLATYCERIUM SPECIES* from Surinam.—This grand Elk's-Horn Fern is well adapted for growing on Tree Fern stems, rockeries, sandstone, &c., and is at all times quaint and remarkable.

ANGRECEM BILOLEUM, very rare.

FASTUOSUM, very pretty species, and rare.

CATTLEYA PERCIVALLIANA, magnificent plants.

DENDROBIUM CRASSINODE BARBERIANA.

LYCASTE, white and bronze-flowered species; useful for cutting; winter-flowering, and sweet-scented.

LYCASTE CRUENTA, golden-yellow, red centre; one of the very finest winter bloomers, lasting a long time in perfection. &c., &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

50,000 **LILIUM AURATUM** (many in cases as received) **L. SPECIOSUM RUBRUM**, **L. LONGIFLORUM**, from Japan, in splendid condition, specially lot for the Trade; 10,000 **Pearl** and **S. African TUBEROSES**, &c.

MR. J. C. STEVENS will include the above in his **SALE** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, February 19.

On view morning of Sale, and Catalogues had.

FRIDAY NEXT—

LÆLIA GRANDIS.

WE have great pleasure in announcing, after many months of search and heavy expenses, that we have been successful in introducing this grand novelty.

Our Collector has probably been the first European who has seen it in its native habitat, and was fortunate in finding some of the plants in flower. He sends us a most glowing description of its beauties.

In appearance the plant resembles *LÆLIA PURPURATA*, keeping the same character under cultivation, and is seemingly very free-flowering, as two plants in our possession some considerable time, both made sheaths the first season. It grows during the summer months, and produces flowers the following spring. They are of immense size, the dried specimens measuring 8 to 9 inches in diameter; the petals and sepals are a brilliant bronze, almost a metallic colour; the petals are broad, and do not reflex, as in *Lælia purpurata*, giving the flower a bold appearance; the lip varies considerably, some plants having a dark purple throat, others being magenta-purple, both having white veins radiating from the centre; many plants show seven flowers on the spike. The collector has marked some plants which will be offered, and amongst them will be found the following grand variety—large size sepals and petals, chestnut-brown, broad, wide open; lip velvety-purple, dark veins; sepals and petals copper-brown; lip very large, finely coloured. Sepals and petals brilliant dark brown, very long, 2 inches broad; rich purple throat, front lobe wide open. Very large size sepals and petals, copper colour throat, dark purple margin, dark rose. We have many dried flowers that will be on view on day of Sale, and which will show the great variation of this plant. We have only received a limited number of plants, which are in splendid condition, and can be highly recommended to intending purchasers.

The whole consignment will be offered for Sale by

MESSRS. PROTHEROE & MORRIS,

At their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., by order of

MESSRS. CHARLESWORTH, SHUTTLEWORTH & CO.,

Heaton, Bradford, and 213, Park Road, Clapham, S.W.

On FRIDAY NEXT, February 20, at half-past 12 o'clock. On view Morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

Grand Collection of BORDER PLANTS, ROSES, FRUIT TREES, LILYUMS, BULBS and ROOTS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY and SATURDAY NEXT, February 18 and 21, at half-past 12 o'clock precisely, 2000 choice named Standard and Dwarf ROSES, from a well-known English grower; Pyramid, Standard, and Dwarf-Trained FRUIT TREES; Ornamental EVERGREENS, SHRUBS, and TREES; BORDER PLANTS, comprising a new border Carnation "Sacharisse," from the raiser of the Pride of Penhurst; French CARNATIONS and PÆONIES, PINKS, PICOTÉES, HOLLYHOCKS, &c.; some fine sorts of GLADIOLI, LILYUM AURATUM from Japan, SPIRÆA, LILY OF THE VALLEY Clumps, DUTCH BULBS, &c., &c.

Thursday Next.

IMPORTATION OF ORCHIDS from NEW DISTRICTS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, February 19, at half-past 12 o'clock precisely, by order of Mr. F. Sander, the finest imported plants ever offered as under:—
DENDROBIUM FORMOSUM GIGANTEUM, in wonderful health and condition.
JAMESIANUM FLORIBUNDUM.
ONCIDIUM SPLENDIDUM, now very rare.
CYPRIPEDIUM from BHOOTAN.—All are offered.
THUNIA, with large crimson flowers, and very free-flowering.
CALANTHE, section of VESITA, sold as received.
DENDROBIUM DALHOUSIANUM, the finest lot ever seen.
"NOBILE (Sander's superb strain), in magnificent masses.
"discovered in CHUCATAN.—This is probably a new variety.

50 Plants of PLATYCERIUM SPECIES from Surinam.

ANGRECEM BILOBUM, very rare.

"FASTUOSUM, very rare species, and rare.

300 DENDROBIUM WARDIANUM, in fine condition.

25 Plants of LÆLIA GRANDIS, all having flower-sheaths.

CATLEYA PERCIVALLIANA, magnificent plants.

DENDROBIUM CRASSINODE BARBERIANA.

LYCASTE CRUENTA, &c., &c.

On view morning of Sale, and Catalogues had.

Bures St. Mary, Suffolk.

MESSRS. EDW. SMITH AND BOGGIS are instructed by the Trustees for Sale, under the will of the late Mr. H. I. Hardy, to SELL by AUCTION at the "Eight Bells," Bures Hamlet, on WEDNESDAY, February 18, 1891, at 3 for 4 o'clock in the afternoon, a valuable FREEHOLD BUSINESS PROPERTY known as "The Stour Valley Nurseries and Seed Grounds," comprising about 4 acres of Productive Garden Land, well planted with Fruit Trees and Bushes, a convenient Dwelling-house, Greenhouses and Buildings; well situated in Bures St. Mary, and occupied for many years by the late Mr. H. I. Hardy, F.R.H.S., Seed Grower and Florist. Particulars and conditions of Sale may be obtained of W. HEATHFIELD, Esq., Solicitor, 67, Hanley Road, Hornsey Rise, London; at the place of Sale, or at the Auctioneers' Offices, Colchester.

Guernsey (Channel Islands), Havilland Vineries.

GOING CONCERN. Grounds 2 Acres, contains Residence-house, with 12 Rooms and Bath-room, hot and cold supply, &c. Gardener's Cottage, 4 Rooms, with Packing-room attached. No. 1 Hot-house, 200 by 34 feet (-pan); No. 2 House, 150 by 40 do. do.; No. 3 House, 133 by 35 do. do.; No. 4 House, 145 by 20 do. (lean-to).

Pumping-house, water forced with Hot-air Engine from pond on the Property, supplied by a stream. Grounds well laid-out, containing small Orchard of Apples, and good Artichoke bed. Pleasantly situated in a charming locality, 1 mile from Town and Harbour. Price £3500 (British).

Apply to B. W. DOVE, Havilland Vineries, Guernsey.

FOR SALE, FLORISTS' BUSINESSES. both in first-class positions, well-established, and on long leases.

For full particulars as to prices, &c., apply to the Agents, GREEN AND GREEN, 23, Harrington Road, South Kensington, S.W.

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FOR SALE, pleasant RESIDENCE, with LAND adjoining, suitable for NURSERY, in favourite locality for same. Easy terms, if desired.—F. J. CULLIS, Marling Park, Hampton-on-Thames.

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TO LET, a first-class old-established NURSERY, with good Connection, near large Market. Superior powerful heating apparatus. Excellent aspect. Apply by letter to Mr. CHAPMAN, Foxton, Market Harborough.

Landscape Gardening.

B. MALLER AND SONS are prepared to Furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

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MESSRS. POPE & SONS, HORTICULTURAL AUCTIONEERS and VALUERS, 6, Philip's Street, Birmingham, hold SALES at their Rooms as follows:—

CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday.)

MISCELLANEOUS PLANTS and BULBS every THURSDAY. NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

NOTICE.—CHANCE OF ADDRESS.

MR. H. E. MILNER begs to Notify that in Order to Meet the need for Increased Office Accommodation at DULWICH WOOD, as well as to ensure more convenience for Consultations, he has taken additional Offices at WESTMINSTER CHAMBERS, 7, VICTORIA STREET, S.W., which, henceforward, will be his Chief Office.

HENRY ERNEST MILNER, F.L.S., ASSOC. M. INST., C.E.
LANDSCAPE GARDENER.

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Have an immense Stock of Orchids,

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VEGETABLES all the year round by obtaining

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TO SUIT ALL GARDENS, at

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**A HUGE 60-PAGE MANUAL OF EVERYTHING
FOR THE GARDEN,***Gratis and Post-free. Full of Information.*

All Seeds Carriage Paid.

**JOHN K. KING, SEED
GROWER.
COGGESHALL, ESSEX.****FRUIT TREES—FRUIT TREES.****HUGH LOW & CO.**Offer, of good quality, and will esteem favour of Orders:—
APPLES.—Dwarf Maidens, Dwarf Trained, 2-yr. Untrimmed,
Pyramids, Standards.**APRICOTS.**—Dwarf Maiden, Dwarf Trained, Standard, and
Standard Trained.**CHERRIES.**—Dwarf Maidens, Dwarf Trained, 2-yr. Un-
trimmed Pyramids, Standards.**PEARS.**—Dwarf Maidens, Dwarf Trained, Pyramids, Standards,
PLUMS.—Dwarf Maidens, Dwarf Trained, 2-yr. Untrimmed,
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mids, Standards.**PEACHES and NECTARINES.**—Dwarf Maidens, Dwarf
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LOUGHBOROUGH, LEICESTERSHIRE.**3000** Varieties of **VEGETABLE**
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weight and measure. **3000**The P. P. S. Co.'s Collections of **VEGETABLE SEEDS** are
unrivalled for quality and liberality. Varieties of our own
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THE BEST PROCURABLE.

LISTS FREE ON APPLICATION.

RICHARD SMITH & CO.,Seed Merchants, **WORCESTER.****JARMAN'S**
PURE AND RELIABLE GARDEN SEEDS.**NEW ONION.****JARMAN'S "SOMERSET HERO."**—
The largest and best exhibition Onion grown.
In Sealed Packets only, 1s. 6d. each, post-free.Upwards of £50 in Prizes for *Onions* and
Vegetables are offered by us at Chard and other
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Full particulars in our

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THE PEOPLE'S SEEDSMEN (Reg.),

CHARD, SOMERSETSHIRE.**DANIELS BROS. NORWICH****DANIELS' NEW POTATOS FOR 1891.****DANIELS' NORFOLK BLACKBIRD.**—A smooth, handsome
Kidney, almost a jet black, the flesh partaking of the
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flesh yellow, of fine mealy quality. Per lb. 1s.; 3 lb. 2s. 6d.**EMPEROR FREDERICK.**—Skin rich purple mottled crimson,
flesh yellow, and of fine quality. Per lb. 6d.; 7 lb. 2s. 6d.
All the above are fine Exhibition varieties.**BEAUTIFULLY ILLUSTRATED CATALOGUE**, Gratis and
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CHESTER.****THE BURCHLEY NOVELTIES FOR 1891.****GILBERT'S Gate House Pea**, 1s. 6d. per pint.**GILBERT'S Pet Cauliflower**, 1s. per packet.**GILBERT'S Selected Telegraph Cucumber**, 1s. pkt.**GILBERT'S White Victoria Broccoli**, 1s. per pkt.**GILBERT'S King of the Brussel Sprouts**, 1s. pkt.**GILBERT'S Chou de Burchley**, 1s. per pkt.**GILBERT'S Forcing Tomato**, "Satisfaction,"

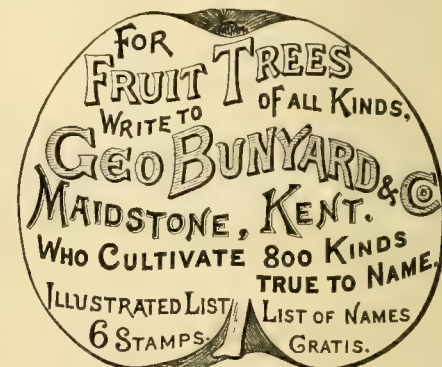
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CHRYSANTHEMUMS.****LOUIS BOEHMER (Henderson)**

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EACH AWARDED FIRST-CLASS CERTIFICATES.

These varieties, the greatest introductions of the year, will
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4s. each, reduced prices for six and upwards. We are quite
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largest and noblest of all the incurved. Send for our Catalogue,
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Amsterdam received Three Gold Medals, Four Silver Medals."**H. CANNELL & SONS,
SWANLEY, KENT.****"ONLY THE BEST."****GARAWAY'S
SEEDS****ARE THE BEST****AND MOST MODERATE IN PRICE.**If not already a customer, write for **CATA-
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GARAWAY & CO.,**DURDHAM DOWN NURSERY,****CLIFTON, BRISTOL.****THE BEST SCARLET-FLESH
MELON.****CARTERS'
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ORANGE.**"Carters' Blenheim
Orange is distinct in
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Special Offer, before Potting, 5s, 7s. 6d. and 10s. 6d. each.

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The most complete and exhaustive Treatise on Grapes and their Culture ever published.
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RHODODENDRON PONTICUM, 9 to 12 inches,	12 0	90 0
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For other Nursery Stock, see CATALOGUES, free.
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ALL the best varieties in cultivation. The most complete descriptive catalogue issued, free, one stamp.

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EUCHARIS AMAZONICA, healthy plants, from stores, Bulbs 2 to 3 inches in circumference, 3s. 6d. per dozen. Also **CALLA ÆTHIOPICA**, strong healthy plants, from stores, 3s. per dozen. Carriage paid to London. Cash with order.
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Wednesday Next.

ORCHIDS in FLOWER and BUD.

MESSRS. POPE AND SONS will SELL by AUCTION, at their Sale Rooms, 6, Phillips Street, Birmingham, on WEDNESDAY NEXT, February 18, at half-past 12 o'clock, about 350 lots of ORCHIDS in FLOWER and in BUD. Also a small importation of TERRESTRIAL ORCHIDS.

Gentlemen wishing to include Plants in this Sale, should let us have list not later than to-morrow morning, to ensure their being described in Catalogue.

On view morning of Sale, and Catalogues had.

ROSES. -- ROSES. -- ROSES.

Best and Cheapest in the Trade.

Strong Dwarf H.P.'s, 25s. per 100, sample dozen, 6s.; Standards 9s. per dozen. Cash with order.

CATALOGUE free on application.

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Trade Offer of Large Kentias and Cocos.

W. ICETON begs to offer some extra fine **BELMORIANA, FOSTERIANA, MOOREANA**, and **RUPICOLA**, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of **COCOS FLEXUOSA** and **PLUMOSA**, 9 to 15 feet. Prices on Application. Inspection invited.
Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

LILIUM AURATUM, very fine bulbs, 25s. per 100; ditto, extra fine, 30s. and 35s. **PALM SEEDS**, **Kentia Belmoreana** and **Fosteriana**, **Cocos Weddelliana**, and **Areca lutescens**, 6s. per 100, all carriage paid.
F. ROSS AND CO., Import and Commission Agents, Bletchingley, Red Hill.

THE CHINESE ARTICHOKE (*Stachys tuberifera*).—**JAMES CARTER AND CO.** have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An Illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers.
Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

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H. AND F. SHARPE'S WHOLESALE LIST OF SEED POTATOS comprises all the best varieties under cultivation. They have been grown from selected stocks expressly for seed purposes, and the quality this season is exceptionally good.

Seed Growing Establishment, Wisbech.

FERNS! FERNS!! FERNS!!!—Trade offer. Twenty most saleable sorts, 12s. per 100s.; stores, 8s. per 100; 50s. per 1000. **Adiantum cuneatum**, for potting on at once, 16s. and 20s. per 100. Large Ferns, in 48's, 50s. per 100; out of pots, 45s. All packed free. Cash with order.
J. SMITH, London Fern Nursery, Loughboro' Junction, S.W.

Special Trade Offer.

30,000 DWARF ROSES, grand plants, 25s. per 100 for Cash. List free. Evergreen and Oval Leaf **PRIVET**, all sizes, cheap. Price on application.
A. J. AND C. ALLEN, Nurserymen, Florists, and Rose Growers, Heigham, Norwich.

OWEN'S CHRYSANTHEMUMS.—The best Collection of proved Novelties and Select Varieties in commerce; awarded 5 Medals and 100 Certificates by National and other Societies. CATALOGUE free.
R. OWEN, Floral Nursery, Maidenhead.

RICHARDIA ÆTHIOPICA, "Little Gem."

Certificate of Merit, Royal Horticultural Society

A perfect miniature gem of an Arum, 12 inches to 15 inches high, snowy white, and of perfect form, noticed by all the papers as a valuable acquisition; sure to become popular.

36s. per dozen.

Sample plant, by Post, 3s. 6d.; three plants, 10s.

CASH WITH ORDER.

**H. ELLIOTT, F.R.H.S.,
SPRINGFIELD NURSERY, JERSEY.**

1891, SEASON, 1891.

I have much pleasure in announcing that my complete Catalogue of VEGETABLE and FLOWER SEEDS is now being distributed to customers, and may be had gratis and post-free upon application.

VEGETABLE SEEDS.

To this department I purpose devoting as much care as I have done in the past to Flower Seeds. Every variety I am offering is of most reliable worth, and from the very finest stocks procurable.

FLOWER SEEDS.

These have for many years received special attention at Tottenham. This portion of my new Catalogue will be found specially interesting, for not only does it include everything usually offered, and worthy of cultivation, but it includes also many NEW and RARE varieties, which will be found in this Catalogue only. This remark applies particularly to Seeds of Hardy perennials.

THOMAS S. WARE,
HALE FARM NURSERIES,
TOTTENHAM, LONDON.

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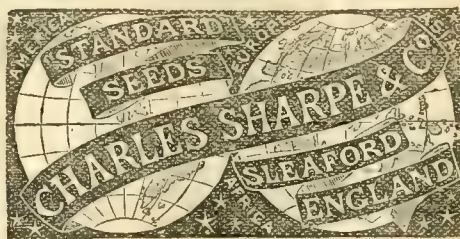
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 14, 1891.

SEWAGE AND SOIL.

DR. ALFRED CARPENTER, in an address lately delivered at Liverpool before the Association of Sanitary Inspectors, commented on the earliest lessons in hygiene as propounded in the Holy Scriptures by Moses, and advocated the adherence in the present day to the principles therein laid down. He estimates the loss to the country from the non-utilisation of sewage during the last 800 years as, at the very lowest, sixteen thousand millions of pounds sterling, to say nothing of the labour that might have been profitably employed. We cannot question such vague statistics in detail, but there is no doubt that in principle Dr. Carpenter is right. It is in the application of his principles—we will not call them theories—to practice that the difficulties come in. Every day's labour in the proper disposal of human refuse, says Dr. Carpenter, would have brought its value to the nation in greater vegetable production, with its sequence of more meat, milk, and vegetables, at the command of the multitude. "We should thus have adopted the right principle of protection instead of the fallacious one of putting import duties upon food-stuffs. Had this line been followed instead of disobeying the law, no bread-stuffs would have been wanted, for the land would have grown all that the population required. This is done now in other lands where the population is much thicker upon the ground than in this country. It is done by nations who, without having the light of Scripture for their guidance, have followed the dictates of Nature and necessity."

Sympathising, as we do, with the general principles here laid down, we regret that Dr. Carpenter should have weakened their force, by what we must consider an exaggerated statement. We do not believe that under any practicable conditions, we could now in this country grow all the "bread-stuff" that the population requires. Dr. Carpenter, it appears to us, does not sufficiently take into account the drawbacks occasioned by our fluctuating and

uncertain climate. The Rothamsted experiments afford ample evidence on these points. By the aid of appropriate manures, no doubt the yield of cereals has been and can be enormously increased, and the average is well maintained, even on unmanured land which has been continuously under Wheat for half a century, but only when the season has been favourable.

The matter resolves itself for the farmer into one of cost. No doubt he can increase his crops by the aid of sewage if he can overcome certain difficulties connected with its application. No doubt he can do this, that, or the other; but the question he has continually to keep in view is—"Will it pay?" To this the answer of the last few years has, we think, been decidedly in the negative. Dr. Carpenter proceeds:—

"Civilisation is such that water-carriage must now be used for conveying faecal and all other polluting matter from our houses. At present, it is but too often sent into the sea or destroyed by chemicals. If, instead of this, it be conveyed to the land, five crops may be secured in the place of one; five times the amount of labour would be required, agricultural labourers would be kept at work in the country at good wages, which would give useful profit to those among whom they live; while five times the amount of meat and milk would be provided for the population which produces the sewage. These are national benefits, which can scarcely be over-estimated in these times, when the country has to import bread-stuffs and immense quantities of beef, mutton, and pork, because enough cannot be raised at home, and we are so far dependent upon the outside world, that if we lost the command of the sea, we should be at our enemy's mercy."

In so writing, Dr. Carpenter has in view not Wheat growing, but Rye-grass and other crops, which no doubt can be successfully and profitably grown by the aid of sewage. So much more Rye-grass or Mangel means so much more milk—so much more milk decidedly means so much more food available for an ever-increasing population, and a proportionately greater amount of strength and health to the consumer. It means also so much more wholesome meat. Of course, in these days of germs and microbes, doubts may naturally be entertained as to the wholesomeness of the milk or of the meat produced under such circumstances. No doubt, as things are now, fatal results do occur which can be definitely traced to milk that in a sanitary sense is impure, or derived from cows in a bad state of health. This is a matter for lamentation, only in so far as we are unable to remedy it; but, setting that question aside for the moment, and, for the sake of argument, assuming that these evils are inevitable, and sure to recur periodically—assuming so much, even then, are we not justified in asserting that the amount of good secured exceeds the degree of evil entailed? Without being able to produce statistics to support our opinion, it is, nevertheless, one we shall abide by till it can be proved to be wrong. But the bitter lamentation begotten of inability to prevent or stay a plague should give place to intelligent care and forethought, and to energetic action in case of need. When these forces are brought to bear, the dangers resulting from possible infection are reduced to a minimum. Whatever might be the balance under the conditions we have named, there can be no doubt that, given the necessary intelligence to foresee and provide against evils, the balance would be in favour of proposals such as Dr. Carpenter advocates. Financially, the immediate result to the individual cultivator might not be directly

beneficial, though, no doubt, it would be so indirectly. It behoves us to be very careful in accepting such estimates as Dr. Carpenter lays before us. For instance, he tells us that there should be 35 acres of land under sewage-treatment for every 10,000 of the population; that there will be from 5000 to 6000 tons of sewage annually for each acre, and 40 to 50 tons of produce must be taken off each acre in every year. We cannot test the correctness of these figures, but assuming them to be as nearly correct as such estimates are generally, we may yet recommend that caution be exercised in adopting the conclusions the lecturer draws from them. He tells us that there will be a complete purification of the water, that the land will be free from excess of nitrogenous matters, which will not find their way into the deep subsoil, if properly laid out. What, then, will become of them? Will the crops utilise the whole of them? if not, must they not run off with the effluent water, and thus entail a loss—and very possibly injury—by infiltration into the soil at a distance from the sewage-farm? At any rate, these are matters worth consideration. Dr. Carpenter then proceeds to say, and to say dogmatically, that "disease germs will be annihilated. They can no more increase and multiply on a properly-managed sewage-farm, than gunpowder can explode if it be kept wetted with water, or mixed with moist sand. The presence of organic life in the humus of the soil, and the embrace of the minute radioles of a growing crop, set up a series of changes which are actually fatal to disease germs." Dr. Carpenter is bold in his assertions; he has in mind, no doubt, the microbes in the soil which effect the conversion of inert nitrogenous substances into wholesome plant food, and to the fermentations and other processes which go on in the soil, of the nature and extent of which we are at present only very partially acquainted. But before we say dogmatically that disease germs will be annihilated, we must know what they are, and what are their ways of life.

Our knowledge of the identity of "disease germs," and of their manners and customs, is at present of the vaguest and most incomplete character; no doubt bacteriologists and experimental physiologists are on a right track, but those whose actual knowledge is greatest, will be the most modest in assertion.

Recognising the value of Dr. Carpenter's efforts, and believing that his principles are, to a large extent, sound, we yet think he would gain greater acceptance for them among his professional colleagues, were he to employ a little more scientific reserve, and a little less dogmatic protestation in his assertions.

NEW OR NOTEWORTHY PLANTS.

SCHOMBURGKIA SANDERIANA, Rolfe, n. sp.*

This is a very handsome Schomburgkia, introduced by Messrs. F. Sander & Co., of St. Albans,

* *Schomburgkia Sanderiana*, n. sp.—Pseudobulbs conical, about 9 inches long, 2½ inches thick at base and gradually tapering upwards, with about twelve obtuse angles. Leaves thick and rigid, oblong, obtuse, 5 to 6 inches long, by 2 to 2½ inches wide. Scape stout, 2 to 2½ feet long, a little branched, many-flowered. Flowers loosely arranged, medium-sized, and of a brilliant rosy-carmine shade. Sepals lanceolate-oblong, sub-obtuse, 1½ inch long, by 4 to 5 lines wide, rose-coloured. Petals oblanceolate-oblong, ¾ inch wide, narrowed to 1 line at base, rose-coloured. Lip somewhat obscurely 3-lobed, 1½ inch long; side-lobes broadly and obtusely rounded, carmine-rose at apex, paler behind; front lobe broadly rounded, obtuse, crisped-undulate, ¾ inch broad, deep brilliant carmine-rose; disc white, with five rather obscure rounded keels. Column clavate, rosy, with pale angles.

about three years ago, and which has now flowered for the first time. It is allied to *S. Humboldtii*, Rehb. f., a handsome species not often met with in cultivation, but which is immediately recognised by its much more elevated and acute keels, as well as other differences. It also comes from quite a different country, though on this point nothing further can be said at present. It may also be compared with *S. lepidissima* and *S. rhionodora*, both of Rehb. f., two species unknown to me except by description, which, however, are sufficient to show that our present plant is quite distinct. The former also comes from quite a different country, the habitat of the latter is unknown to me. *S. Sanderiana* is a decidedly handsome plant, of medium size, with hollow pseudobulbs, very rigid leaves, and a lax, somewhat branched panicle of rosy-carmine flowers. A well-bloomed plant of it would form a striking object. Its hollow pseudobulbs are not improbably utilised by ants as their nesting-places, as is well-known to be the case with some other species of the genus, notably *S. tibicinis*, of Central America, the collecting of which is a matter of considerable difficulty, by reason of the fierce attacks of myriads of these fiery little creatures when their homes are in danger. *R. A. Rolfe*.

KIRENGESHOMA PALMATA.

A new genus of Saxifrageae, represented by a hairy perennial, with stalked palmately-lobed leaves, with lobes acute; inflorescence loosely paniculate-cymose; flowers stalked, with a short cup-like calyx, five-toothed at the margin. Petals 1 to 1½ inch long, oblong, yellow. Stamens fifteen. Ovary inferior, three-celled. Native of woods on Mt. Ishizuchi, at an elevation of 5000 feet. It is allied to *Hydrangea* and *Philadelphus*, and is described and figured by Dr. Ryokiche Yatabe, D.C., in the *Botanical Magazine* (Japanese).

PEACHES AND NECTARINES.

THERE are some points in the removal of the above which I think are important, and yet are not always duly considered. In the first place, the best season for planting is not always so strictly adhered to as it might be, and this from no unavoidable cause. As a proof that many trees are planted too late in the season, we have only to visit in the spring any large nursery where fruit trees are extensively grown, and see the number that are sent out at that time, which would have been far better planted in autumn or early winter. A sufficient number of young trees for filling up vacancies should be trained for a few years on walls near the houses, to come on at a later period, and these may be taken up and put into their places in the forcing houses when the foliage is nearing maturity; and although transplanting at this stage calls for more care in doing it, this is more than compensated for by the attendant success. In this manner our trees are always dealt with.

Last autumn, trees were unusually late in ripening their wood, and the soil was in a very dry state, so much so that it was unsafe to lift a tree without first watering the soil round about. Some Peach and Nectarine trees were removed early in October from a wall into a late forcing house, before the leaves on the points of the shoots were fully grown, and these trees had been prepared for removal in the preceding autumn by having their roots lifted, and where required, cut back, and might therefore be shifted with a good amount of soil attached to them, so that no flagging or other sign of having been removed were noticed. Watering, mulching, and syringing received attention, but as the weather was dull, no shadings seemed to be needed. On examination at a later date, the roots were found to be active, thus preparing the trees for an unchecked start in the spring, and the production of full crops of fruit in due season. And herein lies the merit of planting before winter inactivity comes on, and the soil has lost its warmth. When the trees must be

got from a nursery, it is not then practicable or usual to lift them till the foliage falls; and this reminds me of a case of premature transplanting. The trees were bought from a distant source, and on

they were planted in a Peach case and carefully attended to, but with little satisfaction, for the shoots shrivelled, and all excepting one died, and that one did not show symptoms of life until the

fact, some kinds of fruit trees are not to be kept in a fruitful condition unless they are periodically so treated. But these operations, like transplanting, should be done as early in the autumn as possible, for if left until the roots are dormant they suffer, and the evil effects remain some time.

[This statement may be true of fruiting trees for early work, but it is too sweeping; for in nurseries everywhere, and in many gardens, stone fruits are "driven" together in the quarters or removed at the end of the lifting season, with excellent results as regards the growth of the current year. Even bearing trees, which will not be much forced, or not at all, as those in the latest forcing-house or the orchard-house, may be transplanted with safety if they have been suitably prepared the year before. It is only necessary to do so before the roots move, say in early February for the south, and the end of the same month in the north; taking care that the roots are dug out carefully, protecting them with damp mats, moss, or half-rotten litter as soon as a handful of them is dug out. Watering thoroughly at planting, and mulching afterwards, must receive attention. ED.]

Trees frequently lifted are not injured in any way, but old trees that have not been disturbed or only at long intervals, suffer if lifted entirely, or much pruned at the root. I have known such trees take years to recover. I would caution beginners to think twice before tampering with old trees, provided their crops continue to be fairly good. One of the best Peach trees that we possess is a Barrington, standing in a second early house, which never fails to bear a full crop of fine fruits. It was planted twenty-seven years ago, and has probably not had its roots molested during that period of time; at any rate, they have not been touched during the seventeen years that I have been here. I mention this fact because it is sometimes thought that root-lifting is indispensable to continued good bearing.

Preparing trees for early houses is a matter that calls for more notice than it generally receives from gardeners. Trees lifted from the open ground and started direct into an early house, undergo an ordeal that they do not readily recover from; the dormant state is scarcely begun before the trees are forced into activity again, and their growth for at least a season or two is attenuated, and generally unsatisfactory.

Another matter worth consideration is, the space allowed to trees, which, as a rule, is far too small for Peaches, and is due to the desire to have variety, and a long succession of fruits. Whenever it is practicable, the space for a tree should have room for the full extension of its branches, and the laying-in of the bearing shoots without crowding them, or the overlapping of their leaves hinders the proper ripening of the whole. T. C., *The Hendre, Mon.*

FOREIGN CORRESPONDENCE.

THE SEVERE WINTER IN PARIS.

So much cold has not been experienced in Paris and its suburbs for years, and the past winter will long be remembered by all gardeners and nurserymen on account of the loss of stock which has been entailed. It is to be hoped that the love of plants and flowers will not diminish after such a winter, though it is to be feared that many a young amateur who has lost almost everything—his Roses, Conifers, and soft-wooded plants, will be afraid of starting again, while many of those people who keep plants only for appearance sake will not care to replace what they lost, as they consider it too costly.

In Paris the frost has been very severe indeed, it has even been colder there than in many parts of Holland. We had occasion to visit most of the Parisian nurseries, and those of the suburbs after the most severe frosts had occurred. In many places we were told of a minimum of -17° or -18° C. $= 0^{\circ}$ F., and at Versailles the temperature seems even to have fallen as low as -20° $= -4^{\circ}$ F., so it is



FIG. 46.—DISSOTIS INCANA. FLOWERS CRIMSON. (SEE P. 204).

arrival it was found that they had been dug up before their young wood was matured, the leaves at the points having been forcibly removed, so as to give them the appearance of having been cast naturally. After soaking their roots in water,

beginning of June; it, however, lived, and in time became a good tree.

The lifting and pruning of the roots of fruit trees must be performed by men skilled in the work, and at the proper time; it then works a deal of good, in

not to be wondered at that many plants with only a slight covering of snow to protect them, and such a prolonged cold did succumb, especially after two or three partial thaws which left them standing in water.

Of course many distressing losses will only be discovered in the spring and summer, when plants now looking healthy and well, will be found to have suffered greatly and even to be permanently injured; while others will present such a sickly appearance that they had better be thrown away. Conifers generally were looking very well, young *Cedrus deodara* and *Araucaria imbricata*, which cannot be considered quite hardy under the climate of Paris, have suffered much; while *Sequoia gigantea* and other Coniferae, in some places, were looking very bad. Among evergreens, the damage done was, at this time very noticeable. *Aucubas*, except those standing in very protected places, were wholly frozen; on many a fine specimen not one green leaf was to be discovered. *Prunus Lauro-cerasus* and also *P. lusitanica*, have in many places all the younger shoots killed, but the real extent of the damage done will only be visible later. *Euonymus* and the variegated forms of *P. japonicus*, *microphyllus*, *linearifolius*, and even of *E. radicans*, have all the top shoots dried up, sometimes for a great length. Only those which were hastily placed out of reach of the frost will not have to be cut back.

Osmanthus ilicifolius, *Eleagnus pungens* var., *Photinia serrulata*, shrubs which seem to be considered hardy here, and *Ligustrum coriaceum*, of which many were grafted on stems, seemed wholly dead, the leaves were all brown and black. Many Hollies, especially the variegated forms, have suffered a good deal, and in some places even the Irish Ivy, *H. H. canariensis*, was quite shrivelled, while some more tender and variegated kinds will lose all their leaves. *Pernettyas*, of which we found a good deal grown at Mr. Moser's fine nursery at Versailles, together with other peat-loving plants, were quite dead. The fine specimen *Rhododendrons*, of which this nursery has a very large stock, all planted along the walks, presenting a most beautiful sight in early summer, have also suffered, though not all in the same degree. Many have wholly escaped; others, mostly hybrid varieties, which are known to be more tender, have lost all their buds and top-shoots, and will have to be cut back. It will be interesting to study the hardiness of the numerous varieties of these and other plants this year, to know which will withstand our severe winters, and which prefer to be kept in a greenhouse. *Magnolia grandiflora* is to be seen anywhere about Paris, in fine pyramids, mostly planted on lawns, showing very large and fine white blooms in summer. In exposed places many leaves have turned brown, though until now they generally seem to have resisted very well. *Azalea amœna* is grown in large bushes out-of-doors, which cover themselves with numerous red flowers in the summer, but this year they probably will have nothing at all to show. *Bambusas* are often seen in parks and elsewhere in fine ornamental clumps, which also will be much smaller this summer. *Ligustrum ovalifolium* and others, which generally keep green through the whole winter, suffered a great deal too, and where formerly nothing but green leaves were seen, now present with their scarred foliage a pitiful appearance. Amongst deciduous trees and shrubs the damage will probably be as great as with evergreens, though it is not yet so visible; only by cutting into the bark can one see how far back many of them are dead. It seems that here and there large trees have been found of which the stem was deeply cleft. We saw fine specimens of *Crataegus pyracantha*, pyramids of 2 yards or more in height, of which such beautiful groups and beds are found in the Paris parks, the main stems of which were frozen down to the ground. Standard *Roses* will be found killed by thousands, as likewise dwarf-ones of the more tender varieties, for many people had no time to cover them up or place them out of reach of the frost, when the sudden cold in November followed the rather warm days of last

autumn. Nurserymen who took precautions in time, will certainly have a good trade, for prices will run very high, as *Roses* are always in demand.

In plant houses the damage was in many places great also, severe frosts like these were not expected so soon; it will be a lesson to many people to have their boilers in better working order at this period of the year, as one must always be prepared for the worst.

Of vegetables, very many were still on the land, and were here, as well as in other countries, frozen and spoiled for the greatest part; even many of those which had been taken up and placed in cellars, or dug in, are lost. *Goemans*.

PALMS ON THE RIVIERA, ETC.

Of the list of greenhouse Palms given at p. 172, *Chamarops humilis* (and *excelsa*), *Jubæa spectabilis*, *Phoenix canariensis*, and *Phoenix dactylifera*, have in this extraordinary winter stood five nights of minima of from -8° to -12° Cent. $= 6^{\circ}$ to 9° F., without injury here, though Canary and Date Palms have been slightly browned by snow resting on them. *Acacia dealbata* has not suffered, and none of the *Eucalyptus* tribe has been killed. *Cocos australis* has suffered severely, but has not died. No Orange has been much harmed, but I fear my Lemon trees are dead of cold. The only things killed, at least to the root, besides Lemons, are some of the less hardy varieties of *Mimosa*. Why is *Pritchardia filamentosa* omitted from the Kew list? It is quite as hardy as *P. canariensis* or *P. dactylifera*, and very beautiful. It has not suffered here. Is *Chamarops humilis* really a native of Europe? I doubt it, but it may be Cretan. At Malaga and Gibraltar it is introduced. Which is the *Chamarops* (very like it) which covers the valleys of Baluchistan? In reference to Mr. G. Wilson's letter, three kinds of *Cistus* (white flower, pink flower, and yellow flower) have stood from -12° Cent. $= 10^{\circ}$ Fahr., to a much lower night temperature on the sides of the mountains here this winter, and are none the worse. The Date Palm and the Olive can stand frost if they get sufficient sun. So can our insects. The day after the frost went, I saw the red admiral butterfly in great numbers, the mountain locust, the local hornet (a thin small hornet like one of the Indian), and lizards, on every wall. *D.*

DISSOTIS INCANA.

Dissotis differs from *Osbeckia* only in having very unequal stamens. There is also the difference of habit, *Dissotis* being confined to Africa, whilst *Osbeckia* is Asiatic. As garden plants, however, there is nothing to choose between the two, both genera containing handsome-flowered species of convenient size for pot-culture.

There are about twenty species of *Dissotis*, but except that represented in the accompanying illustration (fig. 46) and perhaps *D. eximia*, they are unknown in gardens. *D. incana* appears to have been in cultivation fifty years ago, when a plate of it was published in the *Botanical Magazine*, t. 3790, where it is called *Osbeckia canescens*, and described as "an extremely handsome plant, which flowers freely in moderate heat in July and August. We received it at the Botanic Garden, Edinburgh, from Berlin, under the name adopted; but I have not seen any account of it published, nor was its name communicated to me."

Our illustration (fig. 46) was taken from a plant at Kew, where it is grown in the Cape-house and large temperate-house. It forms a compact, many-stemmed plant, a yard high, the stems quadrangular, the leaves ovate, very herbaceous, and grey-green. The flowers are in terminal and axillary clusters, and on well-grown plants they make a really handsome display from July to September. They are coloured deep crimson, with a shade of purple, the stamens being bright violet. The stems are annual. The treatment for this plant should be the same as for *Fuchsias*, except that the roots should be kept moist

when the plant is at rest. The Kew plants were received from Herr Max Leichtlin in 1886, and also from the Natal Botanic Garden, under the name of *Osbeckia umbellata*. The species is a native of Nile Land and Natal. *W. W.*

HUMEA ELEGANS.

Humeas are, I think, too little grown, although their requirements are easily met. Many fail with *Humea* by sowing it too early, and allowing it to get pot-bound in small pots; when that occurs, it is difficult to undo the mischief. The best time to sow the seed, which should be good, is from the middle of May to the first week in June. Six-inch pots should be prepared as for *Primula* seed, sowing with a surface of fine friable sifted soil pressed level. Carefully water the pots without disturbing the level surface of the soil, and allow them to drain for a few hours, and the seed—which is very minute—may then be sown thinly, and lightly covered with sifted soil. The pots should each be covered with a square of glass or tile, which may be turned daily to dry up condensed moisture. Half of the sowing may be placed at the shady end of a greenhouse, and the other in an intermediate-house or pit, to lessen the risk of failure. The seed usually takes four or five weeks to germinate, and during that time must be carefully shaded. Watering will be best done by gently dipping the pots into a tank, or pouring the water on a piece of paper laid on the surface of the soil.

When the young plants appear, the glass or tile may be removed, but care must be taken to protect the plants from slugs, which is best done by elevating the pots over broad saucers, containing water. When the plants have made two pairs of true leaves, they may be pricked out—two or three in a 60-pot, and kept in a shady position near the glass; and when they are 2 or 3 inches high, they will be ready to pot off singly into 3-inch pots, using a light compost of, say, two parts loam, one part leaf-mould and a little silver-sand. The plants may be grown on in a cool frame, or in a house near the glass, shading them from strong sun. About September or October, the plants will be ready to shift into 5 or 6-inch pots for the winter, using the same compost, but a little rougher, and with the addition of a small amount of soot, Thomson's Vine manure, or other fertiliser. A position not too far from the glass, in a house free from draughts, with a temperature of from 40° to 50° , will suit them in the winter months. About February or March, at which time the pots are filled with roots, they may have a shift into well-drained 7 or 8-inch pots. At this potting, any of the bottom leaves which may have got injured or disfigured should be removed, and the plants placed low in the pots, so as to hide as much of the bare stem as possible. About April the plants will be ready for their final shift into 9, 10, or 12-inch pots, as may be required, keeping the plants again well down in the pot if any of the lower leaves require to be taken off. The compost for the final potting may be similar to that used before, with the addition of one part spent Mushroom manure or dry cow manure; about 1 inch space should be left for watering, as the plant requires copious supplies in hot weather. Three or four plants of *Lobelia speciosa* may be planted on the surface of the soil with good effect. The plants should now be set in a cool house, well shaded from the sun; a bit of scrim or tiffany tacked over the glass for a few weeks saves trouble, and avoids the risk of scorching, to which the plants are rather liable at this stage if under bad glass.

About the end of May, or when danger of frost is past, the plants may be set out-of-doors, in a position shaded from the mid-day sun. After a few days exposure, the leaves will get sufficiently hardened to stand the full sunshine in any position where they may be required. Before putting out, neat stakes about 5 to 6 feet in height should be placed to each plant, tying the stems loosely, and attending to the ties as the plant grows, which it should do at this

time very rapidly. When the pots get full of roots, an occasional watering with weak manure or soot water is beneficial.

Greenfly is the chief enemy of the *Humea*, but a dusting of tobacco powder is usually sufficient. The plants are rather impatient of tobacco smoke, so that I prefer the tobacco powder. The *Humea* is well worth all the care bestowed upon it. *D. M., Dunrobin.* [In the south, of late years, it has been the prey of a fungus like that causing the Potato disease, Ed.]

likewise observed in excellent condition. The plants in question were placed in turfy loam, to which had been added some partly-decayed dry cow dung. One bulb was in a 5-inch pot—they do not thrive when over-potted; indeed, some of the most vigorous flowering plants I have noticed were grown in small and shallow Orchid pans, suspended from the roof of a stove. Besides the various rose-coloured varieties of *C. Veitchii*, a pure white one has lately been noticed in cultivation. I saw it last season at Messrs J. Veitch & Sons, Chelsea; it has been

Chronicle, vol. vii. (1890), p. 132. Mr. J. T. Barber has also raised a white form of *Veitchii*, but it is now upon record that the honour of being the original raiser belongs to Mr. Dominy. It may not be amiss to add, that the first hybrid Orchid flowered in Britain was *Calanthe Dominii* ×, the result of Mr. Dominy's crossing *C. masuca* and *C. furecata*, it flowered at Exeter in October, 1856, and Dr. Lindley named and described it in the *Gardeners' Chronicle*, 1858, p. 4. It is a very distinct and handsome *Calanthe*; a remarkable specimen of which was exhibited by Sir T. Lawrence, Bart., some years ago, in the old council chamber of the Royal Horticultural Society at South Kensington.

One of the most distinct forms of *C. vestita* is *Regnieri*, described by Reichenbach in the *Gardeners' Chronicle*, vol. xix. (1883), p. 274. It is now a well-known plant, and much valued for the variable colour of its flowers, and because its flowering season begins when others leave off. This variety and *C. v. Turneri* continue the season through January and February. The flowers of *C. v. Turneri* resemble those of *C. v. rubro-oculata*, and are not pure white, as is usually stated in Orchid books; but there is a sub-variety of *Turneri* with flowers wholly white, named *ivalis*. Mr. J. T. Barber of Spondon, Derby, raised a very pretty hybrid by crossing this white form of *C. v. Turneri* with *C. vestita*.

Many more hybrid deciduous *Calanthes* have been raised at Messrs. J. Veitch's by Mr. Seden, notably *C. lentiginosa*, a hybrid between *C. labrosa* and *C. Veitchii*. There are different shades of colour amongst the seedlings; one named *C. lentiginosa carminata* does not belie its name, for it is the richest-coloured of any of the hybrids. *C. Sedeni* is a very beautiful hybrid, raised at Chelsea from *C. Veitchii*, crossed with *C. vestita rubro-oculata*. Some very richly-coloured and distinct hybrids of this group have also been raised in Sir T. Lawrence's garden at Burford Lodge, and have been exhibited from time to time, and perhaps the best of these is *C. porphyrea*, a hybrid between *C. labrosa* and *C. vestita rubro-oculata*. Hybrids have also flowered from the *C. Regnieri* crosses, notably *C. Aurora*, by Mr. Charles Winn, of Birmingham.

Considering that *C. Regnieri* was not sold in England until 1833, this is evidence that the raising of *Calanthes* is not a very long process. Messrs. Veitch, who are able to write with authority on this point, say in their *Manual*, that "The capsule of *Calanthes* usually ripens in three to four months and the seeds take from two to three months more to germinate; the seedlings, under favourable circumstances, will flower in the third or fourth year—a short period for Orchids."

Those who have seen the various seedlings in cultivation, will have observed how very much superior they are in the beauty of their flowers to the parents from which they sprang, showing a great advance, and affording still better chances for future crossing. As improvements occur, the field becomes widened; indeed, we may be but yet at the very threshold only, of the work.

The details of culture are simple, but they will bear repetition. Small pots, turfy loam, and dried cow manure, seem to be the essential matters. I always add some coarse sand, broken charcoal, and crocks to these, and well drain the pots. The pseudo-bulbs are potted in the spring, before rootlets start from the base, but if the work is delayed these rootlets get injured in potting, and growth suffers accordingly. Little or no water is wanted until roots form. Our entire collection was much injured some years ago by applying water too copiously at the beginning. When growth has once fairly started, water may be afforded to them freely. The plants are stood in a stove, or other warm house. Our warmest house is that in which Cucumbers are grown, and here *Calanthes* luxuriate. When growth is completed, a cooler and drier atmosphere is better for them. As the flower spikes develop in the autumn, the leaves decay and fall off, so that by the time the flower spikes appear fully developed, the plants are bare of leaves. When the flowers fade, the bulbs are kept dry for about three months. *J. Douglas.*



M. V. LEMOINE. (SEE P. 208.)

CALANTHE VEITCHII AND ALLIED VARIETIES.

THE exceeding value of *Calanthes* in the winter was well brought out at Floors Castle, Kelso, where is a rich collection of these and other Orchids. On the occasion of a recent visit, large numbers of *C. Veitchii* had magnificent spikes; the flowers of the rich deep rose colour, so seldom seen when the plants are cultivated in a foggy town atmosphere. I counted thirty-four closely-placed flowers on one raceme, which they caused to bend gracefully under their weight. The ordinary form of *C. vestita* was

thought by some that this variety is a recent introduction, but this is incorrect, as Messrs. Veitch state in their new *Manual of Orchidaceous Plants*, part vi., that "The white form was also raised by Dominy, unknown to himself at the time, at our Exeter Nursery, whence it was sold to Mr. Wentworth Buller, of Strete Raleigh, Devonshire, for the typical form. At the dispersion of Mr. Buller's collection, it passed into the hands of the late Mr. John Day." *C. Cooksoni* is another white form of *C. Veitchii*, and Sir Chas. Strickland, Bart., has also succeeded in raising it. The variety raised by Sir Charles is described by Mr. Rolfe in *Gardeners'*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

STRAWBERRIES.—If these plants were placed in a pit as advised in the first week of the year, and the pots plunged in a bed of leaves, or other mild-heating material, they will be ready at this date to transfer to shelves in the forcing-house to set their blooms, choosing a warm day for their removal. Early Strawberries often set badly when plunged, as the moisture arising from the heating material is not allowed to escape, so that the pollen becomes inoperative, therefore the shelves being drier and a rer are better places for them at this part of the season. By plunging the plants in a steady heat, the flower-spikes push freely, which they will not do early in the season, if placed at the first on shelves in a forcing-house. The plants should, towards midday, have the pollen distributed by lightly passing the hand over the flowers, or using a camel's hair-brush for the purpose; keep the house or pit drier when the plants are in bloom, and admit air freely in fine weather. Careful watering at this date is necessary, as overwatering causes the fruit to turn black, or not to swell properly; and any damping of leaves or pots should be avoided till the fruits commence to swell, at which time weak liquid manure may be afforded at each alternate watering. Strawberries in February require that close attention should be paid to the following details:—In dull sunless weather little water must be afforded, and a much drier atmosphere maintained than either before or after; ventilation is an important point, as is also fertilization. The recently-introduced Crescent Seedling is now set freely with us, and will require to be well thinned, as being a small "berry," it will require this. So far, it is much earlier than Vicomtesse Héricart de Thury, one of our best early Strawberries. A succession batch should be placed forthwith in the leaf-bed, to succeed the first and second earlies. We grow Auguste Nicaise and Keen's Seedling for this purpose. The stock of fruiting plants in cold frames should be kept clear of dead leaves, &c. After this period, no Strawberry plant should be allowed to become dry at the root, and those in stacks in the open will be the better if plunged in leaves in frames, so that they may be watered when dry.

PINES.—Soils and other materials must be got in readiness for the general shift towards the end of the present month or in March; I prefer the earlier date. Plants showing fruit should be liberally treated, and close attention given to ventilation and the maintenance of a bottom-heat of 90° to 95°, or a few degrees higher will do no harm, if the bottom-heat consists of fermenting material. A night temperature a few degrees higher than advised in last month's Calendar may be the rule for a time, that is, from 70° to 75°, according to the weather, with a rise of 5° to 10° during the day, ventilating carefully when the day maximum is reached, shutting up with a bottom-heat early in the day, and thoroughly damping the walls and floors and the plunging material. Let Fruitier or other liquid manure may be applied to the plants frequently. Succession fruiting Pines on what may be termed fruiting plants, to give a nice lot of fruit during the summer months, should now have more moisture at the roots, and occasional supplies of liquid manure, and get similar treatment to the early fruiting plants. Care must be taken not to syringe overhead when the plants are flowering; indeed, at this season it is safer not to syringe them overhead. If sufficient fruiters are secured for early work, this lot need not be hurried, and it may be kept several degrees lower in temperature, but the bottom-heat should not be lessened, or the plants will soon appreciably suffer. Less moisture now will be required at the roots; but other portions of the pit, where none are in flower, should not become too dry, the bed and floor and walls, as advised, being properly damped daily. A bottom-heat of not more than 90° is a safe one, and when the plants require water, thoroughly saturate the ball with water of the same temperature as the bed. A later lot of plants for autumn and winter fruiting will do with a lower temperature both day and night, of from 7° to 10°, keeping them well on the move by attention to airing, and syringing very lightly overhead two or three times a week as warmth increases. Suckers should be prepared, and plunged in the tan when the bottom-heat has declined below 100° at the depth the pots will be plunged. Keep a day temperature of 55° to 60°, with 7° lower night warmth, *G. Wythes, Syon House, Brentford.*

PLANTS UNDER GLASS.

THE STOVE.—Lose no time in having tubers of *Gloriosas* potted, putting strong ones into pots of 12 and 15 inches in diameter, and using loam of the best quality, leaf-mould, rotten manure, and sand in a rough state, and potting firmly. *Gesnera Cooperii* and *G. Doncklaarii* may also be potted in well-drained pots, and putting the tops or crowns just above the surface of the soil. For a compost for these fine plants, use that recommended for *Gloriosas*, and when growth commences, place them where they will be fully exposed to the light without liability of injury by scorching. *Achimenes* should have attention, but only start a portion of them into growth at the present time, as by doing so at three different times, plants may be had in bloom over a great part of the summer. The most suitable soil for *Achimenes* consists of two parts leaf soil, one of sifted loam, and one of silver sand, using pans or shallow boxes. The tubers should be planted about 2 inches apart, and covered with about half-an-inch of the above compost; and placing them in a house or pit where the temperature does not fall below 55° to 60°, being careful in not watering them much before the tubers start into growth. A hotbed is a good place for the first started. When the tubers have made some 2 or 3 inches of growth, they may be put into the baskets or pans in which they are intended to flower, giving them more space in the soil at this time. There are, in my opinion, few plants more suitable and effective for basket culture, than *Achimenes*, especially when hung alternately with baskets of free-growing Ferns, over the paths. *Achimenes longiflora*, *A. l. major*, *A. Ambroise Verschaffelt*, *A. patens*, *A. Edward Boissier*, are amongst the best varieties for baskets. *A. picta* makes an excellent pot plant if started early, and stopped three or four times before blooming.

AMARYLLIS.—Taking into consideration the easy culture of these beautiful Cape bulbs, it is a wonder to me they are not met with more frequently. Should the stock be in sufficient quantity, it will be advisable to start a portion of it at two or three different times; and it may here be stated that from the time of starting, it generally takes from six to eight weeks to get them into flower. When repotting the bulbs, be careful to have all the decayed portion of the leaves about the collar removed; and employ soil consisting of a mixture of two parts loam, one of decayed cow dung, and one part each of peat and silver-sand. When potting them, place a little silver-sand at the base of the bulb, and keep at least one-third part of the bulb above the soil. After potting, place them in an intermediate-house, and, if possible, plunge them in a bed of tan, or cocoa-nut fibre refuse over Oak leaves, with a warmth of 70°. No water will be required, except an occasional syringing, till root-action has commenced, which will be from four to five weeks.

GREENHOUSE.—Should any plants of Indian Azaleas have thrips upon the leaves, lose no time in fumigating them with tobacco, or syringing them thoroughly with tobacco-water. Plants required for late blooming should be placed in a house with a northerly aspect. Old plants which were forced early, and which have become thin in foliage, should have the wood pruned well back and encouraged to grow by placing them in a close warm house or pit; and should any of these plants require repotting, delay that operation until the plants have commenced to break freely. *R. Milner, Peurice Castle.*

THE HARDY FRUIT GARDEN.

PEACH AND NECTARINE TREES.—Usually the pruning and nailing of these is deferred till a late period, a good practice where the trees are not numerous. As a rule, this work should be taken in hand forthwith, so as to finish before the buds become very forward. In pruning the trees, it is important to see to the furnishing of plenty of new bearing wood over all parts of the trees, and especially those parts near the ground, or but little fruit will be obtained from these portions of the tree. If disbudding was properly performed last summer, and after the crops were taken some of the fruiting shoots removed, and filled with others reserved for the purpose, little pruning will be now required. All shoots destitute of bloom buds, unless they are wanted to fill up bare places, and all very weak shoots, must be cut back to a bud, and if to form spurs for fruiting, a little longer. Immatured shoots should be shortened in length according to its position on the tree and its strength, all rank shoots

being removed entirely. Lay in the shoots about six or eight inches apart, and only use just as many nails as will keep the branches in their places, allowing space in the shreds for the swelling of the shoots.

YOUNG TREES.—Although the hard cutting-back of the ripe shoots of Peach and Nectarine trees cannot be recommended, yet very strong shoots should be cut back, and, in some cases, somewhat severely, so as to obtain a good foundation of branches, starting at regular distances apart. The cutting-back or pruning of newly-planted trees should be left till the last, and if any cleaning of the trees be found necessary, this should be seen to before nailing them. Scale is best removed by a small hard brush, and if time allows, sponge the young wood with a weak solution of Gishurst soap mixed with sulphur, adding a little petroleum to it for washing the old wood.

RASPBERRIES.—The tops of the canes should now be cut off to the required height, those in the open unsupported with stakes being reduced to a height of 3 or 4 feet; this latter method is practised most by the growers for market, and it has much to recommend it, the canes usually falling outwards as the season advances, thus leaving the centres of the stools free for the ascent of the young canes. Planting may still be carried on, after having dug the ground two spits deep, and worked into it plenty of manure. Plant in clumps of three, and these canes should be cut down, so as to induce good fruiting canes for next year.

Most of the autumn fruiting Raspberries should be cut down forthwith, although the *Belle de Fontenay* produces its fine fruit if not so cut down. If wanted for late fruiting, a portion of this sort may be cut quite down to the ground. I would recommend the late autumn varieties being planted on a warm sunny site, the fruit ripening thoroughly late in the season, and of good flavour. As a top-dressing to the plantations, Mushroom-bed dung and old potting-bench refuse will be found very beneficial on heavy soils, and on light ones cow dung may be employed. The ground if light should not be dug at all, but stiff land may be lightly picked over, as this will prevent its cracking later. *H. Markham, Mereworth Castle, Maidstone.*

THE FLOWER GARDEN.

PLANTING OF SHRUBS, ROSES, BOX, &c.—The present month is a busy one, the most important work being the speedy completion of the planting of Roses and deciduous shrubs, and all alterations involving the disturbance and reforming or relaying of Box edgings and turf. One of the most ornamental shrubs, the *Laburnum*, is not planted half so freely as it deserves to be, and, though it can hardly be misplaced, there are no situations in which it looks better than planted in pairs on each side of a gate, or at the ends of walks or pathways, to which they impart a finished look, and are pleasing objects in bloom in the spring. The thing is to get good varieties with tall clean stems. *Ribes*, of which there are many species and varieties, and shades of colour, are also of great value for groups in the foreground of evergreen shrubberies, and for standing out in sheltered spots on the lawns. With regard to Box, there are several varieties, but the only one really adapted for edgings, is the one with small leaves, a close and compact plant of regular and medium height, not standing in need of much clipping or other attention if the soil be suitable. In cases where this is sandy, and without calcareous matter, a little fine chalk worked in, where the rows are to go, will be found a great help in maintaining the Box of a good colour; or any old mortar rubbish may be used along the sides, if kept low down, as then it answers the double purpose of draining off any excess of moisture and feeding the roots. Many, however, object to Box as being too formal; but for all that, it cannot well be dispensed with in our gardens, and yet there are some which would be all the better without it, or with less, the edgings being formed with flints or burrs, as touched on last week.

SEED SOWING.—The plants that have become of much importance are the tuberous *Begonias*, as they are found to last, and stand the weather so well; and to get them of good size and strong, no time should be lost in sowing seed in pots or pans of very fine soil, pressed quite firm and smooth, and gently watered before the seed is sown thinly on the sur-

face. Germination is quicker if a sheet of glass be laid over each pot or pan. Stand them in brisk moist heat, and when growth begins, give them a light position. Among the fine foliaged subjects that should be sown now, and treated in a similar manner, are the *Wigandias*, *Ferdinandia eminens*, *Grevillea robusta*, *Solanums*, such as *S. robustum*, *S. Warscewiczii*, and *S. marginatum*; *Centaurea candidissima*, *Cineraria maritima*, and the different varieties of *Cannas*; but all the quicker-growing things, as the *Zeas*, *Chilian Beet*, *Nicotiana*, *Ricinus*, and others of that class, should be left till later, for when raised thus early, they only get starved.

FORWARDING AND PROPAGATING PLANTS.—In addition to seed sowing, and working up a stock of plants in that way, there are many that must now be started and pushed on with a view to getting cuttings, or to forward them; but excepting such things as *Alternantheras*, *Iresines*, *Coleus*, &c., they should not be subjected to much heat, but brought on slowly, or the growths will be weak. Any vinery or forcing-house, where there is a temperature ranging between 50° and 60°, will suit *Ageratums*, *Verbenas*, *Petunias*, *Heliotrope*, *Lobelias*, and all such, and the nearer to the glass they can be kept, the sturdier and better will the cuttings be found.

GLADIOLUS.—To have a long succession of these most showy and beautiful plants, it is necessary to start the bulbs, a few at a time, till the main planting takes place; and a first batch should at once be potted, either singly or in threes, the latter for clumps or groups in the borders. Some of the hardier or less choice kinds, such as *Brenchleyensis*, that may be wanted for cutting or early display, may go out at once, and the *ramosus* section, and that most useful of all, *Colvillii*, *The Bride*, should be in the ground, at the latest, by March, otherwise, the cornea shrivel, and lose much of their strength.

WALL PLANTS.—Although the winter has been severe, *Magnolias*, *Banksian* and other climbing *Roses* and wall plants, have taken no harm, the stillness of the air during the whole time of the frost having favoured them. The pruning and regulating of these should be no longer deferred, but in going over the *Roses*, any pruning to which they are subjected should be more of a thinning, as the *Banksias* flower most freely on the small breastwood, and all the other climbers on the long, moderate-sized shoots, which ought to be laid in nearly full length, and in such a manner as not to look stiff or formal, or be pressed too close to the wall. *Clematis* are already breaking, and dead parts being now distinguishable should be cut away before the plants make further progress, or the young growth will become injured, the shoots being very tender when they first show. To assist the *Clematis*, as also the *Roses*, it is a good plan to remove as much of the surface soil as can be done without damaging the roots, and then give a dressing of rotten manure, when the soil can be returned again so as to cover it up.

LAWNS.—If the top-dressing of these, as already advised, has not been carried out, they should have that attention forthwith, using a mixture of soot, wood-ashes, lime, and fine soil, or, in cases where a little extra expense is not an object, bone-dust may be added, as that is a great help to the grass; frequent rolling also improves it much, as by consolidating the earth, it makes the herbage finer, and in some measure prevents moss, but that the top-dressing will kill.

GRAVEL WALKS.—These, too, are much benefited by rolling, especially after frost and heavy rains, if in fit condition and the gravel does not stick or become miry, the object being to catch it in the right state, when it goes together solid, and the roller leaves a good surface. *J. Sheppard, Woolverstone Park, Ipswich.*

THE ORCHID HOUSES.

THE CATTLEYA-HOUSE.—Whether by reason of the long rest which the plants have enjoyed, or the splendid autumn weather of last year, following a sunless summer, *Cattleya Triana* and the white varieties of *Lælia anceps* are certainly finer than usual. *Cattleya Percivaliana*, a beautiful flower in both colour and shape, has again demonstrated its shyness to bloom, yet one flower—two is rather exceptional—on a pseudobulb is worth much time spent over the plant; and coming in at the New Year, when *Cattleya* flowers are few. Very little

syringing of the house is needed as yet, and if this be done in the morning, when the temperature stands about 55°, no more will be wanted beyond the damping of the walls and floors towards evening, unless, as is sometimes the case, the air should get arid from want of beds of plants under the stages, &c., to throw off moisture.

INTERMEDIATE-HOUSE.—The present is the best time to repot *Vanda suavis* and *V. tricolor*, having first very carefully examined the plants for the small brown scale, which sometimes infests them. To rid the plants of these insects, a moderately hard half-worn-out brush should be used on all the leaves where scale is present, afterwards washing the plants with soft soap. As soon as this operation is done, the sphagnum moss should be removed from the surface, thus removing any insects that may have fallen into it. In repotting, it is necessary that each plant be treated according to its needs; for instance, *Vandas* after flowering freely, are apt to lose some of the bottom leaves, so that even large specimens will occasionally require to be cut down on purpose to dwarf them. This may be done without endangering the health of the plant in any way, if properly done; but the plant must possess some good aerial roots, and if it have these, then the cutting down and repotting may be done forthwith in the usual manner, only



THE LATE JESSE SISKY.

(Born at Flushing, June 15, 1804; died, 1890. See ante, p. 181.)

enclosing a few of the roots in the potting materials. *Vandas* do not need very quick drainage of the water from the pots; and in—say, a pot of 14 inches, first place three large crocks over the hole at the bottom, and over these carefully pile up about 3 inches high smaller pieces, the rest being filled with large crocks stood upright, and interspersed with sphagnum moss. Planted in this manner, *Vandas* grow far better than when they are covered over the surface with sphagnum moss.

PLEIONE LAGENARIA AND P. CONCOLOR.—These species should now be brought out of their cool winter quarters, and put into this house, water being afforded them very sparingly at first, to avoid getting the tips of the leaves of a brown colour, which will gradually extend down the leaf, until the plant is ruined. I know of nothing that is effectual in stopping this if it once begins to be general. *P. maculata* and *P. Wallichiana* should be left in the cool-house for another fortnight, so as to give a succession to the earlier bloomers in the autumn. A position on the side stages as near to the glass as is consistent with safety will suit the plants. The foliage will then grow short and broad, whereas when far from the glass the opposite will be the case. Air must be afforded them whenever possible by the side-lights, and when the thermometer outside stands at 40° air should be given from all the ventilators, even if it be necessary to use the heating

apparatus. A temperature at night of 53° will be ample, with a rise of from 5° to 10° by sun-heat. *A. G. Catt, Parkfield.*

THE KITCHEN GARDEN.

THE MAIN PARSNIP CROP.—Seed may be sown as soon as the ground can be got into good working order, a piece that was heavily manured for a previous crop and well trenched last autumn, being the most suitable. A calm day is essential for sowing Parsnip seed, and when it comes, the soil should be dug lightly with a fork, and raked level and smooth, thick planks being used to tread upon by the workmen if the surface of the ground be moist. The seed drills should be drawn at 18 inches apart, 1½ inches deep, and three or four seeds dropped into the drills at a distance of 9 inches apart. Strew wood-ashes in the drills before closing them with the feet, and make the surface level with the rake, drawing the tool in line with the drills. If exhibition specimens are desired, dibble holes in the drills 12 inches apart, and from 20 to 24 inches deep, and 3 inches in diameter, and fill these with finely sifted rich soil to within 1 inch of the surface, making it firm, then sow seeds as before, to be reduced, as with those, to one at thinning time; a few rows so treated will be sufficient for this purpose.

ONIONS, SHALLOTS, &c.—Take advantage of the first fine day, when the ground is in working order, to get this important crop into the soil. Onions require a rich, well tilled soil, and if it was manured and trenched in the autumn, so much the better. A dressing of soot and salt should be first applied to the surface, which should be pricked over to a depth of 4 inches, and afterwards raked smooth and level with wooden rakes, treading the ground evenly all over, and again raking it. It is more convenient for thinning and weeding the crop if beds 7 feet wide, with 15-inch alleys between them be formed, the fine soil from the alleys being strewn evenly over the beds. The drills may be drawn at 12 inches apart, and nearly 1 inch deep, deeper drills producing thick-necked bulbs. Sow the seed evenly, and not too thickly, scattering wood-ashes over the beds before closing the drills. Trample the beds evenly when filling in the drills, and finish by lightly raking the beds lengthwise.

Winter Onions may now be transplanted, in drills made twelve inches apart, on beds prepared as for sowing seeds. In planting, make the holes deep and large enough to hold the roots without cramping them. Make the soil firm about them, and be careful not to bury the bulbs beneath the surface. Shallots and Garlic may be planted on the same quarter as the onions, the bulbs being put in at nine inches apart each way. Shallots should be pressed firmly into the soil, but Garlic should be planted one inch below the surface, and both should be examined occasionally, as frost and worms will heave them out of the soil before they are rooted.

MUSHROOM BEDS.—Any of these that have been in bearing for some time, will be benefited by a watering of liquid manure, at a temperature of 80°, in which a handful of salt to every three gallons has been put. After watering the bed, lay some straw or hay over it. Spawn succession beds when the temperature of the materials has fallen to 80°, breaking the spawn into pieces of the size of hen's eggs, inserting these 2 inches deep and 8 inches apart, and making the beds firm. A few days afterwards, if the temperature does not rise, the beds may be covered with a 2-inch layer of loam made as warm as the air of the house, the soil being made very firm with spade or rammer. Collect fresh materials for beds in the open—and in doing this do not shake all the litter out of it, laying it out evenly on the floor of an open shed until sufficient is collected, and turning the heap until some of its rankness is got rid of, when it should be thrown together in a heap to ferment still more, again turning inside to outside and thoroughly mixing the whole.

CANULIFLOWERS.—Ventilate very freely in mild weather those plants standing in frames and hand-glasses, and stir the soil, and, should water be required, give it mixed with manure, which will favour root-production. Canuliflowers from seed sown early in January will now be ready for pricking out 3 inches apart, on mild hotbeds or in cold frames, taking care in doing so not to injure their very tender roots. Sowings should be made of *Veitch's Autumn Giant*, *Sutton's King*, &c., either in frames or in boxes, *C. J. Waite, Glenhurst, Essex.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, FEB. 19.—Linnean Society, at 8 P.M.

SALES.

MONDAY, FEB. 18 { Bulbs, Carnations, &c., at Protheroe & Morris' Rooms.
{ Lilies and other Bulbs at Protheroe & Morris' Rooms.

TUESDAY, FEB. 17 { Clearance of Greenhouses, &c., at Isleworth, by Protheroe & Morris.
{ Roses, Fruit Trees, Border Plants, &c., at Stevens' Rooms.
{ Lilies, Palms, Roses, Seeds, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, FEB. 19 { Clearance of First Portion of Nursery Stock, at Woodford Road, by Protheroe & Morris (three days).
{ Importations of Orchids from Mr. F. Sander, Lilies, &c., at Stevens' Rooms.

THURSDAY, FEB. 19 { Nursery Stock and Greenhouse Plants from sample at Protheroe & Morris' Rooms.

FRIDAY, FEB. 20 { New Orchids at Protheroe & Morris' Rooms.
{ Plants, &c., at Lowestoft, by Protheroe & Morris.

SATURDAY, FEB. 21 { Roses, Fruit Trees, Border Plants, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—39° 3.

THE ANNUAL MEETING OF THE ROYAL HORTICULTURAL SOCIETY.

HAVING already published the greater part of the annual report of the Royal Horticultural Society, see p. 135, we are absolved from the necessity of reprinting it, or even of alluding at any length to the speech of the President on moving the adoption of that report on Tuesday last. The one startlingly satisfactory fact is, that there is a surplus of £147. To those who remember, and still more to those who have fought through the old, bad times, when the Society was cumbered with debt, and fettered with obligations not of its own forging, this will be news indeed. No wonder the Council wished to retain the services of Mr. MORRIS on the Council, even if he could no longer act as Treasurer. No wonder that the questions asked at the meeting as to the strict regularity of certain of the proceedings in connection with that gentleman's re-election seemed to be, under the circumstances, somewhat unnecessary. No Treasurer for many years past has been able to show a surplus. To those who look to results without a thought of how results are obtained, such a state of things must bring unalloyed satisfaction. But many of us know that sometimes results, however apparently satisfactory, are really of little value in comparison with the sacrifices made to obtain them. This, we are happy to think, is not so in the present instance; the Society is more flourishing than it has been for years, and the labour

bestowed on its reorganisation by the Secretary, Treasurer, and Council is beginning to tell. Heartily do we congratulate them on their success, and the more so, because we are confident that the general principles on which they have hitherto acted will not be abandoned, but rather more energetically pursued as success illumines their efforts. In particular, we hope and believe that, as funds will permit, the state of Chiswick will be improved, and that the garden will be turned to account, as it should be, for horticultural experiments and horticultural education, not treated as is now unfortunately inevitable, partly as a market garden, partly as a means of supplying Fellows with plants which they might as well buy at the nearest florist's shop. Sir TREVOR LAWRENCE'S address was naturally little more than an expansion of the statements made in the report. As one who has stuck to the Society through all its days of misfortune and ill-repute, he must be not a little proud to see it emerging from its difficulties. He had the satisfaction of announcing an addition of over 300 new Fellows last year, and expressed the confident anticipation that the number would this year be increased by 500. Now that, to use his own words, "the franchise is lowered," and now that the *Journal* is regularly published, there seems no reason to think this estimate exaggerated. Mr. WILSON, who worked so hard for the Guinea Fellowship some years ago, may be congratulated on the progress made, even if it do not quite realise his sanguine expectations. The question of money prizes for amateurs was mooted, and is to be tried on a small scale this year. Doubtless the Council is wise in its gauge of human nature and its foibles, but prize-winning and competing for prizes are not very high aims to contend for, and bring many evils in their train. Love of plants and their culture is a higher object for a society like the Royal Horticultural Society to set before itself than the bestowal of pecuniary awards such as before now have so sadly crippled its resources. To our thinking, this work should be left to the special societies which make prize seeking one of their principal aims—or a special prize fund should be started to which those who like should contribute, whilst the funds of the Society proper would be released for higher and better, but no doubt less popular, purposes.

Thanks to Exhibitors and Committee have, as usual, been well earned, but never within our remembrance has the annual death roll-call been so laden with names, and never has the Society lost in so short a time supporters of such influential pre-eminence. We need not allude to the mournful record again, as it has already been commented on in our columns.

In reference to the work of the Society in the present year, we need say nothing more than we have already done, unless it be to mention the investigations on the effect of fog, which are being carried out by Dr. FRANCIS OLIVER and a sub-committee of the Scientific Committee.

Baron SCHRODER explained that the Horticultural Hall scheme was in abeyance for the present, owing to the state of affairs in the city. About half the amount required had been promised, and the Baron excited some amusement by vigorously lecturing the Fellows for their want of zeal and enterprise; but really the Baron talks of pounds, shillings, and pence, as if they were so many lumps of sugar, and ignores the fact that the drain upon the purses of the horticulturists was excessive during the past year. Several speakers took up the time of the meeting rather unnecessarily, by asking questions which showed their ignorance of the working of the Society—ques-

tions which would have been much more satisfactorily answered if put to the officials or the secretary beforehand. If satisfactory replies be not forthcoming, under such circumstances, then the annual meeting affords an opportunity for further enquiry or protest, but if otherwise the time of the meeting is wasted, and the speakers incur the impatience of the Fellows present.

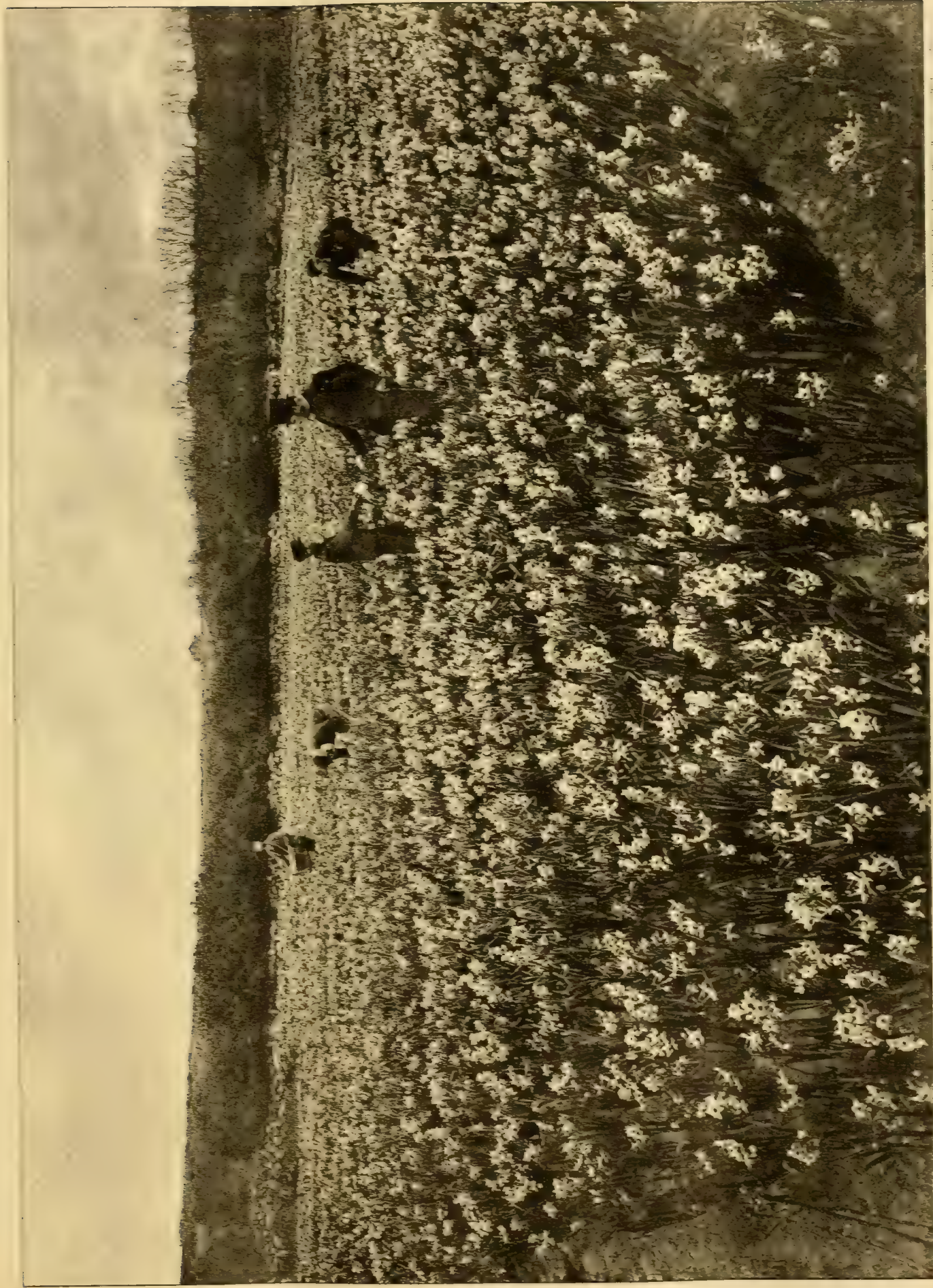
The usual votes of thanks were passed, and to none more heartily and more deservedly than to the Hon. Secretary, Rev. W. WILKS, who is emphatically the right man in the right place, and one who has won the confidence of horticulturists, a body not easy to please, not only by his energy, but by his way of enunciating what he thinks right and of disparaging what he feels to be wrong.

NARCISSUS CULTURE IN THE ISLES OF SCILLY.

—Those of our readers who were present at the Daffodil Conference and Exhibition held at Chiswick in April, 1890, will no doubt remember the paper on the "Progress of the Narcissus Culture in the Isles of Scilly," by Mr. T. Algernon Dorrien-Smith. This paper, published *in extenso* in vol. xii., part ii., of the *Journal of the Royal Horticultural Society*, is well worth the attention of all who are interested in bulbs and bulb-growing in the British Islands. The illustration (see Supplement), from a photograph by Mr. Gibson, of Penzance, gives a better idea of the way in which Daffodils (particularly those of the Tazetta group) flourish in the Isles of Scilly than we could hope to give by any mere verbal description. It represents a field of Grand Monarque on the farm of Mr. Trevellick, of Rocky Hill, St. Mary's. In 1887 and 1888, as many as ten tons of flowers, principally Narcissi, were exported from Scilly, and the rapid increase in the exports during the years mentioned, necessitated the construction of a larger steamer, and a considerable addition to the pier at St. Mary's. During 1890 the maximum export of flowers, on any one day, reached the startling total of fifteen tons.

HIBBERD MEMORIAL.—In our issue of to-day will be found a list of the subscribers up to Feb. 10. Mr. HIBBERD was so enthusiastic and so disinterested in his labours to serve all departments of Horticulture, that we cannot doubt that many will be glad of the opportunity of showing their gratitude to his memory by helping to make provision for his orphan child who is inadequately provided for. HIBBERD worked hard for horticulture, and he sacrificed his very life for it. One most gratifying announcement we have to make is, that every member of the staff of the Garden at Chiswick has spontaneously contributed to the fund. We hope many will follow so excellent an example. Subscriptions, small or large, may be sent to the Treasurer, Dr. MASTERS, or to the Rev. W. WILKS, Secretary of the Royal Horticultural Society, 117, Victoria Street, S.W.

M. V. LEMOINE.—We are enabled, by the courtesy of the editor of *Le Jardin*, to lay before our readers this week the portrait (p. 205) of one of the most distinguished hybridists. He has not only succeeded in making his name known as a business man, in which he would claim no other recognition than that which pertains to success, but he has largely enriched our gardens with the products of his own skill, and furnished ample material for the study and observation of the botanists. These are deeds which should ensure him the gratitude of all interested in horticulture. Pelargoniums, Begonias, Clematis, Gladioli, Fuchsias, Heliotropes, and many other genera have been developed and improved in a marvellous way under his hands, and every season brings forth fresh evidence of his skill. M. LEMOINE was borne at Delme, in 1823, gained experience under BAUMANN, of Bolwyler; and VAN HOUTTE, of Ghent; and in 1851 established himself at Nancy, whence have come all that series of novelties which have delighted the floral world. The hardy Gladioli are not the least remarkable results of his labours, as many had the opportunity of seeing for themselves at one of the meetings of the Royal



NARCISSUS GROWING IN THE SCILLY ISLES.

Horticultural Society last autumn, when M. LEMOINE's son contributed a paper which will shortly appear in the *Journal* of the Society.

LINNEAN SOCIETY.—At the meeting held on February 5, Prof. STEWART, President, in the Chair. Messrs. RICHARD BENTLEY and E. S. GOODRICH were admitted; and Messrs T. F. BOURDILLON, C. T. KEANE, and A. M. MARSHALL were elected Fellows of the Society. Mr. CLEMENT REID exhibited and described some recent additions to the fossil arctic flora of Britain. Mr. THOMAS CHRISTY exhibited and made remarks on some specimens of honey: (1), "Arbutus honey" from Turkey, said to produce great drowsiness and sleep; (2), "Eucalyptus honey" from Mount Barker, Adelaide, said to possess valuable therapeutic properties; and (3), so-called "wool honey" from the Euphrates, collected by natives from the leaves of the Oak, and which would be more properly termed "honey-dew," being formed by aphides, and not by bees. On behalf of Mr. GAMMIE of Sikim, Mr. C. B. CLARKE gave an abstract of an interesting paper on "The Tree Ferns of Sikim," in which several moot points were discussed, and difficulties cleared up. At an evening meeting to be held on February 19, 1891, at 8 P.M., the following papers of horticultural interest will be read:—"The Dillenian Herbarium," by G. C. DRUCE, F.L.S.; and "Some points in the life-history and Rate of Growth in Yew trees," by Dr. JOHN LOWE, F.L.S.

THE CHINESE PRIMROSE.—The exhibition by Mr. MYLES of this plant on Tuesday last at the Scientific Committee, was an event strictly comparable to the display of the papyrus manuscript of Aristotle, of which we have heard so much lately. At the Primula Conference the discovery of the wild form, previously unknown, of *Primula sinensis* by the Abbé DELAVAY, M. WATERS, and Dr. HENRY, at Ychang, was mentioned, and since that time we have given particulars of Dr. Henry's plant; but it was not till this autumn that we had the privilege of seeing in the gardens of Appley Towers, Ryde, under the charge of Mr. MYLES, living plants which we immediately recognised as in all probability specifically identical with those collected by Dr. HENRY. This impression is now confirmed by Mr. MYLES, who tells us that the seeds were sent home from Ychang by Mr. PRATT. All previous importations have been derived from plants cultivated in the florists' establishments of Canton and other ports. Some of Mr. MYLES' plants have passed into the hands of Messrs. SCROON, so that we cannot doubt we shall in due course hear of some interesting experiments, and probably some new developments. The foliage of the wild plant is slightly fragrant, and the small flowers are of a pink colour. The florist pure and simple will not see much to admire in the aboriginal form in comparison with the magnificent samples now grown, but those who are interested in the origin and development of the flowers, and of their potentialities in the future, will view the introduction with the greatest interest.

GOSSIP FROM THE SALE ROOMS.—Mr. J. C. STEVENS on Thursday, February 5, passed a large lot of Lilies under the hammer, including 50,000 *Lilium auratum*, which seemed to go well; and the flowering Orchid sale at the same Rooms on February 12, included the very rare *Coclogyne hololencia*, some fine *Cypripediums*, hybrid *Dendrobiums*, and varieties of *Lælia anceps*. Mondays and Wednesdays at the Great Central Rooms of Messrs. PROTHEROE & MORRIS continue to produce thousands upon thousands of hardy plants, Lilies and other bulbs, Tuberoses, Begonias, &c., in ever-changing variety. A feature in their sale on Wednesday, February 4, was 1000 stems of *Cycas revoluta*, from Japan, and dried leaves of *Cycas*, and stems and plumes of *Eulalia japonica*, for decorative purposes. On Friday, February 6, those at the City Rooms saw the first good importation of the season of *Vanda cœrulea*, from Messrs. HUGH LOW & Co., who always send good examples. The plants had many flowers, and they sold well; one huge mass, with thirty-five stems, gave evidence of being

very floriferous, realizing 40 guineas. It goes to the Tring Park Collection. Messrs. Low also sent a fine lot of *Vanda Kimballiana*, and some of the rare *Saccolabium bellinum*; and Messrs. CHARLESWORTH, SHUTTLEWORTH & Co., occupied half the number of lots, with good things in fine condition, their plants of *Oncidium macranthum*, with spikes, being grand.

ORCHIDS FROM CHELTENHAM.

From Mr. JAMES CYPHER, Cheltenham, came flowers of *Lælia anceps Schroderiana*, one of the finest of white aneeps, the broad, flat front lobe of the lip and bright purple markings on the side lobes rendering it very distinct; also an example of *Lælia anceps Williamsii*, taken from a plant with six spikes; a spray of seven flowers of *Masdevallia Schlimii*, and a flower of a very beautiful form of *Cattleya Trianae*. It has the crimson tip and feather to the petals of *C. T. Backhousiana*, and also the rich dark purplish crimson front lobe to the lip as in that variety; but the lighter portions of the petals, and the sepals are of a lavender tint, almost white in places. It is a very showy and pretty form.

THE NATIONAL DAHLIA SOCIETY.—The annual meeting of this Society took place at the room of the Horticultural Club, Hotel Windsor, on Tuesday, the 10th inst., Mr. E. MAWLEY in the chair, there being a good attendance of growers of the Dahlia. The report stated that the exhibition at the Crystal Palace in September last was not so large as in previous years, owing to a frost which happened a few days previous, but the quality of the blooms were good throughout. The number of members of the Society is not so large as could be desired, but an effort was being made to secure additional members. Allusion was made to the loss the Society had sustained by the death of JAMES MCINTOSH, SHIRLEY HIBBERD, and WILLIAM HOLMES. The financial position appears to be quite satisfactory. The balance from last year was £23; subscriptions had amounted to £85 14s., and the Crystal Palace authorities had given £50; the total income being £163 6s. 10d. The expenditure, including £118 17s. paid in prizes, being deducted, left a balance of £32 18s. 7d. to be carried forward. The report was adopted, and also a resolution that for the future the minimum subscription should be 5s. annually. The President and Vice-Presidents were elected, Mr. GEORGE GORDON being placed among the latter in the place of the late SHIRLEY HIBBERD. The committee were re-elected, with a few additions; so was the Secretary, Mr. T. W. GIRDLESTONE, he being authorised to obtain such clerical assistance as he may require. Mr. GIRDLESTONE reported that it is the desire of the Crystal Palace authorities that the exhibition in the present year take place on Friday and Saturday, September 4 and 5, which was agreed to. Three new members were elected. At the close of the meeting, Dr. MASTERS called attention to the Hibberd Memorial Fund, and urged the supporters of the Dahlia Society to co-operate in making it a success.

FLORAL DECORATIONS AT BIRMINGHAM.

The Mayor of Birmingham gave a fancy dress ball on the 5th inst., in the Council House, when the floral decorations were entrusted to Messrs. WILLS & SEGAR, of Onslow Crescent, London, and were carried out in a most elaborate and artistic manner. The entrance hall, and spacious staircase with the seven large windows, lend themselves readily to the decorator's art, and a profusion of large Palms, and other plants, and a great number of flowering plants were freely used. The corridors, banquetting, reception, and other rooms, absorbed a very large number of plants, and the whole of the floral decorations were on a lavish scale. The new corridor leading from the Council house to the art gallery was artistically decorated, and two to three thousand of Tulips and Hyacinths were used with various other plants. Lofty Palms, Kentias chiefly, were freely used about the building, and a large supply had been obtained by Messrs. WILLS & SEGAR from Cannes of cut Bamboo, Palm fronds and tree

Fern foliage, which were used with great taste and effect, and a large number of Orchid blooms were also used. There was a profuse supply of Azaleas, both of the indica and mollis sections, Hyacinths, Lily of the Valley, Orchids, Cinerarias, &c., besides smaller Ferns, Palms, Lycopods, and a great variety of other things. Eighteen railway trucks were required to bring the plants from London, and Messrs. HEWITT & Co., of the Solihull Nurseries, also assisted Messrs. WILLS & SEGAR, by supplying a quantity of plants and cut flowers.

HORTICULTURAL MEETING AT GHENT.—At the February Horticultural Meeting, Certificates of Merit were awarded for the following plants:—1. To *Cypripedium Leeaenum superbum maximum*, from M. Jules De Cock; the upper sepal, which is exceedingly broad, is much spotted with purple. 2. To a species of *Restrepia*, shown by M. L. De Smet Duvivier; a little wonder, the lower sepals of which do not bear small black spots on a purplish-brown background, as do those of *R. antennifera*, but have a golden background with parallel lines (running lengthwise) of a deep velvety-crimson. 3. To *Lælia Gouldiana* (unanimously awarded), from M. le Notaire Moens; splendid as to colouring. 4. To a *Vriesia*, from seed obtained from *fenestralis* × *guttata*—a very fine variety. 5. To *Rhapis humilis*, from M. Aug. van Geert. 6. To *Cypripedium insigne maximum*, from the same exhibitor; a pretty variety, with very broad petals. 7. To *Cattleya Trianae Titine* (unanimously awarded), a delightful variety, from MM. Edm. Vervet et Cie. 8. To *Odontoglossum Alexandræ*, from the same exhibitor, a notable variety with close clusters of large fine flowers. 9. To a species of *Lælia* (variety of *elegans*?) with the rounded lip of a *Cattleya*, and with sepals of a salmon shade; also shown by MM. Vervet et Cie. 10. To *Odontoglossum Humeaenum* from M. A. A. Peters (unanimously awarded), a splendid hybrid from *cordatum* × *Rossi*. 11. To a *Pandanus* from seed, from MM. Aelterman et Cie. 12. To *Lycaste Skinneri nigro-rubra* from M. Van Imshoot, a most remarkable variety. 13. To *Vanda Cathcarti* from M. Jules Hye-Leysen, with splendid blooms with concave segments, white outside and yellow barred with transverse lines of cinnamon red inside. 14. To *Lælia anceps Hillii* from M. Van Imshoot; a noteworthy specimen. Certificates for well-flowered plants were awarded:—1. To *Schomburgkia undulata* from M. Van Imshoot. This species is difficult to bloom, and rarely does so; the variety shown is one of the most beautiful. 2. To *Odontoglossum Pescatorei* var. *alba* from M. Hye-Leysen, bearing an exceedingly beautiful raceme. The handsome *Odontoglossum hastilabium* shown by the same Orchid grower, received a certificate for good collection. The following plants obtained honourable mention:—1. *Utricularia montana*, which flowers very rarely at this season, shown by M. L. De Smet Duvivier. 2. To *Pandanus*, raised from seed, from MM. Aelterman et Cie. 3. To *Cypripedium Leeaenum superbum*, from M. Aug. Van Geert. 4. To *Odontoglossum blandum*, from M. Moens. 5. To *Cattleya Trianae delicata*, from MM. Vervet et Cie. 6. To *Cattleya Trianae formosa*, from the same exhibitors. 7. To *Dendrobium pycnostachyum*, from M. Van Imshoot; and 8. To *Odontoglossum nebulosum* var. *purpureum*, also shown by M. Van Imshoot.

FLOWERS AT THE FUNERAL OF PRINCE BAUDOUIN.

—Among the many beautiful wreaths sent to the Palace of S. A. R. le Comte de Flandres, in honour of the memory of the lamented Prince BAUDOUIN, we must especially mention the following—that sent by Her Majesty Queen VICTORIA, was composed of white *Chrysanthemums*; ELIZABETH, Queen of Roumania, sent one of white Lilac and Lily of the Valley; the Emperor of GERMANY's was half of Laurel leaves and half of White Roses. The Prince and Princess of WALES sent a wonderful little wreath composed of pure white Lilies and rare Orchids. From the Officers of the regiment of Carabineers was received a tribute composed of Orchids, Lilac, Lily of

the Valley, Pinks, Roses, Gardenias, Eucharis, and Cycads; from the Cercle l'Union de Bruxelles, were sent only white Orchids and Palms (Areca); some students of the Brussels University sent a splendid wreath of Palm (Phoenix), Lilac, White Roses, and Orchids; l'Ecole des pupilles de l'armée, sent mauve Orchids, and white Lilac. Other wreaths were composed of white Lilac, Orchids, and Camellias; of white Lilac (branches of it), Orchids, Camellia, and Lilies of the Valley; of Camellia, white Lilac, and Tulips; of Orchids, Lilac, and Phoenix; of Orchids, Pinks, and white Lilac; of Orchids, Roses, and Lilies of the Valley. Violet and white flowers predominated, and the appearance of the masses of delicate colour was a touching proof of the affection felt by the Belgians for their Prince, and of their sorrow at his loss, in which feelings Englishmen respectfully sympathise.

THE BIRMINGHAM GARDENERS' ASSOCIATION.—At a meeting on the 2nd inst., Professor HILLHOUSE, Professor of Botany at Mason's College, gave a very instructive lecture on "Smatterings," and a social evening meeting took place on the 4th inst., when a large number of members and their wives had tea at one of the principal hotels, and a pleasant musical evening after, Mr. W. B. LATHAM presiding. The Association is a very strong one, numbering about 300 members, and possessing a valuable library for the use of members, who have the privilege of taking the books to their homes, subject to certain regulations.

PRESTON AND FULWOOD HORTICULTURAL SOCIETY.—A meeting of this Society was held on Saturday evening, February 7, at the "Castle" Hotel, Preston, the principal business being to consider the causes of the failure of last year's Apple crop. The secretary had written to some of the most noted fruit growers in the country for information on the subject, and it was laid upon the table. Papers were read from Mr. Robert McKellar, Abney, Cheadle; Messrs. G. Bunyard & Company, Maidstone, Kent; Mr. W. Horn, Perry Hill, Cliffe, near Rochester; and Mr. Lee Campbell, Glewstern Court, Ross. At the conclusion of the discussion, the following declaration was made:—"The papers read prove conclusively that in Herefordshire and Kent the failure was due to the caterpillars. In the Preston district some trees were infested by caterpillar, but in the opinion of the meeting the loss of crop was mainly caused by the cold east wind and wet of the spring of 1890." Mr. Spelman exhibited at the meeting a curious specimen of the sweet-scented Azalea; and Messrs. Cannell & Son, Swanley, Kent, a quantity of Primula blooms.

BAMBUSA KURILENSIS.—This is a Bamboo occurring as its name implies, in the Kurile Islands, which are covered with snow and ice from November to May, and which should therefore be looked after by our plant importers as likely to be valuable. M. MIRABE says it forms almost impassable thickets in the island of Etorofu.

STARCH FORMATION.—The formation of starch in leaves is, as is well known, a measure of their activity, dependent on the amount of light and heat to which they have been subjected. This is true as a general statement, but M. MEN has recently shown before the Académie des Sciences, that the energy of starch formation varies greatly in amount during the season from causes not yet understood. In spring it is at its maximum, at the end of summer it is at its minimum.

VEGETABLE PRODUCTS IN MALAGA.—In a report of the British Consul at Malaga, dated October 13, 1890, it is stated that the Cork, or Corkwood, as it is generally termed in commerce, which is produced in the province of Malaga, and more especially in the districts of Cortes and Gaucia, in the hill country of Ronda, is perhaps the finest and the best in the world, and is, therefore, eagerly sought and paid for at high prices. The Cork is stripped off the trees every ten years, that being the time

required for it to attain the thickness sufficient for the purposes to which it is destined. Last year's production was a short one, as the turn for stripping fell to only a limited number of the plantations. The Vice-Consul at Garruelia says that attention has been paid in that district to the growing of scent-producing plants, and some plantations of the lemon-scented Geranium have been made successfully in Vera and in the Cabrera hills, where an experimental establishment for the extraction of the essential oils has been put up. The climate is specially suited to the growing of such plants as those just mentioned, as well as Heliotrope, Gardenia, Lavender, &c., and wherever irrigation can be obtained, very large profits can be made in this way. Rosemary, Thyme, and a kind of Lavender (*Lavandula Stœchas*) grow wild upon the hills in considerable quantities. The Eucalyptus has been introduced for some years, and grows with marvellous rapidity wherever it can obtain moisture. It is sufficiently matured for use in timbering mines at seven years, and if successive plantations of seven sections, say, were made each year, they would begin to yield large returns from year to year after the first seven.

MEDICINAL EFFECTS OF CYCLAMEN ROOTS.—Since Mr. Warren alluded to this subject in his recent lecture before the Royal Horticultural Society, we have referred to various books, from which we learn that in Pliny's time the rootstocks were used to poison arrows, and kill fish; for which latter purpose, says Cornevin, in his *Plantes Vénéneuses* (1887), p. 425, they are still used in Italy. The poison is dissipated by heat, so that when cooked the corms might be eaten with impunity. The effects produced are very varied in different cases; thus, while they are very poisonous to human beings and to fish, they are greedily eaten and without harm by pigs. Owing to the change effected by heat, it appears from experiments made at Naples, that fish poisoned with this substance, and subsequently cooked, may be eaten with impunity. The poisonous principle is called cyclamin, and belongs to the series of substances chemically known as glucosides, and is formed by the association of two substances allied to sugar glucose and mannite.

THE KEW GARDENS EMPLOYEES.—A resolution was passed at a public meeting of the inhabitants of Richmond, held on Wednesday evening last, February 11, over which Sir J. WHITTAKER ELLIS presided, to the effect that the wages paid to the labourers and constables employed in Kew Gardens were insufficient.

THE UNIVERSAL PROVIDER.—Some interest was expressed at the appearance before the Orchid Committee on Tuesday of an exhibit from Mr. WHITELEY. Why any surprise should have been felt is not so evident. In any case it was a triumph for the exhibitor, for he obtained a first-class certificate for *Odontoglossum triumphans*, Whiteley's variety—a fine thing it was too, but we do hope he will not call it Whiteleii, or he will incur the displeasure of others besides *Black and White*.

CYCLAMENS AND PRIMULAS AT MESSRS. SUTTON & SONS.—As the season advances and brighter days arrive, Primulas and Cyclamens attain their full beauty; and one of the large establishments where these favourite plants are well grown is that of the celebrated Reading firm of seed merchants. House after house is filled with them in great variety, affording undeniable evidence of skilful hybridisation, guided by the closest observation. A fuller account of what is to be seen there will appear in our next issue.

"BLACK AND WHITE."—The new illustrated weekly journal issued under this name, is beautifully got up so far as paper and type go. The woodcuts are also excellent, and the advertisers are favoured with thick, sized paper, which brings out their cuts, but which excites fear as to postal weight in the

future. We note with some interest that no less than half a column of this new venture is occupied with a paragraph on the enormities of botanical nomenclature. The "copy" awaiting insertion in our own columns is so excessively overwhelming just now, that we cannot venture to discuss the subject with our new contemporary, but we must confine ourselves to stating that his attempt to whitewash Linnaeus in this matter shows pretty plainly that his acquaintance with the *Genera Plantarum* is not profound.

W. N. WHITE & CO. (LIMITED), COVENT GARDEN MARKET.—The annual staff-dinner of the above company of fruit and general produce brokers was held on Tuesday evening, the 3rd inst., at the Holborn Restaurant. Mr. W. N. WHITE, the Managing Director of the Company, presided. On responding to the toast of "Prosperity to the Firm," coupled with his name, which was proposed by Mr. W. J. WYATT, the Secretary, Mr. WHITE observed that the affairs of the Company were never in a more prosperous condition than at the present time, and stated that the gross sales for the year 1890 represented the sum of £251,700, and this notwithstanding the failure of the fruit crops in England. He was more than pleased to say that the year's returns would show a dividend of 10 per cent., carrying forward to the suspense and reserve account an amount that if it could have been cleared up would have been equal to a further 10 per cent.

BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.—From the list of those published in the *Journal of Botany* for January, we extract the following as being interesting to horticulturists:—

"THOMSON, THOMAS (1817-1878): b. Glasgow, Dec. 4, 1817; d. London, April 18, 1878. M.D., Glasgow, 1839. F.L.S., 1852. F.R.S. Surgeon, Bengal Army. Prof. Bot., Calcutta Medical Coll. Superintendent, Calcutta Bot. Gard., 1851. 'Flora Indica' (with J. D. Hooker), 1855. 'Western Himalayas and Tibet,' 1852. Collected in Cabul, Kashmir, &c. Plants at Kew, Brit. Mus., &c. Jacks. 612; R. S. C. v. 976; viii. 1030; Gard. Chron. 1878, i. 529; Journ. Bot. 1878, 169; 'Nature,' xviii. 15; Proc. Geogr. Soc. xxii. 300. Crayon portr. at Kew. *Hedyotis Thomsoni*, Hook. f.

"THWAITES, GEORGE HENRY KENDRICK (1811-1832): b. Bristol, 1811; d. Kandy, Ceylon, Sept. 11, 1832. Ph.D. F.L.S., 1854. F.R.S. C.M.G., 1878. Local Sec. Bot. Soc. Lond., 1839. Lectured at Bristol, 1846. Superintendent, Peradeniya Bot. Gard., 1849; Director, 1857-1880. Contrib. Bristol list to Top. Bot. and to 'Phytol.' from 1841. 'Enumeratio Pl. Zeylanicæ,' 1853-64. Described *Dasygloria amorphia* for Eng. Bot. (2941). Pritz. 318; Jacks. 612; R. S. C. v. 939; Proc. Linn. Soc. 1832-83, 43; Gard. Chron. 1874, 438, with portr.; 1882, ii. 505; 'Athenæum,' 1882, 500. Portr. Kew. *Thwaitesia*, Montagne. *Kendrickia*, Hook. f.

"TOWERS, GEORGE JOHN (fl. 1834-1847). 'Potato Disease,' Journ. Hort. Soc. ii. 1847, 31; iii. 1848, 22. 'Absorption of coloured infusions by roots,' Trans. Hort. Soc. ii. 41. R. S. C. vi. 16.

"TOWNLEY, JOHN (fl. 1833-1847). Of Preston. Agricultural writer. 'Diseases of Potato,' 1847. Jacks. 102.

"TRADESCANT, JOHN (d. 1633): b. in Holland; d. in Lambeth, Aug. 1638; bur. Lambeth. Gardener to Charles I. Went to Algiers 1620, and travelled through Europe, Egypt, &c. 'Museum Tradescantianum,' 1656, with portr. by Hollar. Rees; Ger. em.; Parkinson; Phil. Trans. xlvii., with portr.; London, 'Arboretum,' 40, 49; M'chaud; Lysons' 'Eavirons of London,' i. 240. Portr. in Nichols' Illustr. to Granger. *Tradescantia*.

"TRADESCANT, JOHN (1608-1662): b. Meopham, Kent?, 1608; d. Lambeth, April 22, 1662; bur. Lambeth. Gardener to Charles II. Son of preceding. Introduced *Tradescantia*, *Liriodendron*, &c. Pritz. 321; Evelyn, 'Sylva,' ed. Hunter, i. 207;

Loudon, 'Arboretum,' 49 50; Cott. Gard. iv. 289; viii. 3; Michaud; Felton, 92. Portr. by Hollar in Phil. Trans. xvi. and lxiii. 'Museum Tridescantianum' and Nichols' Illustr. to Gran Portr. at Kew and at Ashmolean Museum, Oxford.

'TRAILL, CATHERINE PARR, *nee* STRICKLAND (1801-1889): b. Suffolk?, England, 1801?; died in Canada, 1889? Sister of Agnes Strickland. Of Lakeside, Ontario. To Canada, 1832? 'Canadian Wild Flowers, 1869.' 'Studies of Plant-life in Canada,' 1884. Jacks. 366. Portr. prefixed to 'Studies.'

'TRAILL, JAMES (fl. 1827). Gardener at Chiswick. A.L.S. 1827. 'Hoya,' Trans. Hort. Soc. vii. 16. R.S.C. vi. 18.'

KUDZU.—Under this name has been introduced into France a plant which, it may be hoped, may soon be found on this side of the Channel also. It is one of those plants which the Horticultural Society should be foremost to introduce at Chiswick. The plant in question is the *Pueraria Thunbergiana* of BENTHAM, the *Pachyrhizus Thunbergianus* of SIEBOLD and ZUCCARINI, and is figured in the Japanese botanical works. Mr. GUMBLETON kindly sends us the following particulars:—

Pueraria Thunbergiana or *Kudzu*.—This most interesting and also beautiful Japanese flowering and trailing shrub is described and figured in the current number of the Paris *Revue Horticole*, by Monsieur E. A. CARRIÈRE, one of the joint editors of that periodical. This plant has been introduced into cultivation, and is to be obtained from M. PAUL DE MORTILLET, à la Trouche, près Grenoble, Isère, France. It is a perfectly hardy leguminous plant, of a trailing habit of growth, and an exceedingly rapid grower; and besides bunches of ornamental flowers somewhat resembling those of the *Wistaria*, of a violet colour shading into purple, it possesses also several very valuable and remarkable economic properties. According to Comte de Castillon, the Kudzu is at once an ornamental plant from its flowers, a forage plant from its leaves, which are much sought after by cattle; a medicinal plant from its roots, its flowers, and its pods; and equally an economic one from its roots, which yield an abundance of an excellent flour as nutritive as that of the Potato. It is useful also for its long and supple bows, which, being exceedingly tough, can be used as ligaments. The Japanese manufacture from its peeled stems an impermeable cloth of excellent quality. The flour obtained from its roots is, from the personal experience of the above-named authority, of admirable quality, and can be used for soups in the same way as tapioca. The stems can be used for all tying purposes like those of the osier, and no plant will so quickly cover a bare wall or any other bare or ungarnished surface. The roots are of great size, and exceedingly numerous. They are partly fibrous, and partly of woody texture; it is useless, therefore, to think of using them, save by extracting from them their flour. This is done by grating them into a bucket of cold water, when the flour or fecula falls to the bottom. This flour is of excellent quality, and keeps good for a number of years. It is sweet, pleasant and delicate to the taste, of fine texture, and without smell of any kind. It swells enormously when cooked, so that a tablespoonful is sufficient to fill a soup plate. For a full and careful description of all the qualities of this curious and valuable plant, the reader must be referred to an article on it by Messrs. Paillieux & Bois in a recently published work entitled *Le Potager d'un Curieux*, to be obtained at the Librairie Agricole, 26, Rue Jacob, Paris.

PARASITIC FUNGI IN RELATION TO PLANT DISEASE.—The following is the syllabus of the lectures on Plant diseases, to be delivered before the Royal College of Surgeons of England, by Prof. FLOWRIGHT:—

Lecture I.—Monday, February 16. Phytopathology in its General Aspect.—General remarks. Saprophytes and parasites. Fungoid plant-disease contrasted with animal disease. Heredity. Epidemics. Hypertrophy: (a) general, (b) local. Semimalignant diseases. The Larch disease. The black

knot. Malignant disease. Plasmodiophora. Diseases of Traumatic origin. Canker. Gummosis. Hymenomycetous parasites. Wet and dry gangrene. Constitutional states: anæmia; plethora. Sterility. Concluding remarks.

Lecture II.—Wednesday, February 18. The Potato Disease.—The outbreak in 1845. Morphology and physiology of the *Phytophthora infestans*. Influence of temperature. Geographical distribution. "Wet-rot," *Bacillus amylobacter*. Hybernation of the *Phytophthora* mycelium. Protective expedients. "After-sickness." Protective moulding. Remedial measures. The copper treatment: its effect on allied parasites. M. Jouet's experiments



FIG. 49.—PERONOSPORA, TOBACCO DISEASE.

and their results. M. Prillieux. J. H. Bunzli. C. M. Weed. Prof. Girard's observations. Composition of the Bordeaux mixture.

Lecture III.—Friday, February 20. The Heterocismal Uredinæ.—Historical notice. Structure and function of the *Æcidio*-, *Uredo*-, and *Telentospores*. Causes of Heterocism—(a) Physiological, (b) Physical. Association of Host-plants. Favourite *Æcidial* hosts. Favourite *Telentospore* hosts. Suppression of spore-forms. Preponderance of spore-forms. Survival of rare species. Localisation of species. Effects of cultivation. Period of development. Perennial Mycelia. Formation of Starch; of xanthophyl. Concluding remarks.

THE FROST.—It is as yet too soon to realise the amount of damage this has done; but, we have an impression, nevertheless, that it has been less injurious than some of its predecessors. One thing is remarkable, and that is, its dissimilar effect on different varieties of the same species. On a wall in a garden at the East of London, there is a collection

of various kinds of Ivy planted about twenty years since. Some of these, the leaves are all dead, browned through as if parboiled; whilst others are scarcely at all injured. This is not attributable to differences of age or exposure, but solely to differences in texture and substance, such as characterise the variety. Fine old Hollies in the same garden, have lost, or are losing all their leaves, and the fall is most perceptible in the variegated forms. Such varieties as Hodgens and large broad-leaved green forms are uninjured.

SPINES IN PLANTS.—M. A. LOTHÉLIER has shown by experiment that plants like *Berberis*, *Gorse*, or *Hawthorn*, produce spines more freely in direct proportion to the degree in which they are exposed to the light.

A NEW POPLAR.—Mr. T. S. BRANDEGEE distinguishes, in the November issue of *Zoe*, a new Poplar of Lower California under the name of *Populus monticola*. It inhabits the high mountains of the Cape region in the extreme southern part of the peninsula, growing along streams and following down the cañons toward the warm lowlands. Young trees have a smooth, light-coloured bark similar to that of the Aspen, but it becomes very rough on old specimens. At elevations of 5000 feet it is rarely more than 20 feet high, but at lower altitudes it becomes a large tree nearly 100 feet high, and is a favourite support for the wild Grape-vine. The wood is described as light red in colour, and is said to be used in making furniture. The new growth is densely tomentose. The leaves are round-ovate, with a short point, variably sinuate-crenate or dentate silky-pubescent upon both sides, especially upon the veins, with terete, white-tomentose petioles; the stipules are linear and the bud-scales white-silky; the capsules are ovate, densely white-silky tomentose, two to three-valved; styles usually two, united at the base, each with two narrow divisions. The disk is small and nearly flat; scales minutely sinuate-dentate, nearly glabrous. "This tree is known by the name of 'guerigo' to the inhabitants, who distinguish it from the common one of the fields and gardens called by them 'alamo'. The leaves and flowers appear in February, and in October all have fallen, a season of growth usual in Alta California, but very different from the ordinary habit of the plants of the Cape region of Baja California, where most of the vegetation comes forward with the summer and fall rains, at the time when the cotton-woods are losing their leaves and appear to be preparing for a winter, which, however, never comes," *Garden and Forest*.

RHODODENDRONS IN NOVA SCOTIA.—Professor GEORGE LAWSON, of Halifax, in *Garden and Forest*, calls attention to the interesting fact that *Rhododendron Catawbiense* is likely to become naturalized in Nova Scotia. "It is nearly twenty years ago," he writes, "since I imported a few hundred *Rhododendrons* from Edinburgh. Many died; but all of the *Catawbiense* blood survived, and have grown enormously. They seed very freely, and spontaneous seedlings are now seen peering out of mossy banks at long distances from my grounds. *Quercus sessiflora* is also spontaneous here with the *Rhododendron* from acorns of trees planted about the beginning of the century."

TOBACCO DISEASE.

IN his note on the above subject, Dr. Cooke seems to have fallen into error when he says that *Peronospora hyoscyami* (fig. 49) is "confined apparently" to *Hyoscyamus*. He does not tell us what species of Tobacco he refers to under the Tobacco of Australia. *Peronospora hyoscyami* has, according to Professor W. G. Farlow, badly attacked for the last four years *Nicotiana glauca* in Mexico and California, and great fears have been entertained in America of the pest spreading to the Tobacco-growing districts of Virginia. W. G. S.

PLANT PORTRAITS.

ANTHURUM RUNDISPATHEUM X, *Illustration Horticole*, t. 119.—A hybrid of *A. Andreanum* by A. Linden. The leaves are sagittate lanceolate, bright green, the spathe roundish in outline, deeply cordate at the base, with rounded lobes, and with a rather thick yellow spadix. Hort. Linden.

CATTLEYA LABIATA, Auguste Victoria, *Gartenflora*, t. 1337.

CATTLEYA BICOLOR, *Orchidophile*, January.

CATTLEYA ALBERTI, *Orchidophile*, 1890, p. 322.

CONVOLVULUS MAURITANICUS, *Garden*, Jan. 17.

LILIUM HARRISI, *Revue de l'Horticulture Belge*, February 1.

PHAIUS TUBERCULOSUS, *Gartenflora*, t. 1339.

RHIPSALIS TRIGONA, *Gartenflora*, 1891, p. 39.

ROSE, SULTAN OF ZANZIBAR, *Rosenzeitung*, January

SORRALIA MACRANTHA, *Revue de l'Horticulture Belge*, February 1.

VANDA CEREULEA, *Orchidophile*, 1890, p. 369.

VERBENA NORDLICHT, *Gartenflora*, t. 1338; fl. large, crimson-scarlet.

NOTES FROM BIRMINGHAM
BOTANIC GARDENS.

SCHOMBURGKIA UNDULATA.

A PSEUDO-BULBOUS Orchid, and a native of New Granada, is now blooming in the Birmingham Botanical Gardens, and has four long pendent flower-stems, with five blooms at the point of each. It is more curious than beautiful, the sepals and petals brownish-purple, with deeper purple lip. The Schomburgkias succeed in a Cattleya-house, either on blocks or in baskets, or in pots, giving a liberal supply of water when growing, after which withholding water until the plants show flower.

TRICHOMANES RADICANS.

Mr. Justice Wills has recently presented to the gardens a remarkably fine pan of this well-known Killarney Fern, the plant measures 4 feet across, and is in robust health. A glass partition has been arranged in the Todea-house specially for this plant, and Mr. Latham has planted it out with a rockwork arrangement about it. It is a grand mass, and Sir Alfred Wills sent it from Esher, as he has always taken a great interest in the Botanic Gardens here, and always visits them when at the Birmingham Assizes, or on a visit to his brother, Mr. A. J. Wills, J.P., at Wyld Green.

RHIPSALIS PENTAPTERA.

A collection of Cacti is now seldom met with but in botanical gardens, and there is a good collection here, Mr. Latham paying great attention to them. Now in bloom are plants of this species of *Rhipsalis*, a curious and interesting plant, of low growth, and flat-stemmed, the flowers appearing freely in the crenations of the branches; and on one plant there are 200 blooms and buds, which are very small, and of a yellowish-white colour. None of the plants exceed 1 foot in height. D.

HOME CORRESPONDENCE.

KOHL RABI.—Our gardens are everywhere, away from the sea coast, bare of green vegetables, excepting the very hardy Scotch Kales with dwarf stems, Cottager's and Delaware Kales. Brussels Sprouts are gone in most gardens, as are the Savoy. In winters of exceptional coldness, we learn to value Kohl Rabi, which is as easily grown as a Turnip, but requires much less space, and is delicious when cooked properly; which, I may remind my readers, is not to "throw them into water with a pinch of salt," a la Cabbage, Turnips, &c., but stewed in a kind of sauce, after being cut up to the size of dice. As to cultivation, it may be sown forthwith, for hot-beds; again, in about a month in pans, in intermediate warmth, for pricking-out and hardening for out-of-door planting on a warm border in April; and again sowing early in April, and at monthly

intervals to the middle of July out-of-doors. The roots from the last sowing, which should be a large one, may be taken up before they become woody, and stood in a cellar which has some amount of light, for owing to the roots decaying if the heart-leaves be cut off there must be light enough to favour growth. No Kohl Rabi of even the tenderer and best Vienna kinds, it may be said, are good for human stomachs if allowed to get larger than a cricket-ball, and they should always be pulled when they have reached that size. As a rule, they are fit for use when big enough, and the produce from a hot-bed when of the size of a Cox's Orange Pippin. *Non-Vegetarian.*

EARLY PEAS OF FIFTY YEARS AGO.—Young gardeners will do well to read the excellent article on Early Peas, in the *Gardeners' Chronicle* of January 24, p. 105, by Mr. J. Douglas, of Ilford. Fifty years ago, I gathered early Peas in the last week in May, from seed sown at the end of January or early in February. I attribute part of my success to making the bed for the seed solid, instead of merely drawing a drill with the hoe. I made a trench by treading the ground deep enough to sow; and having sown the seed, I again trod the soil, pressing the Peas into the solid earth; and to prevent mice taking them, I made a mixture of soot and sulphur, and sprinkled it thinly over the Peas, and then covered them up in the usual manner. The early sorts then in cultivation were—Early May, Early Warwick, Prince Albert, and Nimble Tailor. Early May produced the best pods. After fifty years experience, I find that land otherwise well prepared, is not as a rule made solid enough for a bed for the seeds. *George Taber (Cooper, Taber, & Co. Limited), Rivenhall, Essex.*

SINGLE PRIMULAS FOR CUT BLOOM.—It has often been said that the blooms of single Primulas are unfit for use in a cut state, on account of their brief duration when cut from the plant. My experience does not quite coincide with this statement. Many times have I used these flowers in a cut state with very good effect, and no other flower lights up better by artificial light than single-flowered Primulas; and they cannot be objected to on the score of fading quickly, as they keep quite fresh for six days after cutting at this season, which, I take it, is long enough for any flower to last. More than the usual care is needed in handling them when cut, not throwing them carelessly into a basket; or when placing them in glasses, as the stickiness of leaves and stems cause the flowers to be pulled out of their sockets. It may be that the damage due to rough treatment only has brought the single Primulas into bad repute, as cut flowers, not any inherited fault in the flowers themselves. The flower-spikes should be cut when fully developed—not sooner—and carefully placed in the glasses. No fault can be found with the duration of the blooms. In the matter of greenery, nothing associates better with these flowers than their own leaves, if these have the deep green colour of health. Where Primula blooms are liked, it is a good plan to keep plants for two years, these older plants affording three times the number of flower-spikes as those of one year old, the increase in the number of the flowers being due to the additional crowns which the plants make after the first crop of flowers. *E. M.*

THE STORM OF JANUARY 19.—Some curious results followed this storm. In one depression in our nursery, a pond was formed by the imprisoned water being unable to escape, owing to the frozen state of the ground; at another, the water rushed down the valley off the fields, and would have lifted the trees and shrubs out of the earth, only that they were frozen in hard. It flooded our stables and sheds, as the drains were frozen up, and large holes in the nursery, where trees had been lifted, retained water until the thaw on the 24th. At Kenward House, Yalding, built on the river bank, on a slope, the drains being all frozen, the storm-water rushed down the hill and flooded the basement—a thing that had never before happened. In some places the land was frozen 2 feet deep. *G. B., Kent.*

EFFECTS OF THE FROST.—It will doubtless be found, when the weather has finally become warmer, that the present winter has proved to be destructive almost beyond precedent to the members of the Brassica family. What the full tale of mischief will be cannot be told yet, and as we are only in February, there is plenty of time yet for further very severe weather, from which, however, I trust we may be spared. The harm done to the Green crops seems to have been greatest after a partial thaw, which

sent hopes up, and reduced the snow covering. This left the hearts or tops of the greenstuffs exposed to intense frost in a moist state, with the result that in all directions the slaughter has been excessive, whole fields being converted into a crop of rottenness. Even such hardy stuff as Scotch Kale has been heavily hit, and big breadths of sprouting Broccoli almost ruined. It would be exceedingly interesting to learn later how the weather had affected the Green crops in diverse parts of the kingdom, certainly around the metropolis it is as bad as can be. The small late-planted Colewort and Cabbages that remained for some time buried in the snow suffered least, but then the weather has taken such an erratic turn, thawing one day, freezing intensely the next, that even greater harm may be done than is so far evident. We may expect to find Wallflowers, which stood above the snow, to be much injured, whilst dwarf plants seem uninjured. Even Violets have been denuded of foliage, so that market growers' crops specially have suffered. The prolongation of the frost prevents soil being got ready for early cropping, or otherwise much of the frosted greenstuffs would soon be buried from sight and smell. No one seems to anticipate harm to fruit trees, but shrubs will probably be found to have been more or less hurt, and Roses would have been hit severely. That much is already but too evident. A general report as to the effects of the frost on vegetation during the present winter should prove to be a useful document for future reference, and may well command the attention of the Council of the Royal Horticultural Society. *A. D.*

—**Mein's Improved Triple Curled Scotch Kale** has suffered severely, while the common variety is uninjured. Autumn-sown Onions have all perished; but Covent Garden Winter Brown and Green Cos Lettuce which, together with Onions, were protected with leaves, are quite safe. Of flowering plants, *Tritoma uvaria* is not killed outright, but it is injured very much; plants of *Myosotis dissitiflora*, where unprotected have disappeared, while a few rows of Eckford's Sweet Peas, sown in October, which were 4 inches high, have withstood the hard frosts unscathed, although they received no protection. *M. H. Aggett, Oakdenes, Guildford.*

WEATHER PROPHECIES.—A correspondent in a recent impression truly says that "coming events oftentimes cast their shadows before them," and then he goes on to supply us with a list of early frosts—the first occurring so far back as August 30, from which he seems to think we might have had some premonition of the severity of the ensuing winter, and I dare say he is right; but I chanced to fall in with a "shadow" of a very different sort in the month of October last—at least, it was pointed out to me as such—and it came in the shape of the most brilliant atmosphere and bright sunny days that could possibly be conceived. I was paying a visit to an old friend in Kent in the month of October, and on the 12th of that month the Rev. Canon Welldon preached a sermon in Kennington Church, near Ashford, in which he told his audience in the plainest possible manner that they should at once exercise forethought and vigilance about their domestic concerns, for one of the hardest winters they had ever known was just then at their doors, and he quoted the saying that a green October portends a hard winter. As a large number of agriculturists were listening to him, the advice, if only sound, was likely to be very useful indeed. But I could not help gently saying to him when the service was over, that I thought his prophecy was just a trifle rash. I have often heard rash prophecies from other preachers of celebrity, but they managed to throw themselves so far into the future that they could do it with safety. But in this case appearances were all against the prophecy, and its refutation, if unfounded, would come in three months. That it has not come at all, but that the soundness of the advice which was given by Dr. Welldon has been very amply vindicated is now a matter of history, and I could not help writing to him a few days ago and saying how I shall listen to him as a prophet for all future days! But what I want now to get hold of is, an explanation, if explanation there be, of the mystery. Dr. Welldon writes to me that "some of the country proverbs about the weather are wonderfully true," and no doubt he has heard this one reported so often and so positively, that he considered himself justified in giving full credence to it. In that he is clearly right after what has just now occurred, but I shall be glad if someone of your correspondents can tell us why a remarkable October

brilliance is the precursor of unusual December and January cold; or if it is merely that shepherds and others have made an induction from facts which they have noticed themselves, and that beyond a certain recurrence of events, nothing more can be said of it. My strongest proof of the severity of the recent winter would not come from the fact that a friend told me he had registered in his garden on the other side of Ryde, 18° degrees of frost, and that I had noticed in mine 14°, but rather from the very extraordinary immigration of arctic birds which we have lately witnessed here, and which still goes on more or less. Geese, ducks, swans, &c., have been shot here during the winter; one of the swans measured 7 feet 9 inches from one tip of the wing to the other. Six were seen flying together one day over the Solent; and what interested me more even than the sight of arctic swans, was a poor little stormy petrel, which fell fluttering to the ground in the streets of Ryde a few weeks ago, and then died. Who can say what stress of hard weather it must have met with to come to such an end? All sorts of curiosities have been met with, and strange things have occurred here this winter—sea-gulls were fed like chickens in the gardens on the Strand in Ryde. I saw thirty or forty flying about in search of food quite far into the town the other day. There is no doubt whatever that Canon Welldon has been justified by the event over and over again in what he said in his sermon last autumn. Still, why should it have been so? Is this I want so much to find out. *H. Eubank, Ryde.*

THE FROST IN EAST ANGLIA.—The following is a record of the amount of frost which was registered at this place from October 28 last year to January 20 of the current year. The readings were taken at 9 A.M. from one of Messrs. Negretti & Zambra's self-registering instruments, which is standing 3 feet above the ground on a Vine border, at a distance of 7 feet from the glass. In 1860, on two occasions, we had 38°, and in 1861 35° of frost, and although the thermometer has not gone so low this winter, we have had quite enough of it.

1890. Degrees of Frost.			1891. Degrees of Frost.		
October	26	...	...	7	...
...	29	...	...	7	...
...	29	...	...	9	...
November	10	...	...	7	...
...	12	...	...	7	...
...	14	...	...	3	...
...	25	...	...	5	...
...	16	...	...	2	...
...	27	...	...	12	...
...	28	...	...	12	...
...	29	...	...	13	...
...	30	...	...	24	...
December	1	...	...	8	...
...	2	...	...	14	...
...	3	...	...	2	...
...	7	...	...	7	...
...	10	...	...	8	...
...	11	...	...	9	...
...	12	...	...	12	...
...	13	...	...	14	...
...	14	...	...	13	...
...	15	...	...	20	...
...	16	...	...	12	...
...	17	...	...	5	...
...	18	...	...	14	...
...	19	...	...	17	...
...	20	...	...	15	...
...	21	...	...	11	...
...	22	...	...	24	...

J. Perkins, Thornham Hall Gardens.

CLOSE PLANTING OF VINES.—Your remarks in the issue of the *Gardeners' Chronicle* for January 24, has caused me to send you the following particulars. At once let me say that I consider the close planting of Vines an evil, even though for a few years a great weight of fruit may be obtained. Certainly the evil is mitigated to a certain extent if the house be a wide one, but I have yet to find the Grape Vine that is not injured by this close planting. Different varieties require different treatment, yet practical men will agree with me, that a large amount of light is essential to the proper finishing of any sort of Grape. It is true, we may train the laterals in an ascending manner, and close pinch them, which does a little towards getting the necessary light. Still, for all that, the fact remains, that it is difficult to perfect a crop of Grapes under such conditions for a number of years. We, as market growers, are more or less the creatures of circumstances, but I take it that were we to consider the well-being of the Vines only, there would be no close planting—nothing less than 3 feet from rod to rod. It will not take a very wise head to see the advantage of the wider planting—say at thinning time; although in long canes the evil shall not be so apparent. That borders can be so made that they will enable the Vines close planted to carry a heavy crop on strong canes, is well known. Not having

any faith in close planting, such of our Vines as I have planted stand at not less than 3 feet—3 feet 6 inches for Muscats—apart. I simply record the weight of Grapes cut, more to show up the evil of the former than to take any special credit to myself for the great bulk of the crop. In a lean-to house, of a width of 17 feet, I found, on taking over the charge in April, 1889, Gros Colmar, which had been planted at 2 feet apart in June, 1887. I took off each cane, in 1889, six to nine bunches of not less than 20 lbs., and in one case, 30 lbs. This year (1890) I weighed each bunch cut from several Vines, including three Vines planted in 1887, one Vine planted early in the spring of 1889, in the place of one that had been eaten off by moles. Taking the points midway between two Vines, there is a space of 8 feet 6 inches, and in this space I have four Gros Colmar Vines; from one, 42 lbs.; one, 40 lbs.; one, 1889 spring planted, 11½ lbs.; and the other, 40½ lbs., were cut—a total of 131 lbs. The length of the rafter is 18 feet, and the length of the fruiting canes 10 feet; they will be 2 feet longer now. I left from twelve to seventeen bunches on each of these Vines, except the youngest, on which there were five. The berries are not black, but of such good quality, that they give satisfaction to the most exacting. How these particular Vines will behave this year, we have yet to learn; but, so far as appearances go, there is no reason why the weight should not be quite as heavy as that already mentioned. Being inclined to favour the Vine which carried 30 lbs. of Grapes, many of the bunches were removed at a very early stage, so that at cutting time there was a weight of 25½ lbs. only this season, but the quality was better, and the foliage, though large on all Vines, was larger on this one. Much may be said for and against close planting, but the facts I have given speak for themselves. These Vines are planted in an inside border, but with the run of the outside; and not caring about the roots that may have gone into the latter, I have supplied manures only to the other, with the result that the roots run across the border to a width of 5 feet. The outside border is protected from frost by means of litter. *S. Castle, Ashford, Hants.*

APPLE TREES AND FROST.—Some years ago we were transplanting a bed of young Apples, and had got up some considerable number of them, and as it seemed likely to be an open night, I had a single layer only of mats and bags laid over their roots; however, the morning turned out frosty. I had to start on a journey that day, and thought the men would have been able to continue their work in an hour or two; but the wind shifted round northwards, and it set in a thorough hard black frost. On my return home, some week later, I was much annoyed to find no one had placed any extra covering over the trees, and there they were, the tops facing north-east, and a bitter wind, with from 10 to 12° of frost, penetrating completely through them; of course they were frozen through, remaining so for quite three weeks. I had resigned myself to the loss, when it happened that an old friend came along, and on looking round the garden, I naturally commenced grumbling about these trees. He surprised me by saying, "Tut, tut, man! you never knew frost hurt an Apple tree. Take my tip, and plant them up just the same." I was rather sceptical on the point, and chose to alter my original plans, setting the frozen plants rather thickly in an odd corner, with the remark, "If they do live, we'll find a proper place for them some other time." There were some 150 plants, and only three died. Before transplanting, all were more or less affected with American blight, and those moved during open weather were attacked in their new quarters, but the frozen plants were entirely free from this pest. Thinking that, perchance, some of my readers may have had some Apples out of ground, and completely frozen through during this severe weather, must serve as my excuse for these few notes. *A. P.*

BAMBOOS.—The winter has been very trying for some of these, and I fear that such kinds as *B. gracilis* and others from India will suffer, as indeed they have done already, for the canes made during the summer appear to be killed; but *B. Metake* looks as fresh as it did in the autumn, and it seems as if it would remain so. Considering the hardy nature and ornamental appearance of these plants, it is surprising that they are not more grown, but Bamboos would be planted more largely if better known, for besides looking well on a lawn the leaves are of value for decorative purposes, quite taking the place of Palms; the

tall graceful stems have been very telling and greatly admired in churches. As the plants send up numerous canes, cutting them does little or no harm, for with it all they spread at a rapid rate and soon become big clumps. This Bamboo therefore admits of ready increase by detaching the stolons or under-ground runners in April. Although the other Bamboos lose most of their foliage, that of *B. Metake* is retained in the whole year. *J. Sheppard.*

PROTECTION FOR PLANTS DURING WINTER.—Every gardener knows the value of stable litter as a protection to plants in frames and pits, when laid on the glass 1 foot thick, and neatly piled as a lining at the sides. Clumps and beds of Hyacinths, Tulips, Lilliums, Narcissus, and other bulbs also stand in need of protection from frost; but the stable-litter is not permissible in the flower garden, and one is driven to find a substitute. I find that the dense branches of the common Spruce Fir provide sufficient protection, and when neatly arranged on beds or borders they are not at all objectionable in appearance. Where these cannot be obtained, partly decayed leaf-mould will supply their place. Roses, newly-planted or not, are beat when mulched with rotten manure; and some of the tender hybrids will be safer if packed round with bracken. Newly-planted climbing Roses on walls, &c., should be screened from hard frost by means of mats or canvas. Much caution must be exercised in removing protection from plants in the spring, for nothing affects plants so injuriously as a sudden transition from semi-darkness to full light, or from shelter to full exposure. Newly-planted ornamental Conifers, shrubs, and also fruit trees, should have their roots protected during the first winter with stable litter, to prevent their being injured. Plants standing in nursery rows shelter and protect each other, and their thick massive branches and foliage shield their roots from the frost—a condition of things which differs greatly in newly-made shrubberies, or in orchards. *J. C.*

CHRYSANTHEMUM SPORTS.—In reference to the interesting article on "Bud variations or Sports," which appeared in the *Gardeners' Chronicle* of January 24, I may say that scarcely a year passes but instances of sporting varieties are met with, in which one half of the flower is of one colour and the other quite another; but I do not remember a single instance of anyone being able to preserve this peculiarity by means of cuttings of these sporting plants, not that such flowers would be of very great value any way, but as illustrating the peculiar changes of colour which do take place in Chrysanthemums; generally, and indeed, I may say, almost without exception, it is the incurved varieties which offer the greatest number of these freaks. Mrs. George Rundle often exhibits one-half and sometimes a lesser portion of the flower that will be tinged with a colour, generally pale yellow. Princess of Wales I have observed this year with part of the bloom a bronze-yellow hue, the remainder maintaining its normal colour—blush with rose stripes. Instances of this peculiarity in colour-sporting occasionally occur in the Queen section of the incurved family; Lady Hardinge, again, has a tendency to exhibit this freak, and so has Novelty, since a distinct lilac variety has been obtained from it in Alfred Lyne. To many it may appear very strange, although true, that a variety which sports in one place is almost sure to sport in the same manner in another, and it may be at very distant places. For instance, during the last season Boule d'Or produced a chestnut-coloured sport in this county (Hants), and this variety did the same thing in Lancashire. You say on p. 108 that "the form of the flower and of the foliage in many of these Chrysanthemum sports is in nowise different from that of the parent plant," which infers that there is a great similarity in the sports, both in foliage and flower, to the plant of which it is a sport; but I may say, that in no instance that I can call to mind, does the foliage of the sport differ from the parent. Nor does the growth, for only in five instances do I remember where the form of the flower is altered in sporting. This occurred in Mrs. Horril, a sport from George Glenny, of exactly the same colour, but having reflexed florets, which are thoroughly imbricated when the blooms are thoroughly developed. Mrs. Forsythe (White Christine) produced a partly incurved variety—John Bradner—retaining the parent colour; Princess Teck, which is so thoroughly a model incurved variety has turned out a flower of the reflexed type, which is quite white, having lost the blush colour of its parent. King of Crimson also sported, the result being an Anemone-flowered variety, named

Mrs. R. A. Mudie, which is, perhaps, the most striking instance of a peculiar freak. The other variation in form is a yellow sport from the Japanese variety Madame J. Laing, and named Mr. D. B. Crane, and which is to be sent out by Mr. H. J. Jones; the flower in form resembles the parent, Criterion, and something else, the points having an elegant droop and a slight twist, which I have not seen in any other variety—the foliage is exactly like its parent. I regard this variety as a splendid acquisition to an already long list of Japanese varieties. From these few instances quoted, it will be gathered that it is an exceedingly rare occurrence for any variation to take place between the sport and the plant it sported from. So little does sporting seem to affect the growth and foliage of the sports, that in all instances of sports which have occurred, that section represented by Queen, Princess of Wales, and Prince of Teck, which have been productive of more sports than any other, I have no hesitation in saying that it is impossible to determine one variety from another by growth or leaf. I may say, that I have made a study of the leaves of *Chrysanthemums*, well knowing that the difference in leaf may be put to practical account by the grower. *E. Molyneux*.

PROPAGATING AUCUBA JAPONICA.—I have seen the plants mentioned by "J. H. G." on p. 732, vol. viii., and which answer the purpose intended very well, making a bright bit of colour during the autumn and winter months. Where the shade is not too dense—as in his case—the *Aucuba* succeeds capitally under trees, but if they are much shaded the true leaf-colouring does not come out nearly so bright. But this is not the point I meant exactly to write about, rather the method of increasing the stock of this plant under the existing conditions of "J. H. G.'s" plants. Instead of layering the plants in their present position, I would suggest the plan of striking them from cuttings, which may be easily done and many more obtained than from layering. The objection to layering is the difficulty that there is in clearing away the tree leaves from among the *Aucubas*, many of the small *Aucuba* branches being broken in carrying out the work, and it is not always that the leaves from the trees can be allowed to accumulate. When the plants are grown from cuttings, they are easily planted, can be kept quite as dwarf, and the leaves, if necessary, can be got from amongst them with ease. I always bury the leaves about our bushes, thus enriching the soil, and making it more easy to work, and all is made neat and tidy for the summer months. The best way of increasing the *Aucuba* by cuttings that I have tried is the following:—At the end of September, or during the first half of October, the tops of the plants are taken, about 4 or 6 inches long, with a heel of older wood, cut square below a joint, and ten of these cuttings are put into a 7-inch pot in sandy soil, made quite firm at the base, and give a gentle watering to settle the soil about the cuttings. After the cuttings have dried, plunge the pots in ashes in a cold frame, which should be kept close, except for an hour once a week, when it should be thrown open, to dissipate damp. By the early part of March, the cuttings will have callused, and may then be plunged in gentle bottom-heat, where roots will soon be formed, and growth commence. By the middle of May, the plants will be ready to plant out into nursery beds, and in ten months they will be nice little plants, suitable to plant anywhere. *Aucuba japonica*, like many other shrubs, is partial to manure at the roots, and grows well in strong clayey or heavy soil of any kind. The plants may easily be kept dwarf by annually pruning them in the autumn or spring. *S.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 10.—The meeting held at the Drill Hall, James Street, Westminster, on Tuesday last, was very satisfactory in all respects, and although new plants were not numerous, the display of both fruit and flowers was extensive, making the exhibition one of the best that has been held for some time past at this season of the year, as the President very truly observed at the annual general meeting, held in the office at 117, Victoria Street, on the same day, and referred to in another column. The attendance of horticulturists was fairly large, too, and augurs well for the coming season.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. B. Wynne, H. Herbst, R. Dean, T. W. Girdlestone, W. Furze, W. C. Leach, J. Phippen, H. B. May, F. Ross, C. E. Pearson, C. Jeffries, J. T. Bennett-Pitt, T. Baines, C. Noble, H. Cannell, G. Paul, C. T. Drury, H. H. D'Ombain, G. Gordon, E. Mawley, W. H. Williams, and J. Walker.

A very pretty feature of display was a collection of single Chinese *Primulas* from Messrs. H. Cannell & Sons' nurseries, Swanley, Kent, the plants being of very strong growth, and carrying a profusion of bloom, the colours being bright and the individual flowers large; a capital white is seen in *White Perfection*, while *Kentish Purple*, a fine rich carmine-crimson, and *Kentish Fire*, a bright red-crimson, attracted notice for depth of colouring. *Primulas* were also sent by other exhibitors, Messrs. J. Carter & Co., 237 and 238, High Holborn, London, showing a few nice plants of their *Holborn Blue Improved*, with good deep-coloured flowers; and Mr. C. Holden, Park Road, Ealing, sent a collection of small, neat plants in 48-sized pots.

In an interesting exhibit made by Messrs. Veitch, King's Road, Chelsea, S.W., was a box full of flower trusses; several varieties of their greenhouse hybrid *Rhododendrons*, including a small-flowered, deep crimson red form, named *Juno*; while in *Vesta* was a large-flowered variety of *Primrose*, a pale chrome yellow; also (from the open air), flowering branches of the pretty *Hamamelis arborea* and *H. Zuccariniana*, which latter has paler lemon-coloured petals; and *Lachenalia pendula* var. *aureliana*, in which the perianth was red, tipped with green. The plant has been found on the Esterels, in South France, near to the old Aurelian Road, whence the varietal name.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, had a small seasonable show of hardy flowers in *Galanthus Elwesii*, *G. caucasicus*, and the charming little *Irises Bakeriana* and *Bornmuelleri*, the former being blue, and the latter a pretty little yellow form. Both of them were illustrated in our issue for March 8 last year.

Cliveas, as berried plants, were sent by Messrs. J. Laing & Sons, Forest Hill, S.E., and as the plants were carrying a goodly crop of bright red pods, the effect was very pleasing; but it is a practice not to be generally advised.

A collection of *Cyclamens*, fine, vigorous plants, and variegated *Ficus elastica*, with a fine flowering form of *Chorozema*, came from Messrs. H. Low & Co., Clapton, E. Other exhibits included a small collection of *Carnations*, embracing some fine blooms of *Miss Joliffe* from Mr. Walker, Thame, Oxon; a bright blue *Cineraria*, named *True Blue*, from Messrs. J. Lewis & Son, Newtown Nursery, Malvern; and cut blooms of *Eucharis amazonica* from Mr. Miller, gr. to Lord Foley, Ruxley Lodge, Esher; while from Mr. W. C. Leach, gr. to the Duke of Northumberland, Albury Park, Guildford, came a coned branch of *Wellingtonia gigantea*, with flowering specimens of *Andromeda cassinifolia*.

Orchid Committee.

Present:—H. J. Veitch, Esq., in the chair; and Messrs. J. O'Brien, H. Low, H. M. Pollett, J. Ballantine, C. Pilcher, E. Hill, H. Williams, F. Moore, L. Castle, J. Douglas, A. Sander, and Dr. M. T. Masters.

Orchids formed a capital display, the most comprehensive collection being that of Messrs. F. Sander & Co., St. Albans, Herts, who had, among others, a fine *Lycaste Skinneri alba*, *Oncidium bifrons*, *Sophranitis grandiflora*, *Oncidium Brunleesianum*, *Lælia harpophylla*, a dark variety of *Miltonia vexillaria*, *Dendrobium Leechianum*, and *Cattleya Trianae*; also *Lælia anceps Percivaliana*, a very delicately rose-tinged form, and overspreading all with its violet-red flowers in profusion, was *Odontoglossum Edwardi*.

Messrs. Pitcher & Manda, Hextable Nurseries, Swanley, Kent, contributed an extensive collection of *Cypripediums*, chiefly remarkable for fine colouring of the flowers and general good cultivation, among the best being *C. regale*, *villosum*, *albo marginatum*, *marmophyllum superbum*, *Godseffianum*, *callosum superbum* with a fine dorsal sepal, *Dauthieri*, *Salieri Hyeanum*, *Spicerianum revolutum*, and *Harrisianum Pitcherianum*; from the same source came also *Masdevallia trochilus*.

A nice group of *Odontoglossums* was sent by Mr. W. May, gr. to T. C. Jacob, Esq., Cheam Park, Cheam, they embraced representatives of the more

popular sections, and were well grown and flowered plants.

Mr. W. Cobb, Silverdale, Sydenham, showed a plant of *Saccolabium bellinum*, and also had specimens of *Vanda Amesiana*, *Cypripedium Amesianum*, *C. politum*, and *C. Boxalli superbum*.

The groups of Orchids and other plants placed with them for effect, by Mr. B. S. Williams, Holloway, consisted of most of those fine subjects, new and old, which were included in our notice of his nursery in our last issue. A charming plant amongst them was observed in *Tillandsia Lindenii* major, with beautiful blue flowers, having a white eye of conspicuous size—a feature which, with its narrower bracts, mark the points of its difference from *T. L. vera*.

A beautiful variety of *Odontoglossum triumphans* was sent by Mr. T. Godfrey, manager to Mr. W. Whiteley, Hillingdon Nurseries, Hillingdon, it had a spike of seven flowers, very large, of a rich golden yellow colour, heavily marked with chocolate-brown.

Cattleya Trianae plumosa, from T. Statler, Esq., Stand Hall, Whitefields, Manchester, was another specially noticeable plant, the flower being soft-rose, with broad petals, having a deeper central line, the lip being rich crimson with a yellow throat. A plant of the Stand Hall variety of the same species was also shown.

A new hybrid *Cypripedium*, named *Creon*, was submitted by Messrs. Veitch, is a cross between *Enanthium superbum* and *Harrisianum superbum*, the latter being the seed bearer. The flower of the hybrid is fairly intermediate, the dorsal sepal being the most conspicuous picture, and it is very dark red brown, with a white margin. The petals and lip are pale red-brown, and look rather out of proportion to the sepal.

Messrs. H. Low & Co. sent a well-flowered plant of the pretty *Saccolabium bellinum*; from Sir W. Marriott, Down House, Blandford, came a plant of *Dendrobium heterocarpum* × *nobile* var.; F. S. Moseley, Esq., 24, Park Villas East, Regent's Park, showed a specimen *Cœlogyne cristata*; a similar plant coming from Messrs. Paul & Son, Cheshunt, who also had other varieties of the same species, Norman Cookson, Esq., showed a finely-flowered plant of *Cypripedium Weidlicianum*, with flowers of rich rose; and from Mr. Miller was sent a box of *Cœlogyne cristata* flowers.

Fruit Committee.

Present: P. Crowley, Esq., in the chair; and Messrs. R. Hogg, J. Lee, R. D. Blackmore, G. Bunyard, H. Weir, H. J. Veitch, W. Denning, W. Warren, G. Norman, T. J. Saltmarsh, J. Cheal, J. Wright, G. W. Cummins, A. Dean, G. Wythes, J. Hudson, H. Balderson, J. Willard, C. Penny, and W. Bates.

Apples, which were numerous, were also remarkably good in all cases; a collection of thirteen dishes was sent by the Rev. E. J. Lowndes, Little Comberton Rectory, Pershore. Mr. Miller staged specimens of *Blenheim Orange* which had been kept in an old American flour barrel, they were excellent samples. From Messrs. T. Rivers & Sons, was a large representative collection, embracing all the most popular varieties of Apples, also a few Pears, good specimens of the following Apples being seen:—Lord Derby, *Reinette du Canada*, *Lady Henniker*, *Cox's Orange*, *Lane's Prince Albert*, *Gloria Mundi*, *Peck's Pleasant*, *Belle de Pontoise*, and *Buckingham*; while of Pears, *Beurré Alexandre Lucas* and *Duchesse de Mouchy* were the best. The same firm also had a collection of Oranges, &c., thirteen in all, grown at their nurseries at Sawbridgeworth. Messrs. H. Lane & Son, Berkhamstead, sent a collection of about forty or fifty varieties, in which *Annie Elizabeth*, *Lane's Prince Albert*, *Mère de Ménage*, *Warner's King*, *Blenheim*, *Tower of Glamis*, and *Galloway Pippin* were the best. While still another lot of nearly one hundred dishes was the contribution of Messrs. J. Cheal & Son, Lowfield Nurseries, Crawley, Sussex, *Winter Queening*, *Lane's Prince Albert*, *Blenheim Orange*, *King of the Pippins*, *Wellington*, *Colonel Vaughan*, *Golden Noble*, and *Bramley's Seedling* being very fine, in a generally well kept lot; a few Pears were also shown.

Awards were made as follows:—

By the FLORAL COMMITTEE.

First-class Certificates.

To *Iris Danfordia*, from Mr. T. S. Ware,
To *Hamamelis Zuccariniana*, from Messrs. J. Veitch & Sons.

Awards of Merit.

To *Chorozeia Henschmanni* var. *Lowii*, from the Messrs. H. Low & Co.

To *Primula Kentish Purple*, from Messrs. H. Cannell & Sons.

To *Primula Kentish Fire*, from Messrs. H. Cannell & Sons.

By THE ORCHID COMMITTEE.

First-class Certificate.

To *Cypripedium Creon*, from Messrs. J. Veitch & Sons.

Awards of Merit.

To *Cattleya Trianae plumosa*, from Thos. Statter, Esq.

To *Odontoglossum triumphans*, Whiteley's var., from Mr. Wm. Whiteley.

MEDALS.

Silver-gilt Flora.—To Messrs. H. Cannell & Sons for group of *Primulas*; to Messrs. B. S. Williams & Son, for group of *Orchids*; to Messrs. F. Sander & Co., for a group of *Orchids*.

Silver Flora.—To Messrs. Pitcher & Manda, for a group of *Cypripediums*; to Mr. F. C. Jacomb, for a group of *Orchids*; to Messrs. J. Cheal & Sons, for a collection of *Apples and Pears*; to Messrs. T. Rivers & Sons, for a collection of *Apples, Pears, and Oranges*.

Silver Banksian.—To Messrs. H. Low & Co., for a group of *Cyclamen*, &c.; to Messrs. H. Lane & Son, for a collection of *Apples*.

Bronze Medal.—To W. Cobb, Esq., for a group of *Orchids*.

THE UNITED HORTICULTURAL PROVIDENT AND BENEFIT SOCIETY.

The annual meeting of the members of this Society took place at the Caledonian Hotel, on the 9th inst., at 8 P.M., Mr. James Veitch, of Chelsea, presiding, there being a large attendance of members.

The annual report of the Committee, read by Mr. Collins, disclosed the very flourishing position of the Society. The relief afforded sick members during the past year amounted to £647s. 2d. One death occurred during the year—that of William Back, of Tottenham; and the amount of the benefit fund standing to his name in the books of the Society, namely £25 10s. 3½d., was paid over to his widow; in addition to which a sum of £5 3s. 6d. was voted to her from the benevolent fund for the purchase of a Singer sewing machine, to give her the means of earning a livelihood.

Members' subscriptions during the past year amounted to over £600, and the balance in favour of the Benefit Fund to £4222 4s. 9d. The Benevolent Fund shows an increase on the year of £154 8s.; 10 guineas of this amount being in the form of a life subscription from the Thames Bank Iron Company. The balance in favour of the Fund is £28 9s. The total amount invested, as disclosed by the balance-sheet, is £6000, and dividends on the same, £143 9s. 7d.

On the occasion of the annual dinner last autumn, eleven more names were added to the list of honorary members, and Messrs. Rothschild & Sons generously gave a donation of £25 towards the Management Fund.

The Treasurer, Mr. J. Hudson, read the balance-sheets of the Benevolent and Management Funds, setting forth the favourable position of each, and submitted the Treasurer's financial statement also, showing on the receipt side that the balance from last year was £134 15s. 11d.; members subscriptions, £621 9s. 9d.; subscriptions from honorary members, £59 17s.; dividends on invested moneys, £143 9s. 7d.; these, with other items, amounted to £1036 8s. 6d. On the expenditure side, £750 had been invested during the year; sick pay to the amount of £64 6s. 7d.; Secretary's salary, £20, &c.; a balance of £79 19s. 7d. being carried forward to the current year. The Society has the sum of £6000 invested; namely, £5500 Nottingham Corporation Stock, yielding 3 per cent.; and £500 in Government Consols. The growth in the number of honorary members is a remarkable feature; ten years ago there were only seven, and there are now sixty-two subscribing 1 guinea per annum.

In a clear and interesting address, the Chairman moved the adoption of the report and balance-sheet, stating that this was the twenty-fifth annual meeting, and it found the Society

established on a most satisfactory basis. Mr. Veitch laid great stress on the fact—and it is one that cannot be too widely known among young gardeners—that the Society is not only a benefit one, but also an interesting one—interest being added yearly to the sum standing in the member's name; and though a member of an Odd Fellows' or Foresters' Society subscribed to one of these for the space of twenty years, at the end of that time he would on withdrawing receive the sum of £12 only, whilst in the case of the Society in whose interests they had met that night, a considerable sum would accrue, which would be paid over to the representative of that member at his death. The Benevolent Fund is one of great utility, for after a member has reached the age of seventy years the committee have power to vote a sum of money to any member in need of assistance. The motion was duly seconded and carried. The election of four members of the committee in the place of those retiring by rotation was then proceeded with. Messrs. G. W. Cummins and Foreman being re-elected, and Messrs. T. Castle and Peerless were elected in the places of the two outgoing members. Mr. Knowles was elected to the vacancy caused by the retirement of Mr. J. R. Chard. Mr. Collins was unanimously re-elected Secretary.

Votes of thanks were passed to the Trustees, to the Committee, the Auditors, and to the Treasurer; and Mr. Hudson in returning thanks as the holder of the latter office, said that in order to give longer time for the Auditors to go through the accounts, it was proposed to make such an alteration in the rules as would admit of the annual meeting being held on the second Monday in March instead of February. A vote of thanks to the Gardening Press and to the Chairman closed the proceedings.

LAW NOTES.

DISPUTE AS TO LILY OF THE VALLEY

ELSTER v. REEVES.—This action, which occupied the attention of Mr. Justice Lawrance and a common jury for two days (February 7 and 9), raised a question of some interest to nurserymen and horticulturists, many large firms being represented, either as witnesses or otherwise.

The plaintiff, Mr. Elster, of Lubeck, Germany, was represented by Mr. Channell, Q.C., and Mr. Moreton; the defendant, Mr. Reeves, of the nurseries, Acton, by Mr. Willis, Q.C., and Mr. Lynch.

The plaintiff's claim was for £57 6s. 7d., due on a bill of exchange, given by the defendant in payment for a quantity of Lily of the Valley crowns, supplied in pursuance of a written agreement to the defendant.

The defendant alleged that about June, 1889, he ordered 120,000 Lily of the Valley crowns, single Berlin variety, 3-year old, fit for forcing; only 99,000 were sent, and of these 38,400 were not of the quality ordered, nor such as they were represented or warranted to be, nor reasonably fit for use in the defendant's business as a nurseryman, for which purpose they were ordered; and the defendant claimed damages for the injury he had sustained in his business by the acts of the plaintiff. The plaintiff paid £10 into Court to answer the defendant's claim, so far as the insufficient quantity supplied was concerned.

A very large number of witnesses were called on both sides, including many well-known specialists in the forcing of Lily of the Valley—some of them forcing as many as a million crowns in the season—to speak to the quality of the roots supplied, and of the cultivation they were subjected to. They all seemed to agree, that for the purpose for which the defendant required them, only "first quality" were of any use. Samples of roots supplied were sent to some half-dozen nurserymen by the defendant, and they all spoke of their inferior quality, stating that they were small, and not fit for forcing.

A conflict of evidence took place on whether it was possible to tell a flowering root in the bundle before being put in heat, some being as positive that, they could, as others that they could not. It was conceded that the average profit on the growth of Lily crowns would be about £2 a thousand.

Mr. Channell submitted that the question for the jury was whether the defendant was entitled to damages, in respect of the 38,000 roots delivered which it was said were not of the quality ordered, and as to the balance not delivered, that the £10 paid into Court was sufficient to answer the defendant's claim.

Mr. Willis, on the other hand, stated that the only question was, whether the consignment answered the description contracted for, as if it did not they were of no value to his client, and that no action could be maintained on the bill of exchange, as the consideration for giving the bill had entirely failed, and that he was entitled to damages for not being supplied with the goods contracted for, loss of season, &c. The learned Judge, in summing up, told the jury that the defendant's case was that he had bought these Lilies at the plaintiff's own price, for which he had given a bill of exchange in payment, and that they had cost him more in cultivation than he had got out of them, and that consequently, if that was proved, the contract being admitted, he was entitled to recover, and absolved from paying the amount due on bill. The plaintiff in his letter had offered Lilies of the first quality, and they were accepted by defendant as being of first quality, and therefore there was no question as to what was intended to be delivered by the plaintiff. The contract was that they should be Lilies of first quality, and the plaintiff's case was, that first quality were supplied. The jury must be satisfied of the defendant's statement that of the quantity supplied, 38,000 were extremely weak, and numbers of the bells exceedingly small, not more than two or three good ones being on each spike, and in some instances none, and that they were unfit for his purpose. One proof, it was said, of the defendant's fairness was, the fact of his writing to the plaintiff complaining of the quality and suggesting that someone on his (the plaintiff's) behalf, should call and see them. This offer had not been accepted by the plaintiff, and they, the jury, had to determine the question between the parties on the evidence that had been called. It was a question which side they believed, and he was very glad it was for them, and not him, to decide.

After being locked up for a considerable time, and having intimated that there was no probability of their agreeing, the jury were discharged.

Obituary.

C. HAYCOCK.—We regret to learn of the death, in his 52nd year, of this excellent fruit cultivator, which took place on Monday last. Mr. Haycock was last engaged as Head Gardener to R. Smith, Esq., Goldings, Herts, where he went on leaving Barham Court, Maidstone, and the Apples and Pears of his cultivation which have been seen at various exhibitions were always worthy examples. He was for many years a member of the Fruit Committee of the Royal Horticultural Society, which body passed a vote of condolence with his widow at its meeting on Tuesday last.

JOHN DOMINY.—We regret to learn, just as we are going to press, of the death of Mr. John Dominy, one of the oldest employes of the well-known firm of nurserymen at Chelsea. The deceased, who died at 1 P.M. on Thursday, 12th inst., after a short illness, retired from active work in 1880, after a service of forty years spent at the Exeter and Chelsea Nurseries, of Messrs. J. Veitch & Sons. Soon afterwards, in recognition of the valuable services he had rendered to horticulture, and in particular in the hybridising and raising from seed of *Orchids*, *Nepenthes*, &c., the Royal Horticultural Society awarded him its Gold Flora Medal. Mr. Dominy's work was of so varied and extensive a character, that we must reserve it for fuller notice in our next issue.

THE COLLECTION OF IVIES formed by the late Mr. SHIRLEY HIBBERD is to be disposed of privately. It comprises upwards of ninety varieties, and includes a new golden form of Hibberd's Emerald, which appeared in the collection a few years since, but has not yet been named. The collection may be seen in the garden of Mr. Hibberd's late residence, 1, Priory Road, The Green, Kew.

THE WEATHER.

By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Inches.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.
	Above (+) or below (—) the Mean for the week ending Feb. 7.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.				
	Day-deg.	Day-deg.	Day-deg.	Day-deg.				
1	5 +	23	9	5 +	9	5 +	30	6.5 14 13
2	6 +	16	12	—	4	12	2	1.6 20 21
3	4 +	24	13	—	10	37	4	1.6 1.0 25 20
4	2 +	12	33	—	3	9	4	1.8 27 29
5	4 +	23	13	—	2	46	5	1.9 23 29
6	1 +	13	25	—	23	9	6	2.6 17 27
7	5 +	20	5	—	5	5	9	2.3 4.1 10 21
8	4 +	19	7	—	1	23	6	2.1 9 22
9	1 +	18	10	—	30	65	7	3.6 21 29
10	4 +	25	1	—	11	11	6	2.0 13 25
11	2 +	29	8	—	25	3	8	1.9 2.5 16 30
12	0 aver.	20	4	—	35	41	8	1.8 2.4 ? ?

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending February 7, is furnished from the Meteorological Office:—

"The weather during this week has been mild and the air damp. Much cloud has prevailed, generally; a good deal of mist, and occasionally fog. Very little rain has fallen, excepting in the extreme north of Scotland.

"The temperature continued above the mean in all districts excepting the 'Channel Islands,' where it coincided with the normal. The excess ranged from 1° in 'England, S. and S.W.,' in 'Scotland, N. and W.,' and to 6° in 'Scotland, E.' The highest of the maxima, which were recorded on rather irregular dates, varied from 55° in 'Ireland, S.' and 'Scotland, N.,' to 50° in 'England, E.' and the 'Channel Islands.' The lowest of the minima were recorded at most stations on the 2nd, and ranged from 25° in 'Ireland,' to 32° in 'England, N.E.,' and 34° in the 'Channel Islands.'

"The rainfall has been considerably more than the mean in Scotland, but less in all other districts. Over the greater part of the Kingdom the fall has been extremely slight.

"The bright sunshine has been less prevalent than it was last week, and in most districts it has been less than the mean for the time of year. The percentage of the possible duration ranged from 27 in 'England, E.,' to 10 in 'Scotland, W.,' and 9 in 'England, N.W.'"

MARKETS.

COVENT GARDEN, February 12.

Business quiet, with little alteration. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½-sieve ... 3 6 0	Lemons, per case ... 15 0 20 0
— Nova Scotia, brl. 15 0 25 0	Melons, each ... 0 6 2 0
Cobs, Kent, 100 lb. ... 45 0 50 0	Pine-apples, St. Michael, each ... 2 0 8 0
Grapes, lb. ... 0 9 3 0	

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4 0 6	Lettuces, per dozen ... 3 0 —
Beans, French, lb. ... 2 6 3 0	Mushrooms, punnet 2 0 —
Beet, red, per dozen ... 2 0 3 0	Mustard and Cress, punnet ... 0 4 —
Brussels Sprouts, lb. 0 4 —	Parsley, per bunch ... 0 4 —
Carrots, per bunch ... 0 6 —	Seakale, per bunch ... 2 0 3 0
Cauliflowers, each ... 0 9 1 0	Shallots, per lb. ... 0 6 —
Celery, per bundle ... 2 6 3 6	Spinach, per bushel ... 7 0 —
Cucumbers, each ... 1 0 2 0	Tomatoes, per lb. ... 0 9 1 3
Endive, per dozen ... 4 0 —	Turnips, per bunch 0 6 —
Herbs, per bunch ... 0 4 —	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0 18 0	Ficus elastica, each 1 6 7 0
Aspidistra, doz. ... 18 0 42 0	Foliage plants, various, each ... 2 0 10 0
— spec. plants, each 7 6 10 6	Genista, per dozen ... 10 0 18 0
Azalea, per dozen ... 24 0 42 0	Hyacinths, per doz. 6 0 9 0
Bouvardias, p. doz. 9 0 18 0	— Roman, per doz. 9 0 12 0
Cineraria, per dozen 9 0 12 0	Lily of the Valley, per dozen pots ... 12 0 24 0
Cyclamens, dozen ... 9 0 18 0	Marguerites, doz. ... 6 0 12 0
Cyperus, per dozen ... 4 0 12 0	Mignonette, per doz. 4 0 6 0
D. acuta terminalis, per dozen ... 30 0 60 0	Myrtle, per doz. pots 6 0 12 0
— viridis, per doz. 12 0 24 0	Palms in variety, each ... 2 6 21 0
Eucalyptus, in var., per dozen ... 6 0 18 0	Poinsettias, dozen ... 9 0 15 0
Eucalyptus, various, doz. 8 0 18 0	Primula sinensis, doz. 4 0 6 0
Evergreens, in var., per dozen ... 6 0 24 0	Spirea, per dozen ... 9 0 12 0
Ferns, in var., per dozen ... 4 0 18 0	Solanums, per doz. ... 9 0 15 0
	Tulips, per doz. pots 6 0 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Azalea, 12 sprays ... 0 6 1 0	Maiden Hair Fern, 12 bunches ... 4 0 9 0
Bouvardias, per bun. 1 0 1 6	Marguerites, 12 bun. 3 0 6 0
Callaæthiopia, 12 bl. 2 0 4 0	Narcissus (paper white), 12 sprays 0 9 1 6
Camellias, white, 12 blooms ... 2 0 4 0	— French, 12 bun. ... 4 0 9 0
— cold, 12 blms. 1 0 2 0	Mignonette, Fr., bu. 1 6 2 6
Carnations, 12 blms. 1 0 3 0	Pelargoniums, scarlet, 12 spr. ... 0 9 1 0
Christmas Roses, 12 blooms ... 6 0 1 0	Poinsettias, 12 blms. 0 6 1 0
Chrysanth., 12 bun. 4 0 6 0	Primulas, double, 12 sprays ... 0 6 1 0
Cyclamens, per doz. 0 3 0 6	Roses, Tea, per doz. 1 0 4 0
Daffodils, various, 12 blooms ... 1 0 2 0	— coloured, dozen 3 0 6 0
Eucalyptus, per dozen 3 0 6 0	— yellow (Marechials), each ... 0 9 1 3
Gardenias, each ... 2 0 4 0	— red, per dozen ... 3 0 6 0
Heliotropes, 12 spr. 0 6 1 0	— ditto, per dozen 1 0 3 0
Hyacinths, Rom., 12 spray ... 0 6 1 0	Tuberose, 12 blms. ... 1 0 2 0
Hyacinth, various, 12 spikes ... 3 0 6 0	Tulips, various, 12 bl. 1 0 2 0
Lily of the Valley, 12 spray ... 0 6 1 3	Violets, 12 bun. ... 1 6 3 0
	— Parma, Fr., bun. 4 0 5 9
	— dark, Fr., bun ... 1 6 2 6

ORCHID-BLOOM in variety.

POTATOS.—The market for old Potatos is not quite so firm as it was during the last week, although stock on hand has not increased.

NEW POTATOS.—At the time of writing, the arrival of Canary and Malta Island, expected last week, are not to hand, consequently prices are firmer. *J. B. Thomas.*

SEEDS.

LONDON, Feb. 11.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maize Pond, London, S.E., write that to-day's market was somewhat thinly attended, with only a moderate amount of business passing. Prices all round exhibit considerable firmness. Of English red Cloverseed, the supply is falling off, whilst foreign offerings also show a diminution. Alsike white and Trefoil keep firm. For Rye grasses there is more inquiry. Spring Tares are likewise in improved request. Rapeseed continues scarce and firm. Linseed and Buckwheat harden in value. There is no alteration in either Canary or Hempseed. Blue Peas show a further rise, as also do Haricot Beans.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending February 7, and for the corresponding period in 1890:—1891: Wheat, 32s. 5d.; Barley, 28s. 5d.; Oats, 18s. 1890: Wheat, 29s. 9d.; Barley, 31s. 10d.; Oats, 18s. 7d. Difference, Wheat, + 2s. 8d.; Barley, — 3s. 5d.; Oats, — 0s. 7d.

FRUIT AND VEGETABLES.

SPITALFIELDS, Feb. 11.—Fair supply of all kinds of fresh vegetables. Demand good. Good supply of fruit. Moderate demand. Potato trade fairly active. Prices:—English Apples, 5s. to 10s. per bushel; American do., 16s. to 24s. per barrel; foreign Tomatoes, 1s. 6d. to 2s. 6d. per box; forced Rhubarb, 1s. 6d. to 2s. per dozen bundles; Savoy, 3s. to 6s. 6d. per tally; Brussels Sprouts, 1s. 6d. to 2s. per half-sieve; Curly Kale, 1s. 6d. to 2s. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Sprouting Broccoli, 2s.

to 2s. 6d. per sack; Cauliflowers, 2s. to 4s. per dozen; Parsnips, 1s. 6d. to 2s. per score; Greens, 3s. 6d. to 6s. per dozen bunches; Turnips, 2s. to 3s. do.; Carrots, 3s. to 3s. 6d. do.; do., 25s. to 50s. per ton; Leeks, 3s. to 4s. per doz.; Endive, 1s. 6d. to 2s. do.; Cabbage Lettuces, 1s. 6d. to 2s. do.; Beetroots, 2d. to 4d. do.; Celery, 4d. to 8d. per bundle; Horseradish, 1s. to 1s. 3d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; English Onions, 6s. to 6s. 6d. per cwt.; Bordeaux do., 6s. to 6s. 6d. per case; Spanish do., 7s. 6d. to 8s. 6d. do.; Belgian do., 5s. to 5s. 9d. per bag of 110 lb.

POTATOS.

BOROUGH AND SPITALFIELDS: Feb. 10.—Quotations:—Hebrons, 85s. to 120s.; Magnums, 80s. to 135s.; Bruce's, 100s. to 130s.; Imperators, 80s. to 105s. per ton.

SPITALFIELDS: Feb. 11.—Quotations:—Magnums, 75s. to 95s.; Regents, 80s. to 120s.; Champions, 65s. to 90s.; Imperators, 85s. to 120s.; Hebrons, 70s. to 90s. per ton.

STRATFORD: Feb. 10.—Quotations:—Magnums, 80s. to 100s.; Imperators, 80s. to 100s.; Hebrons, 80s. to 100s.; White Elephants, 80s. to 90s.; Scotch Magnums, 100s. to 110s.; do. Bruce's, 110s. to 120s.; Main Crops, 110s. to 120s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior, do., 45s. to 75s.; hay, best, 60s. to 87s.; inferior, do., 26s. to 50s.; and straw, 20s. to 37s. per load.

NOTICES TO CORRESPONDENTS.

BACK WALL OF A CONSERVATORY: *Puzzled.* Enclose a space for a bed of soil 2 feet wide or more, and 1½ feet deep; or employ neat-looking slate tubs, and plant such subjects as will not require fumigation with tobacco to kill aphids, &c. These may consist of some of the following:—Hibbertia volubilis and H. petrea, Bignonia jasminoides, B. cherere, Camellias, Myrtles, any of the Orange family, Lapageria rosea and L. alba, Polygala Dalmaiana, and P. grandiflora, Cobaea scandens, Passiflora exoniensis, P. Imperatrice Eugénie, Tacsonia mollissima and T. van Volxemi, strong-growing Abutilons, Clematis indivisa, and C. i. lobata.

BLACK CURRANTS: *G. Hanson.* Your Currants are infested by the Currant bud mite, previously described in these columns, but for your benefit we reproduce the illustration (fig. 50). Encourage tomtits, and cut off and burn the affected shoots.

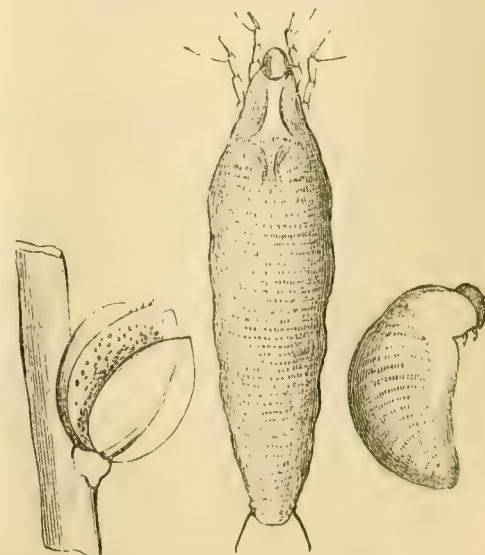


FIG. 50.—THE CURRANT BUD MITE.

BRIDAL WREATH: *R. W. Pearson.* We cannot find any such name. Your description seems to point to a Francoa.

CYPRIPEDIUM LEAVES INJURED: *A. E.* The injury usually takes place when the houses are kept too hot and dry, and when direct sunlight is admitted too freely. It may, or may not be accompanied by red-spider. The best means of restoring health is to repot such as require it, using, in all cases, comparatively small pots, and adding a little fibre of loam to the soil used, and keeping them more shady and moist (using rain-water) in future.

HONOUR TO WHOM HONOUR IS DUE.—In reference to the letter of Mr. Max Leichtlin on p. 180, Mr. Thompson, of Ipswich, calls attention to the circumstance that in his Catalogue due recognition is made of Mr. Max Leichtlin. The omission was made by ourselves in copying the paragraph in question. Mr. Thompson must be absolved from all blame in the matter.

LIGHT-FLOWERED FUCHSIAS TO PLANT OUT IN A CONSERVATORY: *Rose of Castille, Avalanche, Formosissima, Star of Wilts, Mrs. Todman.* If the house be a large one, *Fuchsia corymbiflora* may be planted; it has pink flowers.

NAMES OF FRUITS: *A. B.* *Limerick.* The Pears are *Passe Crassan*, very good.—*W. H. Smith.* The large Pear is *Chaumontel*. We do not recognise the other.—*H. C.* 1, Melon Apple; 2, Winter Hawthornden, highly coloured.

NAMES OF PLANTS: *A. B.* 1, *Fissidens* (too imperfect for specific determination); 2, *Ditrichum flexicaule*, Hpe.; 3, *Hypnum uncinatum*, Hedw.—*T. L. B.* *Cypripedium vernixium* ×; a fine bloom of *Angræcum sesquipedale*.

NUTS FOR THE LONDON MARKET: *R.* The best type of Walnut, and the prolific Walnut, *La Fertile*, is really a large bush, not a tree; and *Filberts* and *Cobs*. These last two being of more value than the former.

PASTURE LOAM FOR VINES: *G. W. E.* The best are Nos. 1, 5, and 6. See reply to "Subscriber" in this column.

ROSE-WATER: *W. H.* Your requirements will consist of a small copper still, holding about 5 gallons; a condensing worm, fixed in a tank or large barrel, and sundry tubs, &c. Apply to Messrs. Pontifex, Shoe Lane, E.C.

SULPHATE OF AMMONIA: *W. P.* Use at the rate of one quarter ounce to one gallon of water. Must not be used oftener than once in ten days.

TEMPERATURE IN A NEWLY-PLANTED VINERY: *Vitis Vinifera.* 45° to 48° by night, with a 10° increase by day. Advance the night temperature 1° a week till it reach 60°; always allowing a little ventilation at the top of the house. During very dull weather or when hard frosts occur at night, keep rather under these figures.

VINE BORDER SOILS: *Subscriber.* The soils sent marked A, B, and C, are of poor quality, and they are not pasture soils, but have been taken either from a poor woodland tract, or wild upland. We see little to choose between them. If you must use one of them, it would be advisable to cut it this winter, stacking it in large quantities together to induce some degree of warmth by fermentation, and thereby cause the partial decay of the very tough fibre that it contains. Should you be obliged to use it as cut, some soil better fitted for plant life should be employed round about the roots, and for some distance beyond, so that the extending vine roots may not be checked by want of suitable nutriment. In stacking such poor soils, warm stable manure should be laid in layers 6 inches thick when trodden down, between one foot layers of the soil, and some addition of clayey loam, or clay itself, crushed bones, and lime or phosphate of lime, might with advantage be strewn over each layer. The same materials may be incorporated with the soil if the border be made at once (piecemeal), excepting that the manure had better be employed as a mulch in summer.

COMMUNICATIONS RECEIVED.—C. D. B., Lierre. —E. Rodigas, Ghent.—Professor T. St. Louis.—C. S. S., Boston.—Dr. Schurz, Zurich.—Profes-
or Cornu, Paris.—R. Thomayer, Prague.—C. N., Antibes.—J. B. B.—J. W. H.—C. S.—W. T.—C. B. P.—A. H. C.—C. Moore, Sydney.—J. C.—H. F. J. V.—H. E.—Constant Reader.—W. B. H.—C. E. B. Port Elizabeth.—J. R. J.—W. A. C.—E. S.—R. D.—J. J. W.—K. & Sons.—G. F. W.—H. E.—W. R. W.—E. F.—A. O.—W. K.—E. M.—E. Mawley.—W. C. Leach.—E. S. W.—J. Lovel.—A. G.—G. B.—W. F.—G. W.—Ted.—A. P.—T. C.—G. B. C.—G. P.—W. B.—J. B. W.—A. D.—G. B.—J. W.—H.—H. J. V.—W. C.—J. V.—A. D. (Oswestry).

SPECIMENS, PHOTOGRAPHS, &c. received.—T. M.—J. R.—A. O., Many thanks.

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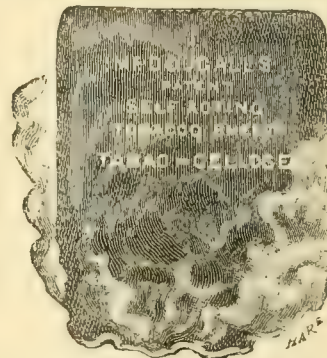
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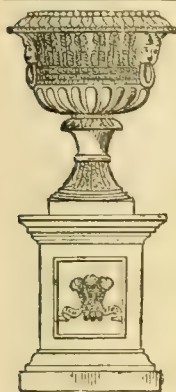
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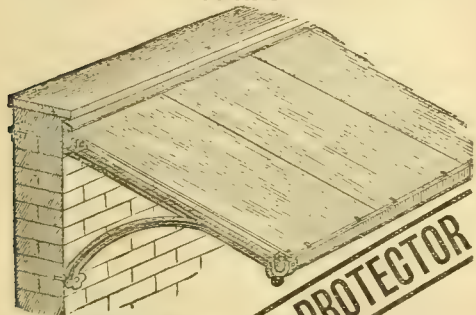
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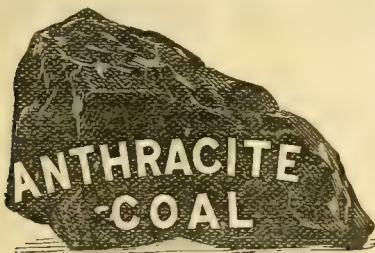
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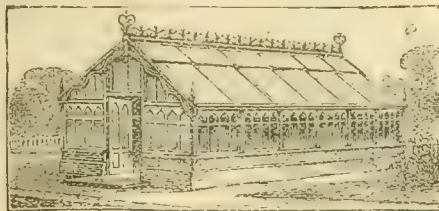
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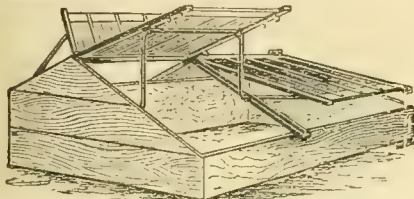
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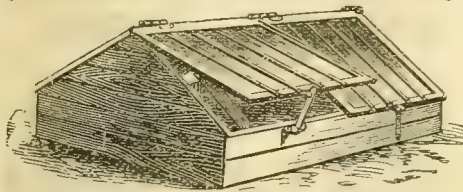
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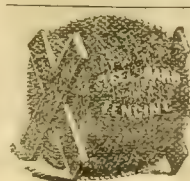
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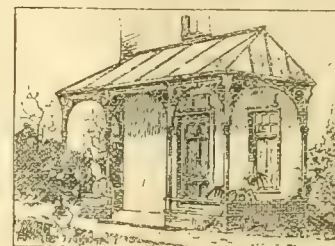
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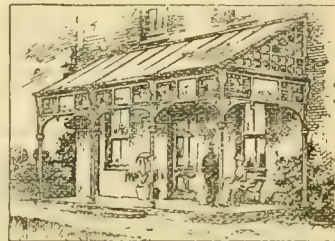
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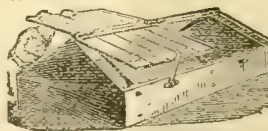
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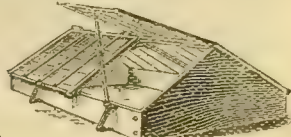
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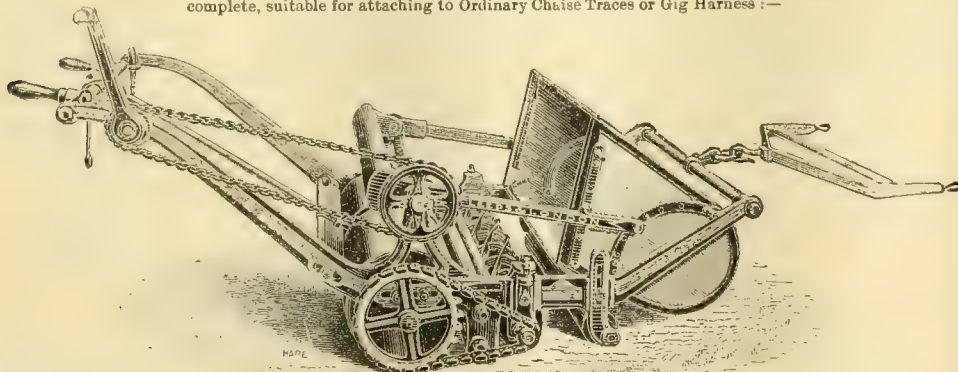
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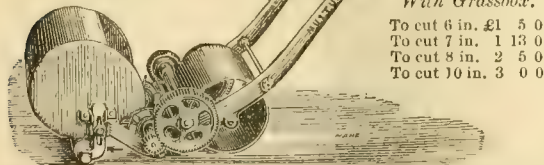
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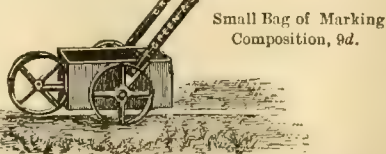
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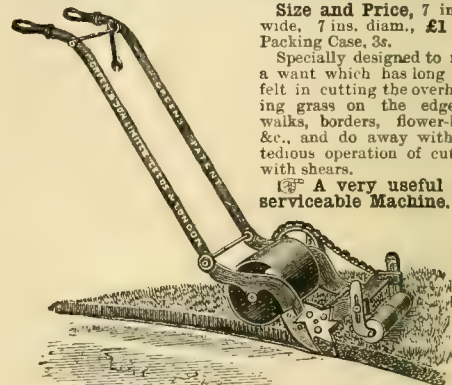
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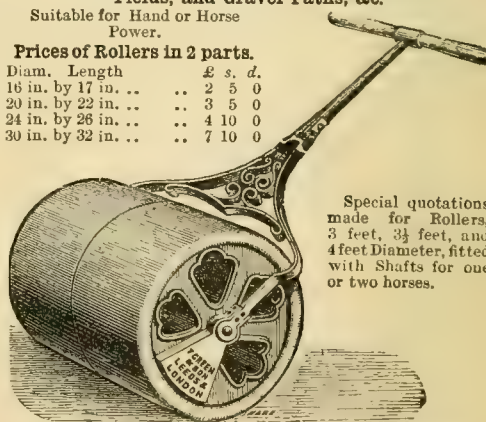
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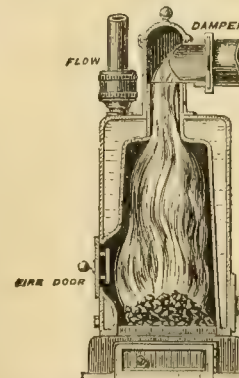
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PINES, Sixty Fruiting SMOOTH CAYENNE, also fifty SUCCESSION QUEENS. Splendid plants in perfect health, and clean. For full particulars and prices, apply to—
IRELAND AND THOMSON, Nurserymen, Edinburgh.

Fruiting Pines.

DICKSON, BROWN AND TAIT, Seed Merchants, Manchester, have to offer the following: 50 Smooth Cayenne, 19 C. Rothschild in 10 to 12-inch pots, will show fruit July and August; also 50 Queens in 6 and 7-inch pots. All Clean and healthy. Full particulars on application.

Laurels, 2 feet to 6 feet.

H. LANE AND SON have a large Stock to Offer. Stout and well-rooted, of CAUCASIAN ROTUNDFOLIA, COMMON, &c.
CATALOGUE free on application.
The Nurseries, Berkhamsted, Herts.

WANTED, 1000 LANCASHIRE LAD, and 1000 CROWN BOB Gooseberries, one or two-year plants. Prepaid samples per post, and price to—
WM. WOOD & SON, Nurseries, Maresfield, Uckfield, Sussex.

WANTED.—Some Hundreds of Scions of BISMARCK APPLE, and some Hundreds of Maidens the same sort. Guaranteed true to name. Send prices to—
W. KLAMBERG, 29, East Terrace, Fairlawn Park, Sydenham, S.E.

WANTED, SHOOTS for GRAFTING, of the NEW APPLE BISMARCK, warranted true. Price to—
H. JUNGCLAUSSEN, Frankfurt-on-the-Oder, Deutschland.

WANTED, a good plant of DIPLADENIA of any of following varieties:—Brearlyana, Thos. Speed, Lady Louisa Edgerton, profusa or amabilis. State price to—
GARDENER, J. Walshaw, Stationer, Halifax.

WANTED, CUT FLOWERS, daily.—
ROSES, ORCHIDS, &c. Best Market prices.
W. RAVENHILL, 157, Norwood Road, Herne Hill, S.E.

THE CHINESE ARTICHOKE (Stachys tuberifera).—JAMES CARTER AND CO. have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An Illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers.
Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

Gentlemen.

MY DWARF ROSES are the finest Plants I have ever grown. Many kinds are bushes 3 to 6 feet high.
CHARLES NOBLE, Bagshot.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE.
JAMES CYPHER, Exotic Nurseries, Cheltenham.

Gladioli.

KELWAY'S GOLD MEDAL COLLECTION.
Grand Bulbs, selected from a Stock of 25 Acres.
Twenty large Exhibition sorts, in good variety, for 10s.; twenty good Border sorts for 5s.; or, select your own sorts (all prices), from a List of 400 varieties, gratis upon application.
Gold Medal, Paris, 1889.
KELWAY AND SON, Langport, Somerset.

Standard Roses.

CHARLES TURNER can offer the above with tall stems and strong heads.
The Royal Nurseries, Slough.

SEEDS! SEEDS! SEEDS!—Select Stocks of Vegetable and Flower Seeds at Wholesale Prices. Every-one with a garden, and every market gardener, should send for a Catalogue before ordering elsewhere.—B. L. COLEMAN, Seed Merchant and Grower, Sandwich, Kent.

LOVEL'S YORKSHIRE STRAWBERRIES.
—Strong plants of Thury, Noble, Paxton, President, and others. Price, 3s. per 100; 12s. 6d. per 500; carriage paid. Sample dozen, 6d.; pamphlet, 3d.; descriptive list free.
W. LOVEL AND SON, Strawberry Growers, Driffield.

CHOICE ORCHID COLLECTION for Sale: a Bargain.—Three small houses, East Indian, Cattleya, and Cool. Selected during nine years by an amateur. Splendid health. £150, worth 250.—R. COCKBURN, Murrayfield, N.B.

SEAKALE, Strong.—Prepared Sets at 12s. 6d., 15s., and 17s. 6d. per 1000.
EDWARD JACKSON, Bell Bar, Hatfield, Herts.

DOBBIE'S CATALOGUE and COMPETITOR'S GUIDE for 1891. 24th Annual Edition. 140 pages, illustrated. Price 3d., post free. "Best practical guide published."—DOBBIE AND CO., Seed Growers, &c., Rothsay.

CHOICE FLOWERS—CHOICE FLOWERS.
Highest Market Prices guaranteed. Prompt cash.
HENRY RIDES, Covent Garden, W.C.

STANDARD PLUMS, DAMSONS, and Single ALMONDS, per 100 or 1000. Price on application. Also AUCUBAS, 1 to 3 feet, per 100 or 1000.
FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

Prize Cob Filberts.

MR. COOPER, F.R.H.S. (late of Calcut Gardens), is the largest grower in the kingdom of Prize Cob Filbert Trees for Sale. Descriptive and Price LISTS on application to Mr. COOPER, Western Elms, Reading, Berks.

To Western.

DEUTZIA GRACILIS, strong stuff, 6s. per dozen; Dwarf GLOIRE DE DIJON, 5s. per dozen; Dwarf BARONESS ROTHSCHILD, 25s. per 100.
GRAY AND SONS, Brox Nursery, Chertsey.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clevenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday and Saturday Next.

An extensive Collection of BORDER PLANTS, 2,000 ROSES, FRUIT TREES, &c.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, on **WEDNESDAY** and **SATURDAY** NEXT, February 25 and 26, at half-past 12 o'clock precisely each day, 2000 choice named Standard and Dwarf ROSES, including many of the best known sorts, from a well-known English grower, FRUIT TREES in quantity, an extensive Collection of CARNATIONS, PINKS, PICOTÉES, DAHLIAS, FRENCH PEONIES, and other Border Plants. 100 lots of Dutch Bulbs, TUBEROSES, GLOXINIAS, BEGONIAS, GLADIOLI, SPIRÆA, LILY OF THE VALLEY, crowns and clumps, &c. On view morning of Sale, and Catalogues had.

Thursday Next.

Immense Importations of LILIES from Japan, TUBEROSES, PALM SEEDS, &c.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY** NEXT, February 26, at half-past 12 o'clock precisely, an immense Importation of LILIES from Japan, comprising 50,000 LILUM AURATUM, L. LONGIFLORUM, L. SPECIOSUM ALBUM and RUBRUM, American Pearl and African TUBEROSES in quantity, LILY OF THE VALLEY Clumps and Crowns, fresh Seeds of KENTIA FOSTERIANA and BELMORIANA; Home-grown LILIUMS, comprising many of the best sorts in cultivation; GLADIOLI, SPIRÆAS, ANEMONES, NARCISSUS, and a variety of other Bulbs and Roots too numerous to mention.

On view morning of Sale, and Catalogues had.

Thursday, March 5.

ESTABLISHED ORCHIDS, CHIEFLY IN FLOWER AND BUD.

MR. J. C. STEVENS begs to announce that he will hold a SALE of ESTABLISHED ORCHIDS, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, March 5, at half-past 12 o'clock precisely. Gentlemen desirous of entering Plants (as far as possible in Flower and Bud) will please send particulars for Catalogues NOT LATER THAN **THURSDAY** NEXT.

Monday Next.—Carnations and Hardy Bulbs.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **MONDAY** NEXT, February 23, at half-past 12 o'clock, a choice collection of CARNATIONS, PICOTÉES, PEONIES, DAHLIAS, NARCISSUS, GLADIOLI, ANEMONES, and many other beautiful varieties for outdoor planting. A magnificent collection of IRIS, including all the best in cultivation; LILY OF THE VALLEY, CYPRIPEDIUM SPECTABILE, home-grown LILIES, consisting of GIGANTEUM, BROWNII, HUM-BOLDTI, HANSONI, KRETZERI, SPECIOSUM, PARDALINUM, and others; HARDY PERENNIALS, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

ORCHIDS IN FLOWER. SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY** NEXT, February 24, at half-past 12 o'clock precisely, a large Assortment of ORCHIDS IN FLOWER, from various Collections, including a magnificent plant of Cattleya exoniensis, long bulb, and best variety; Cattleyas, Odontoglossums, Dendrobiums, Phaius tuberosus, Cologyne cristata and Lemoniana, Cypridiums, Cattleya Trianae, grand variety; Cologyne cristata alba, several flower-spikes; Lelia anceps, Sanderiana, and others.

On view morning of Sale, and Catalogues had.

Tuesday Next.

CATTLEYA EXONIENSIS.

Long-bulbed and best variety—a magnificent plant, in 9-inch pot, with 9 or 10 bulbs, including a flowering growth, one in flower.

MESSRS. PROTHEROE AND MORRIS will include the above valuable plant in their SALE of ORCHIDS on **TUESDAY** NEXT, February 24.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIES, ROSES, and PLANTS.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY** NEXT, February 25, at half-past 12 o'clock, 3000 fine Bulbs of LILUM AURATUM, from Japan; 5000 American PEARL TUBEROSES, received direct; Double white and pink BEGONIAS, from Belgium; 500 Standard and Dwarf ROSES, ROSES in pots, English-grown LILIES, Herbaceous Plants, DAFFODILS, CARNATIONS, PICOTÉES, GLADIOLI, 50 lots of FERNS and GREENHOUSE PLANTS, CAMELLIAS, AZALEA INDICA, A. MOLLIS, and PALMS from Belgium; 2000 KENTIA Seeds; 30 packets of Australian Flower Seeds, &c.

On view morning of Sale, and Catalogues had.

Lowestoft.

CLEARANCE SALE, without reserve.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Roman Hill Nursery, Roman Hill, Lowestoft, on **FRIDAY** NEXT, February 27, at half-past 12 o'clock (the Nursery having been let), the whole of the STOCK IN TRADE, comprising Camellias, Azaleas, Roses, 2000 Geraniums, 500 Maidenhair Ferns, Strawberries in pots, and a great variety of other plants.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises, at the Gazette Office, Great Yarmouth; the Weekly Press Office, Lowestoft; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—The Freehold of the Nursery can be purchased. Particulars of the Auctioneers.

Friday Next.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. F. Sander & Co. to **SELL** by **AUCTION** at the Central Auction Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY** NEXT, February 27, at half-past 12 o'clock, a quantity of Choice Importations, amongst which are included Dendrobium formosum giganteum, in splendid pieces, with stout pseudobulbs; D. Dalhousieanum, some of the finest plants ever seen; D. Jamesianum floribundum, the large pearly white and orange-flowered variety; Cattleya Mossiae matutina, a splendid importation, just to hand, per s.s. The plants now offered are entirely different from the old Cattleya Mossiae, and produce their rich flowers much earlier in the year. D. Draconis, a beautiful and distinct species. A fine healthy lot of plants of D. luteolum, luteiflorum, and other fine sorts; a small but good importation of the beautiful Aerides roseum; Phaius species, from a new district in Northern India; Vanda teres, strong, sturdy pieces, with stout stems and tereta leaves; Cypridium species from Bhootan; Oncidium spendium, very fine plants; Thunia species from Northern India; Odontoplossum vexillarium, splendid, healthy unfowered plants from the best district. Also choice established plants from best importations; Epidendrum vitellinum majus, Odontoglossum Alexandrina, fine healthy unfowered plants, the lovely Aerides Sanderiana, and other Orchids.

On view morning of Sale, and Catalogues had.

Friday Next.

The rare and beautiful DENDROBIUM MCCARTHIE. Imported direct from Ceylon. The finest consignment ever received in this country, and probably the last importation that will come from the Island, as it is getting very scarce. It is one of the prettiest Dendrobiums grown. The plants have fine dormant eyes, and are in excellent condition. The entire consignment of 250 plants will be offered.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on **FRIDAY** NEXT, February 27.

On view morning of Sale, and Catalogues had.

Exeter.

FINAL CLEARANCE SALE of NURSERY STOCK by order of Messrs. Lucombe, Pince & Co., who are relinquishing the Business at Lady Day.

MESSRS. PROTHEROE AND MORRIS are instructed to **SELL** by **AUCTION**, on the Premises, the Exeter Nurseries, Exeter, on **TUESDAY**, February 24, and two following days, at 12 o'clock each day, without the least Reserve, the FINAL PORTION of the thriving and well-grown NURSERY STOCK, comprising Standard, Dwarf, and Pot Roses, 5000 Vines, 11,000 Manetti Stocks, Fruit Trees, Carnations, Tree Carnations, Pansies; 1200 Arums, fine plants; 200 Azaleas, for cutting; Clematis and Cyclamen, 12,000 Ferns, Ficus elastica, 1500 Palms, including 250 Kentias; Pelargoniums, and several thousand Herbaceous Plants.

May be viewed any day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

N.B.—The NURSERY to be LET, or the FREEHOLD to be SOLD, the Frontage being available for Building. Particulars of the Auctioneers.

Without the Least Reserve.

About 60 lots of well-grown SPECIMEN ORCHIDS, comprising Vandas, Dendrobium densiflorum, Cattleyas, and others, being the whole of a small collection compiled by a gentleman at North Cray, Kent.

MESSRS. PROTHEROE AND MORRIS will include the above in their Sale on **FRIDAY** NEXT, February 27.

On view morning of Sale, and Catalogues had.

Paignton, Devon.—Without Reserve.

Highly Important SALE of well-grown NURSERY STOCK, by order of Mr. W. Rossiter (who is transferring the Business to his Son at Midsummer Next).

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Branch Nurseries, at Paignton, Devon, on **WEDNESDAY**, March 4, and following days, at 12 o'clock each day, the whole of the well-grown NURSERY STOCK in three branch establishments, consisting of an extensive assortment of Conifers and Hardy Shrubs, 5000 Green Hollies, 1 to 5 feet, bushy, handsome plants; 12,500 Laurels of sorts, 1 to 6 feet, extra bushy; 10,000 Laurestinus, 1 to 3 feet; 500 Pinus insignis, 3 to 6 feet, extra fine; 7000 Fruit Trees, comprising the choicest varieties of Standard, Pyramid, and Dwarf-trained Apples, Pears, Plums, and Cherries, correctly named; 13,000 Standard Flowering and Ornamental Trees, 70,000 Larch, Spruce, and Scotch Fir and other Forest Trees; 80,000 Thorns, 1 to 3 feet; 1500 English Yews, 3 to 4 feet, bushy; 5000 Euonymus, 1 to 2 feet; 500 Araucaria imbricata, 1 foot; and quantities of other Stock.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—A conveyance will leave the Paignton Station for the Nurseries on each morning of Sale at 11 o'clock.

Leamington.

Expiration of Lease. Unreserved Clearance Sale. The whole of the well-grown NURSERY STOCK, PLANTS in POTS, GLASS ERECTIONS, and other effects.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Leamington Nurseries, Leamington, close to the Station, on **TUESDAY** and **WEDNESDAY**, March 3 and 4, at 12 o'clock precisely each day, without reserve, by order of Mr. E. Perkins, the whole of the well-grown NURSERY STOCK, comprising an extensive assortment of about 3000 Conifers and Evergreen Shrubs, 2 to 8 feet, suitable for immediate effective planting; 700 Aucubas japonica, 2½ feet, bushy plants; 500 Green Hollies, 500 Thuia Lobbi, 600 Limes and Poplars, 8 to 12 feet; 4000 Herbaceous Plants, Peonies, Climbing Plants, &c.; Stove and Greenhouse Plants, comprising Eucharis, 500 extra fine Zonal Geraniums of the best strain, Palms, Aspidistras, Ferns, a few Orchids, 25 good plants of Oncidium flexuosum, 150 Camellias and Azaleas; the Erections of 8 GREENHOUSES, 1000 feet of Hot-water PIPING, mostly 4-inch; BOILERS, BRICKWORK, PITS, and numerous other Effects.

May be viewed. Catalogues had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

South Hampstead.

(Opposite Swiss Cottage Railway Stations.)

GREAT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, Sunnyside, Upper Avenue Road, South Hampstead, on **TUESDAY**, March 3, at 12 o'clock, by order of F. J. Schuster, Esq., who is leaving the neighbourhood, the whole of the choice STOVE and GREENHOUSE PLANTS, 120 fine EUCHARIS, specimen PALMS, large pieces of ASPIDISTRA (lurida and variegata), 100 IMANTOPHYLLUM MINIATUM, specimen CAMELLIAS and AZALEAS in bud, GLOXINIAS, choice FERNS and ORCHIDS, in variety, GARDEN UTENSILS, LAWN MOWER, ROLLER, 2 light BOXES, 6 very large square ornamental iron VASES, &c.

May be viewed day prior to Sale. Catalogues had of Mr. COPESTAKE, the Head Gardener, on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

East Dulwich, S.E.

Close to East Dulwich Station. ESTABLISHED and IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, the Orchid Nurseries, Lordship Lane, East Dulwich, on **WEDNESDAY**, March 4, at half-past 12 o'clock, by order of Messrs. Seeger & Tropp, a large and very varied selection of WETL ESTABLISHED, SEMI-ESTABLISHED and IMPORTED ORCHIDS, including colossal specimens of Lælia purpurata, far surpassing, in size and excellence of variety, what are usually met with, and unequalled for show purposes; similar specimens of Cymbidium varieties and Sobralias; grand plants unfowered of Cattleya Sanderiana, and other species; Dendrobiums in great variety; also a large and choice selection of Cypridiums, embracing leading kinds, as C. Niobe, C. vexillarium, the true C. Carnusianum, C. Argus Moensii, C. Thibautianum, C. grande, C. Liebetianum, and many others of great variety and beauty.

May be viewed one week prior to the Sale. Catalogues may be obtained on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

American Nurseries, Leytonstone.

FINAL CLEARANCE SALE of RHODODENDRONS, LAURELS, AUUCUBAS, with other EVERGREEN and CONIFER SHRUBS, fine London PLANES, LIMES, FRUIT TREES, Standard and Dwarf ROSES, BORDER SHRUBS, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, as above on **THURSDAY**, March 5, at 12 o'clock punctually.

Now on view. Catalogues had on the Premises, and of the Auctioneers, Leytonstone, also 67 and 68, Cheapside.

N.B.—The LEASE of the Branch Nursery at Waunstead, and the whole of the STOCK, will be offered in one Lot, at an upset price. See separate Advertisement.

Thursday, March 5.

SALE OF NURSERY STOCK AND GREENHOUSE PLANTS FROM SAMPLE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SAMPLE SALE will take place on the above date, for which they will be glad to RECEIVE NOTICES of ENTRIES as early as possible.

The Celebrated Fernside Collection of Established ORCHIDS.

PRELIMINARY NOTICE.

Without the least Reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from H. M. Pollett, Esq., to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY** and **WEDNESDAY**, April 8 and 9, at half-past 12 o'clock precisely each day, a Portion of the celebrated FERNSIDE COLLECTION of ESTABLISHED ORCHIDS, in splendid health. First-class Certificates have been awarded by the Royal Horticultural Society to many of the plants, and amongst the numerous fine things in the catalogue the following may be particularly mentioned:—

Cattleya Trianae alba	Dendrobium Phalaenopsis
" " Backhouseana	(true, best variety)
" " Schroderae	Epidendrum Parkinsonianum,
" " Mendelii (in variety)	F.-C.C.
" " labiata (autumn-flowering)	Lælia anceps alba varieties
" " Skinneri alba	" " elegans alba
" " Percivaliana, Fernside	" " Turneri (grand va-
var.	riety)
Cologyne barbata (fine speci-	" " Schilleriana
men)	" " prasiata
" " cristata alba (several)	Lycaste Skinneri alba
Cypridium Bartetii	Masdevallia Harryana lutea
" " cordiale	oculata
" " Chas. Canham	Miltonia vexillaria Sunrise,
" " Druryi	F.-C.C.
" " Elhottianum, F.-C.C.	Nanodes Meduse
" " euryandum	Odontoglossum crispum (Alex-
" " Germinyanum, F.-C.C.	andrae)
" " leucorrhodum	" " Bonnyanum
" " Le-anum superbum	" " Bichleyense
" " marmorophyllum	" " fastuosum
" " Morganie	" " lilaceum, F.-C.C.
" " cœnanthum superbum	" " roseum punctatissi-
" " orphanum	um, F.-C.C.
" " Petri	" " aureum
" " Sanderianum	" " Leopardinum, F.-C.C.
" " Schlimi album (fine	" " Hallii magnificum,
plant)	F.-C.C.
" " Schroderae	" " Pollettianum, F.-C.C.
" " Sedeni candidulum	" " mulus (Bockett's variety)
" " Thibautianum	" " elegans, F.-C.C.
" " vexillarium	" " Chestertonii
" " Arthurianum	" " Ruckerianum insigne
" " Williamsianum	" " citrosinum roseum gran-
Dendrobium nobile Cooksonii,	diflorum
F.-C.C.	" " polyanthum
" " nobiliss	Oncidium macranthum
	Trichopilia suavis alba
	Zygopetalum Clayi

Catalogues with Coloured Plates of some of the principal Odontoglossums will be ready for circulation early in March, and can be had of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers and Valuers, Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Wanstead, E.—Upset Price, £400.

In a choice and open position within easy and convenient access of the City and Covent Garden.

MESSRS. PROTHEROE AND MORRIS will offer by AUCTION, on the Premises, The American Nursery, Leytonstone, on THURSDAY, March 5, 1891, previous to the Sale of the remaining Stock (unless an acceptable offer be made previously). The beneficial interest in the Lease of the Wanstead Nursery, abutting on Wanstead Park, about fifteen years' unexpired, with brick-built Cottage standing thereon, and the whole of the thriving young Trees, Evergreens, Conifers, and other Shrubs, in beautiful condition in one lot. The soil is of a deep rich loam. Ground Rent £45 per annum.

Particulars, with Conditions of Sale, may be had of the Auctioneers, 67 and 68, Cheapside, and Leytonstone.

Friday, March 6.
ANSELLIA SP. NOVA.

From the Upper Reaches of the Zambesi River.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, March 6, at half-past 12 o'clock, 40 Plants of a remarkably handsome new **ANSELLIA**, collected by an Amateur, on the Upper Reaches of the Zambesi River, and now offered in nice established plants. It is of very free growth, and of nice compact habit, the plants growing from 9 to 15 inches high. These neat-habited plants give immense corymbs of large attractive flowers, the ground colour lemon-yellow, heavily blotched and spotted with crimson-chocolate, while considerable diversity of colour and marking will be found in the different plants. It is a very free-blooming species; exceedingly handsome, attractive, and desirable. Several of the plants now offered are showing for bloom.

On view morning of Sale, and Catalogues had

FOR SALE, a NURSERY, SEED, and FLORIST BUSINESS, four miles from the city of Birmingham. Has done a profitable trade for twenty years. Stock and Greenhouses at valuation.

J. BICK, The Nurseries, Acock's Green, Birmingham.

MUSHROOM GROUNDS, almost in London.

Well sheltered, close to a station. Goodwill of Established BUSINESS FOR SALE. Good opportunity for a Gentleman or small company. Manager could be left; owner going abroad.

X. Y. Z., Scripps' Advertising Office, 13, South Molton Street, W.

Guernsey (Channel Islands), Haviland Vineries.

GOING CONCERN. Grounds 2 Acres, contains Residence-house, with 12 Rooms and Bath-room, hot and cold supply, &c. Gardener's Cottage, 4 Rooms, with Packing-room attached. No. 1 Hot-house, 200 by 34 feet (span); No. 2 House, 150 by 40 do.; No. 3 House, 134 by 35 do.; No. 4 House, 145½ by 20 do. (lean-to).

Pumping-house, water forced with Hot-air Engine from pond on the Property, supplied by a stream. Grounds well laid-out, containing small Orchard of Apples, and good Artichoke bed. Pleasantly situated in a charming locality, 1 mile from Town and Harbour. Price £3800 (British).

Apply to B. W. DOVE, Haviland Vineries, Guernsey.

WANTED in a Provincial Town, a SMALL NURSERY.—F. P., C. Fuller, High Street, North Finchley.

COTTAGE WANTED, in Surrey or Kent, about 5 Rooms, 2 or 3 Acres of Land attached (part good Orchard), with Out-buildings and Glasshouses, on Gravel Soil, suitable for keeping Poultry; within 20 miles of Town. Rent moderate.

MR. JONES, 224, New North Road, Islington, N.

TO LET, a first-class old-established NURSERY, with good Connection, near large Market. Superior powerful heating apparatus. Excellent aspect. Apply by letter to Mr. CHAPMAN, Foxton, Market Harborough.

To Florists and Fruit Growers.
TO BE LET, ON LEASE, THE VINEYARD, Potter's Bar, N. For many years successfully carried on by Mr. E. Bennett, who would let it on very advantageous terms, having removed to Harefield; 20 Glass Houses, 2 Dwelling Houses, Office, Stables, Sheds, and standing on 3 Acres of Land. Rent, £200.

MR. BENNETT, Harefield Grove, Uxbridge.

TO BE LET.—GRASS LAND (1 to 10 Acres), suitable for Nurserymen and others; on lease for 7, 14, or 21 years; rent, from £8 to £12 per acre, with the option of purchasing the freehold within the first 7 years; no tithe; near the main road, Enfield Highway; about 9 miles from London.

Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

South of England.
MATURED GARDEN, 16 acres, with 20 Hot Houses and Vineries; 2 Cottages; rent, £200; Valuation, £500.—ELDRIDGE, 2, Western Parade, Southsea.

NOTICE.—CHANGE OF ADDRESS.

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10,000 LAURELS, 1½ to 2 feet, 70s. per 1000, twice transplanted, and very bushy; 2 to 3 feet, £5 per 1000; 3 to 4 feet, 15s. per 100; 20,000 BEECH, twice transplanted, extra strong, 2 to 3 feet, 30s. per 1000; 3 to 4 feet, 40s. per 1000. Evergreen PRIVET, Spruce FIRS, Scotch LARCH, extra strong THORN, QUICK, HORN-BEAM, for Hedges, and other Nursery Stock, equally good and cheap.

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SHIRLEY HIBBERD MEMORIAL FUND.

At a Meeting, held by requisition, in the rooms of the Royal Horticultural Society, on December 9, 1890, **SIR TREVOR LAWRENCE, Bart., M.P.,** President, in the chair, a Committee was formed to obtain funds for the establishment of a Memorial to the late **SHIRLEY HIBBERD,** who earnestly devoted himself to the interests of horticulture in all its branches, and even sacrificed his life in the cause. It was decided that the Memorial should take the form:—

(1) Of a portrait to be placed in the Lindley Library, under the charge of the Trustees of that Institution.

(2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned. The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds.

MAXWELL T. MASTERS, Treasurer.

WILLIAM WILKS (Rev.), Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster, February 10, 1891.

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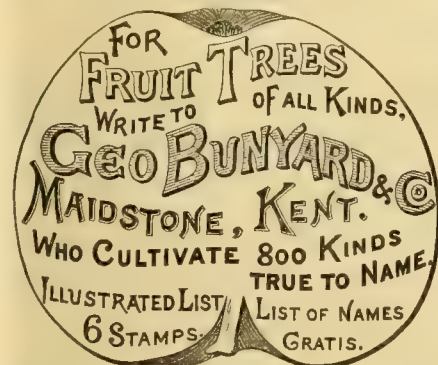
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 21, 1891.

KING FROST AND QUEEN ROSA.

THE meetings of these two potentates are not those of lovers, but rather those of athletes striving for the mastery, and I am sorry to say that there are times when the former takes a mean advantage of the latter, and is ungallant enough to make his embraces secure the personal disfigurement or even death of his more tender opponent. Her friends may try to protect her from his rude assaults and keep him at a distance; the Rose may assert herself, and try to resist his advances, but—like the fabled shirt of Nessus—it clings so closely, that all efforts to get rid of it are vain. Such a season is this which we have passed through, and as we look at our poor queen, bruised, shattered, and maimed, we wonder if she is likely to survive the severe bruin-like embraces to which she has been exposed.

On all sides we hear the question put, "How are your Roses?—are your Teas much injured?" and such-like painful reminders of what we have passed through; there may be cases in which the results are already too apparent, but I do not think that we can quite yet give anything like a correct estimate of the state of affairs. I am endeavouring to collect trustworthy information, which I shall hope to communicate at a later date, but in the meantime there can be no question that some losses must occur, and some vacancies have to be filled, and the question will naturally arise, how can I best do this, and with what am I to do it, and shall I be likely to have a good bloom from plants placed in the beds in March or April? As in a good many other things, that depends on circumstances. There are probably many who, like myself, did not remove their Roses until just before the severe weather of November set in, and who were obliged, as I was, to lay them in for the winter; and I am comforted by past experience so far, at least, as Teas are concerned, for I have found that these, carefully handled, do as well when treated this way as when planted in the autumn. Mr. J. Harkness tells us that all his Tea blooms exhibited last year were from spring-

planted bushes, and Mr. Geo. Prince has frequently carried off honours with flowers from plants similarly treated; indeed, in some parts of our island it is well nigh impossible to treat them in any other way.

There are two methods of supplying the losses and filling up the vacancies in our beds, whether amongst H.P.s or Teas—1, by plants in pots; or 2, by plants from the open ground. I need not say that the former is more expensive, but surer in its results, provided the plants are budded, not grafted. I know not how it may be with others, but I have never been able to do anything with grafted plants, and so would avoid them. In nearly all the catalogues we see notices of plants in pots, and where expense is not a consideration, this is no doubt the better plan.

Where plants have to be procured from the open ground, I would urge the following precautions: and in the first place, if possible (and it is possible in most cases now, when Rose growers are to be found in all parts of the country), to get the plants near at home. However well they may be able to bear a railway journey in the autumn when all root action is dormant, it is a different thing in the spring when it is active, and a number of little white shoots will be seen starting forth from all parts of the roots. To break or injure these, to pack the plants up so that some degree of "soddening" must occur, is very bad; and therefore, I say, get these near at home when you are within a drive or a short rail journey. Then, 2nd, go yourself for them; take your man with you if you like, but go. My reason for saying this is, not to question by any means the honesty or good intention of the nurseryman to whom you apply, but to save you from the ruthless ferocity of an *employé*, whose only concern is to get the Roses up and out of the way. You can select your plants, and see them dug up, and packed at once. This is a very material point, for if they are left, as they too often are, until a number of orders are executed, the roots exposed to sun or wind shrivel up, and the plant is considerably crippled; but if you are by, you can see that they are tenderly handled and carefully packed.

And now comes the question, what am I to plant? A friend writing to me the other day was extremely eulogistic of Roses on their own roots, having seen some beds of them at Clermont-Ferrand (celebrated in the Boulanger episode) and Royat; but the plan has never become very popular here, and Roses budded on either the seedling Briar, Briar cutting, or Manetti, are preferred. Into the relative merits of these stocks I do not propose to enter; nor have I at present in mind the exhibitors—they are pretty well able to take care of themselves; and the varieties most suitable for the decoration of the garden are those most injured after. This suggests the opening up of a wide question—the grouping of Roses; but that would be a difficult matter to deal with at this season of the year; and in the filling up of vacancies, one would still have to suggest such varieties as have recommended themselves to exhibitors as most suitable for this purpose. There are a few kinds, and a few only, on which reliance can be placed for an autumnal bloom, and the term hybrid perpetual is a misleading one, the French phrase, "*hybride remontante*," being much more expressive of their character. The difference between them and the summer-blooming Roses is simply this, that the latter give a full blaze of bloom, and then set off to make wood for the following year, and the wood is flowerless; whereas in the former, young wood immediately begins to form after the first bloom is over, and this wood is furnished with flower-buds, and hence, during the latter days of July, and in August and September, good, and, in some cases, first-rate blooms, can be had from these plants, while never a flower appears on the Gallicas, hybrid Chinas, &c. The autumn flowering, again, varies very much, and some varieties which are one season found freely flowering, will not in another produce a single bloom. Such kinds, then, as Gloire de Margottin, which is very fine both in growth and flowering; Baroness Rothschild, Earl of Dufferin, the new variety; Dr.

Andry, Captain Christy, Earl of Pembroke, Heinrich Schultheiss, J. S. Mill, Magna Charta, Mrs. George Dickson, Paul Neyron (too large for many people, but does not come so coarse in autumn, and is one of the most favourite Roses in Paris at that period of the year), Princess Mary of Cambridge, Ulrich Brunner, Violette Bouyer, and Merveille de Lyon.

Where vacancies occur in the Tea beds, it is easy to fill them up, and such kinds as Catherine Mermet, Marie van Houtte, François Kruger, Edith Gifford, Innocente Pirola, and others will suggest themselves to anyone acquainted with this beautiful class; I would also advise any who are venturesome enough to try new flowers, to plant Ernest Metz, for it seems to me to be both a good grower and a free flowerer. The build of the flower is somewhat that of Catherine Mermet, the colour a salmon-tinted pink, and I am inclined to think that it will take a very leading position in its class, especially as it seems to possess great vigour of constitution. Another and a newer Rose is Cleopatra, the last sent out by the late Mr. Henry Bennett: it is very beautiful, but I fear it partakes of the delicacy of constitution which mark too many of the Teas and hybrid Teas; Lady Mary Fitzwilliam, Princess of Wales, and Princess Beatrice have all more or less taxed the patience of Rose growers, and I fear that Cleopatra will share the same difficulty.

As I have said, it is too early yet to judge of the effects of the frost; but I may mention one raiser's statement, made to me by a large grower in Hampshire, that the Manetti underground had been killed by the frost, while, apparently, the rose budded on it is not injured; and if this has formed, as it frequently does, roots of its own, then the plant will be saved—otherwise it will, of course, perish. In the same ground, the Briar and seedling Briar are uninjured, so far as present appearances go; but it is not safe to holla until you are out of the wood. *Wild Rose.*

NEW OR NOTEWORTHY PLANTS.

BULBOPHYLLUM INFLATUM, Rolfe, n. sp.*

A very remarkable *Bulbophyllum*, received from Sierra Leone in 1887, flowered in the Kew collection in 1889, and again in the following year, which appears to be undescribed, and for which I therefore propose the above name. It is the first near ally of *B. comatum*, Lindl., from the same country, which has yet appeared. The two species bear a strong resemblance to each other in their remarkably hairy flowers, though there are numerous specific differences. The leaves and especially the inflorescence are also quite distinct. In the latter character our novelty possesses quite a unique character. In *B. comatum*, the flowers are arranged in a simple raceme, but in the present species the rhachis is swollen in a remarkable manner. It forms a solid fleshy ellipsoidal body, 1 inch long by $\frac{1}{2}$ inch wide, on which the flowers are densely arranged. Thus the racemes are like pendulous egg-shaped masses of yellowish-green, hairy flowers. The hairs themselves are remarkable in their origin; each sepal is strongly keeled, and the keels themselves, particularly those of the lateral sepals, break up into long

* *Bulbophyllum inflatum*, n. sp.—Pseudobulbs approximate, strongly four-angled, 1 inch long, the same broad, and $\frac{1}{2}$ inch thick, very pale green. Leaf sessile, lanceolate-oblong, acuminate, suddenly contracted at base, coriaceous, bright green, 3 to 4 inches long by 1 to $\frac{1}{2}$ inch broad. Scapes pendulous, 2 inches long, the rhachis swollen into an ellipsoid, fleshy body, 1 inch long by $\frac{1}{2}$ inch broad, on which the flowers are thickly arranged. Bracts lanceolate, acuminate, glabrous, $\frac{1}{2}$ inch long, very pale green. Flowers 5 lines long, pale yellowish-green. Sepals triangular-lanceolate, very acuminate, strongly carinate; all the keels ciliate, but those of the lateral pair very strongly so, the cilia extending as a row of whitish spreading hairs. Petals spatulate, nearly 2 lines long. Lip recurved, linear-oblong, obtuse, canaliculate, covered with minute hair-like papillae, and with a pair of purple-brown lines on lower half. Column short, with a pair of extremely short acute teeth. Pollen-masses two, adherent by their margins.

hairs, the margins being almost or quite smooth. It is a very interesting little plant. *R. A. Rolfe, Herbarium, Kew.*

GARDEN PALMS.

(Continued from vol. ii., 1887, p. 304.)

PHŒNIX, Linn.—The most recent monograph of this genus (that of Beccari in *Malesia*, vol. iii., p. 345), admits only ten species, although there are something like six times as many names. Apparently the species vary considerably in stature, habit, and leaf characters; they also cross freely with each other, numerous hybrids having been raised in gardens, where they grow, flower, and fruit freely.

The species are distributed over the tropics of Asia and Africa, and whilst some occur only in swampy situations, others are abundant in dry regions, where scarcely any other form of vegetation can exist.

They differ from all other pinnate-leaved Palms in having the leaves folded upwards, lengthwise, and in the peculiar form of their seeds, as seen in the Date-stone. Whilst some of the species have a solitary stem of great height and size, others are tufted, or produce suckers freely, and others are very small. The leaves vary in length and rigidity, the segments are generally arranged in fascicles irregularly along the midrib, are spine-tipped, and the lowest segments are simply long stout spines. The stems are generally enclosed in the clasping persistent leaf-bases. The plants are either male or female. An exception to this rule was recorded in the *Gardeners' Chronicle*, October, 1887, p. 530:—A Date Palm in the garden of the Coimbra University, which had previously produced male flowers only, "has this year developed a female inflorescence; also fruits, which are now ripening." It would be interesting to know how this plant has behaved since then. The fruits of only one species, namely, the Date, are used as food. The seeds retain their vitality at least a year, and germinate readily; the first three or four leaves are undivided. Although in England only one species, viz., *P. rupicola*, ranks amongst popular decorative plants, in Continental countries the genus finds considerable favour. In the *Kew Bulletin* for December, 1889, I gave some particulars of the *Phoenixes* cultivated on the Riviera, which may be worth quoting here:—

"Of all Palms, the cultivated species of *Phoenix* are the most difficult to define. There is abundant evidence to show that a considerable number are of hybrid origin, or mongrels bred in gardens. In some of the gardens of the Riviera, for instance, there are numerous kinds of *Phoenix* all growing together, and many of them flower and fruit annually. Being dioecious, seeds are not produced unless the pollen is blown or carried by bees, &c., from the male to the female plant. Under these circumstances, it appears to me next to impossible for the progeny of these cultivated Palms to be pure. Besides this fact, there is also that of the cross-breeding among *Phoenixes* practised by the gardeners of the Riviera. Count Kerchove in *Les Palmiers* (1878), gives as an example of the wonderful fecundity of a *Phoenix*, the case of a *P. reclinata*, which, at Nice, had been fertilised with pollen from *P. tenuis*, *reclinata*, and *pumila*, and produced 20,000 seeds! Several plants bearing seeds, which were the result of crossing one kind with another, were pointed out to us at Cannes and elsewhere. The raising of *Phoenixes* from seeds is done on a large scale on the Riviera, and thousands of small plants, 2 or 3 feet high, are sent annually to Paris and other towns for use in the decoration of salons. The seeds are sown in beds in the open; the seedlings are transplanted into shallow trenches in the same way as Celery is planted here. This is done as a precaution against drought, as the trenches can be regularly flooded in summer."

P. dactylifera, the Date Palm, is the most useful species; indeed, after the Coconut Palm, it is perhaps the most useful tree in the world. Its fruits support whole populations in some parts of Northern Africa

and Arabia, from whence also enormous quantities of Dates are imported into England and other countries. There are said to be over a hundred different varieties, distinguished by the size, form, colour, flavour, &c., of the fruits. They are propagated by means of suckers from the female trees. The flowers are carefully fertilised, "unfertilised Dates being stoneless and insipid, and only fit for goats." The trees bear fruit about six years after planting. A duty of about one penny per tree is levied by the Government of the Punjab on all female trees, the males being exempt; this yields annually 12,084 rupees. (For further interesting particulars of the Date and its cultivation, see Dr. Bonavia in *Gardeners' Chronicle* for 1885, xxiv., pp. 178, 211.)

In some parts of the south of Europe, and especially the Riviera, the Date Palm is one of the commonest features. Some of the towns, for instance Hyères and Bordighera, contain many thousand trees; they are planted as shade trees along the streets, about houses, and in public resorts, their stems often 30 feet high, crowned with enormous heads of grey-green leaves, and large bunches of aborted fruits or flowers.

The Date Palm was cultivated in Lord Petrie's garden at Thornden Hall, in 1736, and at Kew in 1768. The largest tree in England known to me is in the conservatory at Syon House.

P. canariensis is the noblest of all Phœnixes, and one of the most majestic Palms in cultivation. It is gigantic in stature, grows very rapidly, ripens enormous crops of seeds annually on the Riviera, where it appears to be perfectly at home either as a street tree or upon the esplanades exposed to fierce sunshine and sea breezes. "The largest specimens seen were a pair, male and female, in the garden of Baron Vigier at Nice; they each have a clear stem 12 feet high and 4 feet in diameter. The leaves are very large, probably 20 feet long, gracefully arched, and bright green, forming a head 30 feet through. These two plants are said to be the progenitors of all the plants of *P. canariensis* in the Riviera. I was informed by the gardener that they were twenty years old, and that they had come from the nurseries of Messrs. Verschaffelt, of Ghent. The rate of growth of this species is surprising; here are the dimensions of a plant said to be only ten years old: stem 4 feet high, 3 feet in diameter at base, number of leaves about 100, forming a magnificent head 25 feet across. Another specimen about the same size bore eight huge bunches of fruit, which I was assured weighed nearly half a hundredweight each; the fruits were as large as sparrows' eggs, and the seeds larger than those of any other Phoenix known to me. It is said that this species bears cold better even than *P. dactylifera*" (*Kew Bulletin*). In England this Palm is generally known as *P. tenuis*. It is ornamental even when quite young; when kept with its roots confined in pots, it does not assume such gigantic proportions as it does when planted out and treated liberally in regard to manure.

P. sylvestris is the wild Date of India, where it appears to be widespread and abundant. It is cultivated for the sake of its sap, from which large quantities of Date sugar are made, as well as "toddy." The trunk attains a height of about 4 feet when seven years old, when it is tapped by cutting a notch in the stem at the top, and catching the sap as it runs out. The tree continues to yield annually from 120 to 140 pints of sap for from twenty to twenty-five years. There is a large female specimen of this Palm at Kew, where it almost touches the roof of the Palm-house; it always carries several bunches of its orange-coloured aborted fruits, as large as horsebeans. It was in cultivation at Kew in 1813 under the name of *Elate sylvestris*.

P. reclinata and *P. spinosa* are united under the former name by Beccari. Taking the dwarf cuspidate shiny-leaved elegant plant found in Caffraria as far south as Grahamstown, and comparing it with the tall solitary-stemmed, huge-headed, grey-green leaved plant of the tropical regions of Africa, it is

difficult to believe that they are merely forms of one species. Both are represented by large plants at Kew, where, until three years ago, an enormous specimen of the tall-stemmed kind, with a head fully 20 feet across, was one of the most striking objects in the Palm-house. Unfortunately it had to be sacrificed, or its rigid leaves would have lifted the roof off. The dwarf kind is exceedingly elegant, easily accommodated, as it does not grow to a greater height than about 10 feet, and it is sufficiently hardy to thrive in a house from which frost is excluded. It has been in active cultivation at Kew since 1813. *W. Watson, Kew.*

(To be continued.)

BUD-VARIATIONS OR SPORTS. WHAT THEY ARE AND WHAT THEY ARE NOT.

(Concluded from p. 108.)

GRAFT HYBRIDS.

Is there any commingling of the elements of stock and of scion in the case of grafts? Botanists and gardeners, almost without exception, have asserted that there is none, and they illustrate their conten-

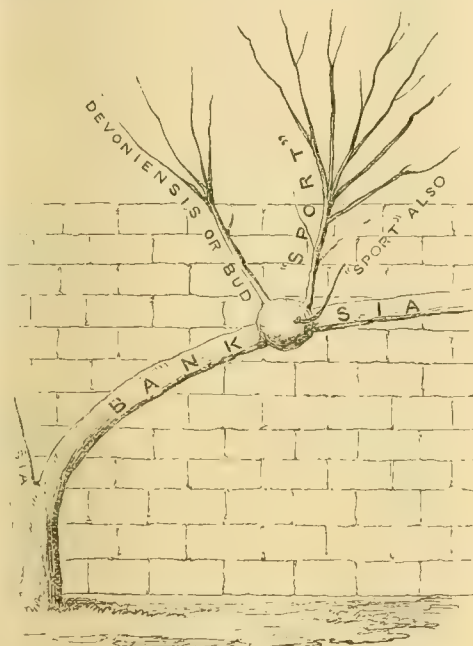


FIG. 51.—SPORTING BRANCH OF ROSA DEVONIENSIS.

tion in this wise. Place on a sheet of wet blotting paper, which may represent the stock, a drier piece of the same substance, which may represent the graft, and there will be a passage of the fluid from the lower to the upper paper, but there will be no mixture of the constituents of the two, no blending of their actual substance.

We have always wondered if there were no reciprocal influence of stock on scion, why grafting should be practised at all, because we cannot understand the acknowledged advantages of the practice except upon the supposition of some modification being exerted. Gardeners pointed triumphantly, as they were quite justified in doing, to the millions upon millions of cases where no such modifications are visible. Botanists pointed to the closed cells from whose cavities only the thinnest of liquids could exude and permeate through the walls of adjoining cells. This was before the days of "continuity of protoplasm," as above mentioned. Now that we know that not only water, but protoplasm itself, may, under certain circumstances, pass from cell to cell, the difficulties in the way of conceiving that any influence could be exerted on the scion by the stock, or *vice versa*, are very materially lessened, if not entirely removed.

But before the time we speak of, there were some alleged facts, especially in the case of bifacial Oranges, which, provided the history given were true, could only be explained on the supposition of the commingling of elements by grafting and subsequent separation. In other words, the possibility of graft-hybridisation must be assumed. Whether it has been proved is another matter.

One of the strongest cases in its favour that we know of is that of the famous Adams' Laburnum *Cytisus Adami*. We cannot go into detail as to the history of this extraordinary tree. It must suffice to say, that it is stated to have originated from the implantation of a bud of the dwarf, shrubby, lilac-flowered *Cytisus purpureus* on to the common Laburnum. Be this as it may, we have in our gardens on this side of the Atlantic, trees which every year astonish the beholder by producing together with the foliage and flowers of the Laburnum, tufts of *Cytisus purpureus*, and all sorts of intermediate conditions between the two. If the stock exerted no influence on the scion, the buds should be pure *Cytisus purpureus* and pure *C. Laburnum*, without any intermediate forms.

A Fir, intermediate in character between A. Pinsapo and A. Nordmanniana, has been described in the *Revue Horticole* as the result of grafting, but it seems more probable that the hybrid originated from pollen of Nordmanniana impregnating flowers of P. Pinsapo. One of the best authenticated cases of the kind is that described in our columns in 1860. In this case, Mr. Poynter budded *Rosa devoniensis* on to a white Banksian (fig. 51), with the result that a sport was formed which was neither true devoniensis nor true Banksian. The sport was "greatly increased in vigour and in the size of all the parts, the leaves were also half-way between a Banksian and a Tea-scented Rose." What became of this sport we have never heard. Many cases of variegation being communicated to the stock by implanting on to it a bud with variegated foliage are on record. We give an illustration of one case which was sent us by Mr. Swailes, of Beverley, and in which parti-coloured leaves were thrown out from an Elm stock which had been "worked with" a bud from a variegated plant (fig. 52, p. 237). Many analogous cases in Citrus, Abutilon, Æsculus, and Laburnum have come under my own notice. It would lead me too far to give other illustrations of the production of shoots of an intermediate character between stock and scion. It must suffice to show that whilst we may, with a very great amount of probability, attribute the existence of some sports to the "unmixing" of elements blended by means of cross-fertilization, whether between species (hybrids), or between varieties (cross-breeds), we may, likewise, but with a less degree of probability, attribute the existence of others to a similar dissociation in the case of grafted plants. Obviously, the latter cases must be much less numerous than the former, and are purely artificial productions.

Other assigned causes of sporting appear to me to pertain rather to variation in general than to that limited and localised form of it which is here considered as bud-variation, and may be here passed with the mere mention. *Marwell T. Masters.*

KEW NOTES.

CROCUS BIFLORUS VAR. *LEICHTLINII* (var. nov.).—Under the name of *Crocus* sp. Mardin, corms of this charming new variety, were last autumn sent to the Royal Gardens, Kew, through the kindness of Herr Max Leichtlin, Baden-Baden. The majority of the corms flowered towards the end of January of the present year, clearly showing their near affinity with the varieties *Weldeni* and *Adami* of the well-known *C. biflorus*. The flowers of the variety *Weldeni* are larger than those of the *Leichtlinii* variety, the segments in form rhomboid, and either pure white, or externally suffused with bright purple markings; whilst the flower of *C. b. Leichtlinii* are either white or pale purple, and in size about that of an ordinary

C. biflorus, with narrow lanceolate segments. The three outer ones are of a rich cream-hue, suffused on the lower half of the outside with grey. The inner three segments are smaller, bright lavender-coloured, and only slightly suffused with grey towards the base. The throat is of bright orange-colour, which shows through the grey pencillings on the outside. The anthers are of bright yellow and dark brown. The stigmas of a bright orange colour, and barely reaching to the middle of the anthers, the narrow leaves just reaching the top of the tube at flowering time. Flowers fragrant. *D. Dewar.*

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM EBURNEUM.

REFERENCE is made to this grand terrestrial Orchid at p. 170, in the issue of the *Gardeners' Chronicle* for February 7, and it may be interesting to mention, that at the present time there is at Arundel Castle a splendid specimen of this plant, showing upwards of fifty flower-spikes, the greatest number upon one plant that I have ever met with. The plant is in splendid health, and with other smaller ones it does not seem that the slightest difficulty is found by Mr. Burberry in its cultivation. Another good old plant which attracted my attention were some plants of *Cypripedium villosum*, with about two dozen finely expanded flowers, which will last in flower a long time yet. It is a very old species, but still it is worth a place in the most select collections. *Alfred Outram.*

CALANTHE VESTITA OCLATA GIGANTEA.

Seeing Mr. Douglas (p. 205) does not notice this variety, I should like to draw attention to it, as it is, in my opinion, the grandest of the vestita group, being more robust, as its name denotes, than the ordinary kinds. When well grown, its flower-spikes are stout and upwards of 5 feet in length, while its blossoms are also large, of good substance, pure white with deep orange-coloured eye, and the fine foliage lasts in good condition throughout the blooming season. It requires the same kind of treatment as *C. vestita* during growth; but water should not be withheld from its roots at so early a stage as is done with them. Its blossoms with *C. Regnieri* after the ordinary forms are past. *Thomas Coomber.*

MASDEVALLIA TOVARENSIS.

When visiting the gardens at Lythe Hill, Haslemere, recently, the above-named chaste white Orchid was in grand condition—a panful of it showing upwards of 370 flower-spikes, a great many of which bore fine flowers, so that the number of flowers was very large. Mr. Evans, the gardener, has great success with this plant. *A. Outram.*

FLORISTS' FLOWERS.

THE CARNATION AND PICOTEE.

Potting last Year's Layers.—The plants, which have been kept in frames, seem to have passed through the winter uninjured, and this is what one would expect. In other winters they have been exposed to intermittent frost and thaw, with all the disadvantages of such kind of weather; and the greatest sufferers are the weakly-constituted plants, but the injury is generally soon got over, and vigorous growth begins with the lengthening days and mild weather. I have noticed the progress of the spots and blotches which are produced in such winters; at first a watery appearance is noticed, as if due to scalding, and the part decays. On examination of the roots of such plants, they are always found to be as healthy-looking as those with leaves unaffected by the disease, proving, I think, that the disease is caused by external conditions, and, in the case of plants within the area of London, to fogs and sudden alternations of temperature; but it is no use being disheartened by

causes beyond our control. It is best, therefore, to examine all the plants, cut off the decayed parts of the leaves with a pair of scissors, and start again as if nothing was the matter. I do not care to repot the plants until it is seen that they are fairly in growth, and in some seasons that may not be until March. The usual way is to place them out-of-doors as soon as they are repotted, but I find it is safer to return them to the frames until the month of April, when, by which time, they are well established. I have of late years tried the effect of mortar rubbish added to the soil, and I have found that its presence causes a much larger number of roots to be produced. I plant a pair of Carnations in a well-drained 8 or 9-inch pot, but the soil becomes too close in texture even with a good addition of leaf-mould, decayed manure, and sand; whereas a fifth part of mortar rubbish gives it the requisite porosity.

It is necessary to see that the plants are quite free from insect pests, and if aphid is seen, or its presence suspected, to dip each plant in soft-soapy water.

SEEDLINGS, &c.

Those who intend to raise seedling Carnations should soon sow the seeds in a mild hot-bed frame. From the middle to the end of March is a good time for sowing in pots or pans. The seeds will vegetate in about seven days, if the soil be moderately moist, as it should be, for no water ought to be afforded the seedlings before they are pricked off, as damping off is not uncommon if moisture hangs about them whilst they are in close warmth. Prick them off when the seed-leaves are well formed, and sink them in the soil almost as deep as those leaves. It is safe enough to water the seedlings after pricking them out into other pans, but it should be done in a warm house, and the plants allowed to get dry before replacing them in the hot-bed frame. Here they may remain till established, which will be in fourteen days or a little longer, and afterwards be gradually accustomed to withstand more and more air, until finally, they are fit to place out-of-doors in the middle of the month of May. Plant them out in the border early in June.

I wish it were possible to convince every cultivator of seedlings or named varieties, and especially seedlings, of the importance of continuous growth in the early weeks of their existence in frames, not turning them out of a hotbed into a cold frame in April, without their being gradually inured beforehand. Also in planting out, the soil should be in a friable condition, so that the plants may be enabled to root into it at once. When the plants stand in shallow boxes or pans, they come up with large masses of roots, and then if the work is carefully done, there is scarcely any check to growth. *J. Douglas, Great Gearies, Ilford.*

NURSERY NOTES.

PALMS, &c., AT THE GRANARD NURSERY.

This is one of the numerous market nurseries that have sprung up round London in recent times, in which the object is to cultivate a limited number of specialties rather than collections of the thousand-and-one kinds of plants that comprise the stock of the general nurseryman. This concentration of attention to comparatively few things is the natural outcome of matters as they now exist. The all but limitless supply of plants and flowers which has more than kept up with the market demand—great, and still growing as that is—has forced the growers to look closely into the cost of production. And it is a well-proved fact, that holds good in plant-growing as in the production of an implement, or a piece of machinery, that the greater the quantity the less they cost individually.

Another matter of importance bearing on the subject is, that where whole houses are devoted to a single species or variety of plants, they can be grown better than where various kinds are mixed together.

Palms are a leading feature in Mr. Iceton's

nursery, some hundreds of thousands in their various stages being grown. *Cocos Weddelliana* is, as it deserves to be, a general favourite for room and table decoration whilst small, and in a larger state for grouping with other plants. A long house is filled with this most elegant species, in addition to others partially occupied by it. One of the merits of this Palm is that it is found to bear a much lower temperature than was expected when it was first introduced, or the country it comes from would have led us to suppose. It grows nicely in an ordinary living room during the greater part of the year, and in winter a temperature of 50° keeps it in good condition. The stock of this *Cocos* here consists of about 50,000.

Kentias are evidently destined to hold the first place amongst all the cool kinds of Palms. They require nothing more than a greenhouse temperature, though they will bear keeping somewhat warmer, and are alike graceful and elegant from the time the plants are fifteen inches high—when the leaves begin to show their natural form and character—up to when the specimens attain a height of from 10 to 25 feet. Several houses are principally filled with these Kentias. One consisting of five spans contains quantities of them that are from 5 to 7 feet high; boxes containing 4000 seedlings a few inches high represent the last batch raised. Mr. Iceton has purchased as many as 130,000 seeds of *K. Belmoreana* and *K. Fosteriana* in a single order. There are no Palms better adapted for room or hall decoration than these kinds; if kept near a window where they get a moderate amount of light, they thrive almost as well as in a greenhouse. Palms which, with a few exceptional kinds, are raised from seed alone, like other things that are increased in this way, are less subject to variegation than plants that are grown from cuttings. But a Kentia has appeared here with some of the pinnules creamy white, and one or two with bright pink leaf stalks.

Of fan-leaved Palms that attain a large size, *Latania borbonica* is the principal sort grown. Plants of this species from 5 to 7 feet high occupy the greater part of one or two large houses.

Of *Seaforthias*, with well-furnished heads on tall stems, there are considerable numbers; but this fine Palm has to a great extent been supplanted by the Kentias, which stand the wear and tear inseparable from frequent use in "furnishing" much better than the *Seaforthias*. Another important matter is that the Kentias retain their colour when in cool quarters, whereas the leaves of *Seaforthias* assume a yellow hue if kept for a long time in cool quarters.

One division of a house is filled with the favourite *Rhapis flabelliformis*, another excellent room plant. It is one of the smallest of cultivated Palms, and can be kept for years in a 7 or 8-inch pot.

Chamærops humilis is represented by some clean, thriving examples, and with them are some plants of the much rarer *C. stauracantha*, a freer-growing and more elegant kind.

Geonoma gracilis, another elegant-habited Palm, much in the way of *Cocos Weddelliana*, but which will not long bear so low a temperature as the *Cocos*, is also a favourite. With this was *Phoenix rupicola*, one of the most beautiful of the dwarf small-growing species. Interspersed amongst the Palms mentioned were a number of rare kinds; of these may be named *Rhapis flabelliformis variegata*, *R. humilis*, and another slender-stemmed and narrower in the leaf-segments than the others. *Phoenix Roebelini*, which looks like a slender and more elegant form of *P. rupicola*. *Chamadorea* species, something in the way of *C. formosa*, a distinct and beautiful Palm. *Cocos Romanzoffiana*, another distinct and elegant plant.

The Palm-house that contained most of the large specimens is a lofty structure, 170 feet long, 50 feet wide, and 28 feet high. Here are located hundreds of splendidly-grown large examples, comprising most of the handsomest kinds. There were a number of *Kentia Belmoreana* and *K. Fosteriana* that run from 15 to 25 feet high by 14 to 18 feet across. *Cocos plumosa* and *C. flexuosa*, two of the most graceful plants in cultivation, quite distinct in

character from the generality of other Palms; their tall, slender, nearly erect leaf-stalks, furnished with drooping pinnæ, are seen to advantage when associated with things of more massive habit. Quantities of these plants are 20 feet high. Fine specimens of *Areca lutescens*, another telling Palm when used amongst bushy-habited plants.

Bamboos are now largely used, where furnishing in the best style is largely carried out. A considerable part of a large house was filled with plants of *B. falcata*, *B. aurea*, and a variegated sort, the

effective in cultivation. The stock is much the largest I have met with, and the plants range from 1 to 2½ feet high. One house was nearly filled with *Dracæna terminalis* and *D. amabilis*, two of the best and most distinct kinds. There were also a number of fine plants of *Dracæna Doucettii*, a handsome and distinct plant, the leaves margined distinctly with white. It is likely to continue scarce, from the difficulty that is found in propagating it.

Several of the houses occupied by Palms had *Asparagus plumosus nanus* grown on the roof. In

The flowers of this fine species last longer when cut than those of the *Pancratium*. In some of the houses devoted to Palms of warmer climates, *Stephanotis* is grown overhead; the warmth combined with the light the plants thus get, induce them to bloom profusely.

Over 100,000 Roman Hyacinths are grown annually, the first of which are in flower by the end of October with a succession up to the end of March.

Twenty thousand Van Thol Tulips were in bloom in the middle of December, to be followed through the winter by others to the extent of half a million. The sorts grown are the scarlet and the white form of Van Thol; Pottebakker, the white and the scarlet varieties; Rose Grisdelin, rose and white; Chrysolora, yellow; Rosa Mundi, white and rose; Keizer Kroon, scarlet and yellow; La Reine, white, tinted with rose; and Vermilion Brilliant, vermillion. These may be taken as representing the best varieties for forcing.

A million and a half selected crowns of Lily of the Valley are flowered each season, so as to keep up an unbroken succession from the end of autumn until the middle of the month of July. The earliest blooms last year were cut on November 1, and quantities are flowered in April and May, in pits on the north side of high walls, where the sun does not reach them; and, in addition, shading is used to keep the flowers white. For blooming later than these, the roots are subjected to a retarding process.

An unexpected novelty has made its appearance with Mr. Icton, in the shape of a white form of *Vallota*, differing in no way from *V. purpurea*, except that the flowers are white.

The stock in this nursery is exceptionally well-grown, and occupies some forty-five houses, many of which run over 100 feet each in length. *T. B.*

PRIMULAS AT MESSRS. SUTTON & SONS.

Those who grow a few plants of *Primula sinensis* for brightening the greenhouse in the dark months of winter, have little idea of the fine effects which a houseful of these plants affords when seen on a sunny day—say in February; and which are enhanced if good culture has brought out their full beauties of perfect form, of the satiny sheen of the colours, and of healthy foliage. So looked the Primulas in Messrs. Sutton's houses on the occasion of a recent visit. We make no comparison with the plants that are to be found in other nurseries, and we believe that Messrs. Sutton do not claim to have the "only Primula;" but we are obliged to bear witness to the careful observation of facts, the lessons that have been derived from them, and the persistent application of these lessons to the beautifying of the *Primula* through a great number of years.

It has been the object of Mr. Martin, the hybridiser and cultivator of these plants, to obtain a plant whose leaves are so short, and yet not too much so, that they shall stand steady at a certain angle; that they shall not be so heavy as to cause the stalk to bend under its weight, and that they shall form a base on which the flower truss will rest. How many points have to be striven for, and with what patience and foresight, is crossing effected, till the desired plant has been obtained. A case in point may be named in connection with this part of the subject. A certain variety has good foliage, a large truss—is, in fact, in most respects admirable; but the rich crimson-rose colour is flecked with white, spoiling it, in fact, for use under artificial light. How long will it be before a variety equalling this in every good point, but destitute of the white spots, is obtained?

The plants observed in such large numbers were raised from seeds sown in June, that being the best month in which to sow seed for raising plants for seeding purposes—the real object of growing these plants in this case—for, as is well known, Messrs. Sutton are seed growers first and nurserymen afterwards. We will name a few of the best that we saw, premising, as we do so, that they all have the prefix "Sutton's":—

Giant Reading Blue—by courtesy, of course, for it



FIG. 52.—EFFECT OF VARIEGATED SCION ON THE STOCK, (SEE P. 235.)

leaves of which are margined with white. They were all in or 12-inch pots, and run from 6 to 10 feet in height. *Dracæna australis* is largely grown, the plants mostly being from 8 to 10 feet high; they are perfect in their way, clothed with healthy foliage down to the bottom—the variety *lineata* is the one that is grown, it being the best of this section.

Dracænas.—This nursery is noted for *Dracæna Lindeni*, another fine subject for indoor decoration. Beautifully coloured as it is here, with the heads of the plants a mass of yellow, it is one of the most

some cases the plants were turned out in beds, in others they are in pots. Both produce berries in profusion, from which thousands of seedlings are raised annually.

Miscellaneous Plants.—Of flowering plants that are grown in quantity, one of the 100-feet houses was occupied by *Azaleas* on one side and *Lilium Harrisii* on the other. The yearly stock of this plant and the nearly allied *L. longiflorum* is about 35,000. *Pancratium fragrans*, one of the most telling of all flowers in bouquets, appeared to be largely grown; and *Hymenocallis macrostaphana* a little less so.

is not a blue at all, but violet—has a very pretty and large truss, thrown well above the Fern-like foliage; the habit good. Ruby King, of the same habit as the former, and with flowers of rich and peculiar shade of colour. Brilliant Rose, with a pyramidal, abundant truss—very handsome. Giant Crimson, with leaves and stalks green, vigorous; flowers of good substance, lobes wavy, and eye large. Giant white, a compact and vigorous variety, flowers large, and flat; an excellent companion to the Crimson Giant. Reading Scarlet, the Earley variety, is richer in colour, and equally compact as the other variety named Reading Scarlet; both have palmate foliage. Snow-drift is a novelty which will flower for three months in succession. Reading Pink has not a fine habit, but then it is good for cutting, carrying, as it does, numerous trusses. Moss Curled is a *Primula* well worthy of cultivation for its leaves only; the flowers are small.

In conclusion, we may state that there are counterparts to be found here in doubles of nearly all the single forms, and of others with palmate and crenate or Fern-like leaves.

Those who would learn more about the Chinese Primrose, and its great capabilities as a decorative flower, could not do better than pay a visit this spring to the Reading nursery.

Cyclamens are just at the present time in good bloom, and much that was excellent was observed in the large collection. Flowers are being fertilised duly, so that the beauty of this section of the great *Primula* family will early be on the wane.

ORCHIDS AT MESSRS. J. VEITCH & SONS.

As the season advances, the show of flowers afforded by the large and wonderfully healthy collection of Orchids at the Royal Exotic Nursery, King's Road, Chelsea, becomes every week finer and more interesting. The *Cattleya* house, which has been such a successful addition to the accommodation for these plants, contains a great number of fine specimens of *Cattleyas* and *Lælias*, which for vigour and abundant flowering will favourably compare with any collection known, some of the specimens of *Cattleya Mossiæ* and *Lælia purpurata* having each of them upwards of twenty flower-sheaths. At present, some very handsome forms of *Cattleya Trianae* are in bloom, and some good specimens of the orange scarlet *Lælia harpophylla*, and *L. cinnabarina*, *L. glauca*, *L. flava*, and other *Lælias* and *Cattleyas*. In the prettily-arranged rockery house, in which the rocks are clad with creeping *Ficus*, *Saxifraga sarmentosa*, &c., among which the Orchids in flower are arranged, we found a well-bloomed plant of the rare *Lycaste lasioglossa* with its curious bristly lip; an apparently new light yellow *Lycaste* with flowers as large as those of *L. cruenta*; *L. plana*, and numerous good *L. Skinneri*. A superb form of the fragrant *Zygopetalum crinitum*, the true *Dendrobium Hilli*, plants of *Celogyne cristata* and *C. c. alba*, the curious *Rodriguezia suaveolens*, *Oncidium bicallosum*, and several forms of *Dendrobium nobile* and the pretty *D. Dominianum* ×, one of the earliest efforts at hybridisation made by that clever Orchidist, the late John Dominy who has so recently passed from among us. Suspended overhead were fine plants of *Dendrobium Findlay-anum*, *D. crassinode*, *D. Wardianum*, and various other *Dendrobes*. In an adjoining house the fine old *Cyrtopodium punctatum* has a 4-feet branched spike of its showy flowers, each branch decorated by a large and handsome bract; it is a fine example of a showy Orchid, only requiring very simple culture to insure the production of its fine inflorescence. In the warm houses, the *Cypripediums* and *Dendrobes* have, as is usual at this season, the best show. Of the former, the new Stonei hybrid, *C. Numa* ×, has massive and quaintly-coloured flowers; *C. Creon* × has a twin-flowered inflorescence, seemingly abnormally large in proportion to the size of the plant; and *C. Niobe* × proves itself worthy of the favourite *C. Fairrieanum* section of hybrids. Among the better-known we noted in bloom, *C. selligerum majus* ×, *C. marmorophyllum*, *C. Sedeni* can-

didulum ×, *C. Boxalli superbum*, *C. purpuratum*, *C. Lathamianum* ×, *C. Leeannum superbum* ×, *C. Thetis* ×, *C. calophyllum* ×, *C. vernixium* ×, *C. Winnianum* ×, *C. Siamense*, and various forms of *C. barbatum*.

Among the *Dendrobes* were *D. endocharis* ×, *D. Ainsworthii* ×, *D. splendidissimum grandiflorum* ×, *D. euosmum leucopterum* ×, and *D. Schneiderianum* ×, the last two being very charming and distinct varieties. In the other warm houses in bloom are some *Phalænopsis*, *Saccolabiums*, and *Angraecums*, one plant of the pretty *A. citratum* bearing six spikes.

In the cool-houses, a fair show of bloom is either present or coming on, the magnificent spikes of *Oncidium macranthum* well in keeping with the healthy and plump character of the plants which bear them.

THE WEEK'S WORK.

THE FLOWER GARDEN.

ROSES.—The Roses of all kinds, having suffered but little, may be uncovered without any misgivings, and the sooner the Teas see a little daylight, the better for them, as protection left on after this date does harm, by keeping the ground wet and consequently cold, and bleaches the buds. Except in cases where early bloom is required, the pruning of Roses should be deferred till the middle of March, as after pruning there is a danger of the buds starting, and spring frosts damaging them.

HARDY PLANTS.—Those who are so fortunate as to possess a good stock of Carnations, will have no trouble in making beds gay with colour, or filling the flower-glasses with these most acceptable flowers. An excellent way of planting these subjects is to intermix them with Tea Roses, the latter being planted at wide distances, so as to afford room for them. The two blend well together, and when the Carnations go out of flower, the Roses take up the tale. Of course, named Carnations are preferable, but very good decorative varieties for beds and borders may be obtained from seed; and seedlings, ready for planting, may be purchased cheaply, as also old kinds from layers. Among these the fine blood-red and white Cloves should not be forgotten, as they have strong stout stems, and they are very desirable for the fragrance of their flowers. In transplanting, it is necessary to take the plants up with good balls, so as to lessen the check of removal; and to get them quickly re-established, the soil should be well pressed round the roots, and water given to settle it about them.

PÆONIES.—For borders, these plants are invaluable, and there is now an immense variety of both single and double forms, herbaceous and tree, the first being, perhaps, the more useful; anyhow, they admit of more ready multiplication by division of the roots as soon as growth begins. Pæonies must have a deep, well-worked rich soil, they being strong growers, sending their roots down to a great depth. In dry soils, or those that are shallow, Pæonies quickly suffer, and shed their bloom. The manure should be put below the roots, but kept from contact at the first, with the roots. The tree Pæonies require precisely the same kind of treatment in regard to starting them, but as most of them are early flowerers, they should have a sheltered situation; a good place for these and the herbaceous species being in the foreground of evergreen shrubs, where they always seem to look well, and make a grand display.

PYRETHRUMS.—The improvement in these flowers has been quite on a par with that in Pæonies, and no one having a flower border should be without a few, as they are floriferous, rich and varied in colour, and useful for cutting. The soil that suits Pyrethrums best is that, rather inclined to stiffness, and which is cool, they being moisture-loving subjects, and when showing bloom requiring to be freely watered, and occasionally afforded liquid manure. The present is a good time to divide Pyrethrums, or purchase plants from the nurseries.

EARLY-BLOOMING CHRYSANTHEMUMS.—The best among these are Madame Desgranges, Mrs. Hawkins, Sœur Mélanie, La Vierge, Alexandre Dufour, Emperor of China, Mrs. Cullingford, and

Julie Lagravère, and the best situation for them is an open one. Young plants may be planted, or rooted side-shoots obtained from old ones, instead of leaving a mass to grow on again in the same spot and soil as before. *J. Sheppard, Woolverstone Park, Ipswich.*

FRUITS UNDER GLASS.

PEACHES AND NECTARINES.—The flowers in the first house will now be set, assuming that the house was started at the earliest date, and the trees may be syringed twice daily in bright weather, every part of them being wetted. With the fruit safely set, a rise in the day temperature may be made, keeping it about 60° by fire-heat alone, in dull weather, and 10° to 15° higher with sun-heat, air freely being afforded the trees in mild weather. The night temperature should range from 55° in mild weather, but on cold nights it should not exceed 54°, or even a degree or two lower in frosty weather. Disbud the trees very gradually—a few buds every day being taken, so that no great check be given them. Stop all very strong shoots when they have grown a few inches, and shoots without fruit should be removed altogether, or cut back to a shoot near the base, thus giving more room for other shoots to be laid in. If aphids be troublesome, as it sometimes will be when the house has been kept dry for a time, tobacco-powder should be dusted over the affected portions. Shut up the house early in the afternoon, and damp down. Succession-houses should be treated as advised in a former Calendar.

BANANAS.—Though not largely cultivated in our glasshouses, fine fruit is always a luxury in the dessert. The present time is the proper one for the renewal of the soil, in which these plants are grown; it may be either in narrow borders or tubs. The Musa being a gross feeder, rich top-dressings, or an entire removal of the upper portions of the soil are very much called for. Musa Cavendishii is one of the most useful species for ordinary forcing-houses, and it is a sure fruiter, ripening its fruit in a short space of time. Musas at this season will be benefited by a higher degree of warmth and more moisture, the plants having been kept dry at the roots in the winter. The temperature at this date may be 70° to 75° by day, and 60° to 65° at night. The plants when once started should be kept growing without check of any kind, or stunted racemes of fruits will result, that will not swell freely. With sunheat a much higher temperature than the above figures may be allowed, damping the house freely, but not allowing moisture to get into the hearts of the plants. Late fruiters should be shifted or top-dressed as soon as it is seen that they are on the move. For this purpose, turfy loam, crushed bones, and cow-manure, should be employed. Abundance of water and liquid manure should be afforded them after the fruits are set, which will be in the early autumn months, under good treatment. Suckers should be taken off and placed in pots, or planted out in beds, allowing them to get a good size before removal from the parent. New soil and drainage in all cases should be afforded them when planting out in permanent quarters for fruiting. *G. Wythes, Sion, Brentford.*

PLANTS UNDER GLASS.

FRANCISCEAS, &c.—Put in cuttings of Francisceas, choosing wood of last year's growth; also make cuttings of the useful Vincas, alba and rosea, using light sandy soil, and place them in a hot-bed—they will speedily strike. The shrubby varieties of Clerodendrons, as fallax, &c., may now be started, and when growth recommences, cut back, shake out and repot them. C. fallax is really best when annually raised from seed.

INDOOR ROCKERIES.—Now is a good time to look over these constructions, and where required taking out the decayed soil, replacing it with fresh. Remove all unsightly plants, replacing them by suitable subjects; and all Ferns and plants of Begonias which have grown to be too large for their allotted space should be replaced by smaller plants. Always have a stock of suitable young plants at hand, such as Selaginellas, Panicums, Fittonias, Tradescantias, suitable kinds of Ferns, Ficus, &c., suitable for rock-work, as most of the above-named plants soon become too big and unsightly. If the stock of plants be limited, strike cuttings of such as are wanted in bottom heat, they will very soon make nice plants for this purpose.

FERNS.—Now is a good time to repot tree Ferns that may require it, afterwards keeping the house moderately close for a few weeks—that is, till fresh roots are in action; also keep the stems moist by frequently syringing them to encourage growth. Old plants of *Adiantum cuneatum*, *Pteris serrulata*, *P. s. cristata*, may be divided, keeping them rather dry for a few days previous to doing this operation; and when divided they may be potted in 4½ and 6 inch pots, which are very useful sizes for decorative purposes. *Gymnogrammas* in need of repotting, should have peat and plenty of sharp silver-sand. at the same time potting them firmly. In potting *Gleichenias*, use plenty of drainage, and either shallow pots or pans; these, like *Davallias*, will require pegging down to assist the rhizomes to take root. Baskets of Ferns requiring attention should be seen to at once; *Woodwardia radicans* is one of the best varieties for this purpose; also *Gonophlebium sub-ariculatum*, and many of the *Adiantums*. The compost for the general collections of Ferns should consist of two parts good sound loam, two parts good peat, a little charcoal, and sufficient sharp sand to keep it sweet and porous.

Now that the plants are dormant, have them thoroughly cleansed from all insect pests—a work which will save a deal of trouble later on. Scale and thrips are the worst enemies to Ferns, and in cleansing them of the former, place a receptacle underneath the plant to catch the insects as they are cleared off. It is more difficult to clear thrips from off the plants, and should fronds not yet have commenced to grow, they may be fumigated two or three times in succession, or syringed thoroughly with some trusty insecticide. Ferns planted out in borders may have some of the old compost above the roots taken off, to be replaced with fresh.

THE GREENHOUSE.—Specimens of inferior varieties of *Camellia* (if in a healthy state) may be grafted with good sorts, fine specimens being obtainable in a comparatively short space of time by regrafting such plants. These may be headed back at once to within 12 or 14 inches of the collar, or, if thought desirable, the main branches may be retained, grafting these about 6 inches from the stem. Plants whose roots are in an unhealthy state may be repotted in good soil, being very careful in having the drainage made perfect. Any plants which have become straggling should be headed back low enough to admit of the plants becoming well furnished with branches; but before heading them down, the plants should be allowed to get dry at the roots, and remain somewhat dry till growth begins.

Acacias.—These most useful free-flowering plants may be had in bloom during the winter months by gently forcing them, or they may be kept till the spring. They bear to be grown in a cooler house. Cuttings may now be inserted in sandy soil, and placed in mild bottom-heat, where they will soon root, and when well rooted, pot them off singly into small 60's, in a compost of loam, leaf-mould, and sand. The following are some of the more useful species:—*A. armata*, *A. Drummondii*, *A. longifolia magnifica*, and *A. lineata*, *A. cultriformis*, and *A. Ricana*.

As soon as the earliest forced plants of *Citrus* have done blooming, the shoots may be cut half-way back, and when they have commenced to make fresh growth, have them shifted into pots two sizes larger than those they have been growing in; good loam, with a little decayed manure and sand, is a good compost for them, and they should be firmly potted.

Plants of *Solanum*, which have been cut back, should be partially shaken out, and shifted into pots about 1 inch larger than those they were previously grown in. Plants of *Solanum capsicastrum*, which have been cut back, always colour their berries several weeks earlier than those raised from seed and not cut back. Cuttings that have been struck may be potted off, giving them good rich soil, and encouraging the plants to make free growth, so as to get the berries well coloured by the end of the season.

TENDER ANNUALS.—Now is a good time to sow seeds of *Cockscombs*, *Camellia*-flowered *Balsams*, *Globe Amaranths*, *Coleus*, *Cyclamens*, *Lisianthus*, single and double *Petunias*, *Polyanthus*, *Torenia Fournieri*, *T. F. grandiflora*, *Celosia plumosa grandiflora*, and *Abutilons*. The soil for the seed-pans should be good loam, decayed manure, leaf-mould, with sufficient sand to keep it porous, passing it all through a fine sieve. Sow the seed thinly, and cover slightly, afterwards placing a sheet of glass over each pan or pot; and place them in a temperature from 60° to 64°, and when the seed-

lings are large enough, have them pricked off or potted into small pots, placing them in as light a position as possible. *R. Milner, Penrice Castle Gardens, Swansea.*

THE HARDY FRUIT GARDEN.

NUT BUSHES.—*Filberts* and *Cob* bushes, now that the female blossoms are visible, should be pruned, and in doing this preserving as many of these, as well as sufficient catkins to secure a good set. When the bushes are as yet unformed, from three to five healthy well-placed shoots should be selected at about 1 foot above the ground, to give the foundation to the future head. Shoots at the outside of older bushes should be cut back at various lengths, according to strength of wood, to a bud pointing to the outside of the bush. For these bushes the basin-shape is the best, the centres being kept free of shoots to a great extent. As the bushes grow in size, shoots from the main branches should be retained on the circumference, thus extending the bushes laterally whilst they may be allowed to reach the height of 6 feet. After bushes have attained to full size, pruning will consist of removing very strong shoots, cutting back to a few basal buds those which have borne fruit, so that these may again break into fruiting-spurs. Suckers should be grubbed up with the suckering-iron, and lime should be freely applied to the bushes to destroy moss and caterpillar larvae as soon as the female flowers have set. Those bushes which make strong growth will need no manure, but others should have a good dressing of woollen rags and fresh fur waste; but rank manure ought to be very sparingly employed, as it causes the production of gross, unfruitful wood. All planting should be done without delay. The varieties principally grown in Kent are the old *Kentish Filbert* and *Kentish Cob*, both of them excellent for planting wherever nuts can be fruited successfully.

BLOOM PROTECTION.—The fine weather is forwarding the buds of *Apricots*, *Peaches*, &c., and blinds and other protective materials should be put into good order in readiness for use at short notice. Fish-netting, when doubled, makes a capital protection against frost, but for all practical purposes the glass coping is probably not only the best, but the cheapest in the end. *H. Markham, Mereworth Castle, Maidstone.*

THE ORCHID HOUSES.

THE PURCHASE OF ORCHIDS.—The present is by far the best time of the year for purchasing imported plants with a view to getting a good growth upon them. Imported Orchids start quickly into growth at this season, and the long growing-season ahead of us gives them a chance of making vigorous growth, and ripening satisfactorily. Except to those who understand when, where, and what to buy, we would say, do not run after bargains at sale-rooms, as it will often happen that apparently cheap, newly-imported plants, turn out to be very dear purchases indeed.

In the first treatment of Orchids, if freshly imported, it should be ascertained, whenever possible, at what date the plants arrived in this country, and if packed or unpacked. Many plants, from want of this knowledge, are denuded of their leaves. Plants unpacked, and sent at once to the sale-rooms, should, after purchase, be shaded for some days; and in the case of *Cattleyas*, I find it a good plan to hang them up by the roots under the stage, where they get sufficient light for a time, and the warmth and moisture have the effect of plumping up the pseudobulbs and leaves. As soon as this stage is reached, the plant should be potted, as the young roots quickly start from the base of the last-made pseudobulbs. Strong plants may at once have some peat and sphagnum moss placed around them, but the more weakly plants will be better if simply placed amongst some clean crocks alone. The Orchid-pots or baskets should in every case be as small as is consistent with the size of the plant, never putting small plants into large pots, &c.

THUNIAS will now have started into growth, and may be repotted, care being taken of the young roots, which are very brittle. I find that a compost of peat and sphagnum moss, with a liberal addition of coarse silver-sand suits these plants. When growing fast, *Thunias* are gross feeders, and are at that

time benefited by the use of mild liquid manure twice a week. After repotting the plants, care must be taken not to let water stand in the hearts of the young growth, or they will be apt to rot off, after becoming black. *A. G. Catt, Parkfield, Hallow.*

THE KITCHEN GARDEN.

ROTATION AND AMOUNT OF CROPS.—A calculation should now be made as to the area that is available for each kind of crop, and the length of time during which any particular crop or crops will be in use, so that mistakes and delays may not occur. Provision should also be made to vary the vegetable cropping, so that no similar crop to the last should follow it on any particular quarter of the kitchen garden; for instance, *Potatoes* and *Peas* may precede or follow each other; *Carrots*, *Beet*, *Parsnips*, and *Onions* may follow *Celery*, *Cauliflowers*, or *Broccoli*, and so on all over the garden. A succession of vegetables should, as far as it is necessary, be maintained, or particular crops for certain seasons receive special attention. A diary should be kept in which the particulars of the work of each day, and any facts likely to serve as a guide in the future, should be entered. All young gardeners should keep such a diary; and they will always find it of use in facilitating work in each recurring year. Green crops that may have suffered so much as practically to be no longer of any use, should be cleared off, or trenched in, and if desirable the ground should also be manured and made ready for future crops. Plots which contain *Cabbage* plants put out in the autumn, should be examined, and gaps in the rows made good with plants from the seed-beds, or the reserves. A sprinkling of some kind of guano made between the rows of *Cabbages* will of service. This should be done when the plants are dry, and the ground hoed at once. I find that the so-called native guano suits this crop. Keep the beds of winter *Spinach* free from weeds by frequently hoeing between the rows. When picking for use, always take the largest outside leaves, allowing the heart leaves to develop to full size. A large sowing of the round-seeded variety should be made forthwith, in drills 1 inch deep and 1 foot apart. A rich soil is essential for this crop, as also early thinning to 6 inches apart.

HERB BEDS should be tidied up, weeds destroyed and where it is found that any kind of sweet herb is growing indifferently, or is insufficient for the year's supply, new beds of the same should be made in an easily-reached spot, open to the sun on every side, and which has been well tilled. The clumps of *Thyme*, *Marjoram*, *Tarragon*, *Sage*, *Chives*, *Sorrel*, or whatever it is that is wanted, should be taken up, divided, and replanted very firmly in lines. *Mint* grows best in a cool, damp soil. Beds should also be prepared for sowing, at the proper time plant seeds of sweet herbs, such as summer *Savory*, *Borage*, *Burnet*, *Chervil*, *Dill*, *Marigold*, and others.

SEED SOWING.—*Capsicums* or *Chilies* may be sown in well-drained 48-pots filled with light rich soil, and placed in a temperature of 60° or 65°. *Leeks*, *Brussels Sprouts*, *Cabbage*, and *Cabbage* and *Cos Lettuces* should be sown in larger quantities now, either on slight hotbeds, or in boxes filled with light loamy soil, and put upon shelves in a forcing-house, having a temperature of 55°.

FORCING PITS.—Enough fermenting material should be prepared, and made into hotbeds as soon as ready for successions of *Potatoes*, *Turnips*, *French Beans*, *Carrots*, and *Radishes*. Continue to cover up *Seakale* and *Rhubarb*. *Carrots* sown last month, and now above the soil, should have air admitted every fine day, and so soon as they have made a few true leaves, thin them, but only sufficiently wide apart—say 1½ to 2 inches. Another sowing should be made on hotbeds in frames to succeed them.

Potatoes planted on hotbeds, and now pushing up, will require air to be given regularly in mild weather, to prevent spindling. Earth up any sufficiently advanced to need it. Raise the frames, to keep the tops of the plants clear of the glass, which should be covered with mats or litter every night; the soil may be kept moist, but not too wet. *Potatoes*, on slight hotbeds, will now make quick growth, in the end equalling those planted several weeks ago. *C. J. White, Glenhyrst, Esher.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	FEB. 23	Hardy Bulbs and Carnations, at Protheroe & Morris' Rooms.
TUESDAY,	FEB. 24	Orchids in flower, at Protheroe & Morris' Rooms. Clearance of Stock at the Exeter Nurseries, by Protheroe & Morris (three days).
WEDNESDAY,	FEB. 25	Border Plants, Roses, Fruit Trees, Bulbs, Lilies, &c., at Stevens' Rooms. Lilies, at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 26	Lilies, from Japan, at Stevens' Rooms. Orchids, at Protheroe & Morris' Rooms.
FRIDAY,	FEB. 27	Nursery Stock, at Lowestoft, by Protheroe & Morris.
SATURDAY,	FEB. 28	Roses, Fruit Trees, Border Plants, Bulbs, and Lilies, from Japan, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—40°·1.

The Pines and Firs of Japan.* THE Conifers of Japan have a special interest for readers of the *Gardeners' Chronicle*. In the first place, they comprise many of the most beautiful and the most hardy of cultivated Conifers. Moreover, many of them are among the most valuable timber trees in their native country, and give good promise of being serviceable here also. We have but to recall to mind the *Cryptomeria*, the Silver Firs, such as *Abies Veitchii*, *A. brachyphylla*, the *Picea polita*, the so-called *Retinosporas*, and many others, to prove the correctness of our statement. Many of these were collected and sent home by the late JOHN GOULD VEITCH, and were, together with some collected by FORTUNE, described in these columns by Dr. LINDLEY.

Mr. ANDREW MURRAY also did good service among them, and published, in the *Journal of the Royal Horticultural Society*, a series of articles, subsequently republished in book-form by BRADBURY & EVANS. Later on, MARIES sent home fine collections to Messrs. VEITCH, and these were kindly entrusted to the present writer for examination and report. The results were given in full in these columns, and in a more condensed form in the *Journal of the Linnean Society*. The *Gardeners' Chronicle* is, therefore, justified in feeling a special interest in a group of plants, to the knowledge of which it has been the means of contributing a larger share than can be found since the time of SIEBOLD and ZUCCARINI. It is, in consequence, with no little interest that we turned to the most recent monograph, that of Dr. MAYR, now or lately, the Professor of Forestry in the Imperial University of Tokio. Dr. MAYR is well-known in arboricultural circles as a scientific forester and botanist. He was a distinguished pupil of the forest school at Munich, and an illustration of a class of which we have at present no indigenous representative. That deficiency, however, will, let us hope, be surely, if slowly, supplied. A few years since, Dr. MAYR

visited the United States, and his report on the forests of that country is a masterly production. Subsequently, he was appointed to organise the Forest Department in Japan, and availed himself of the opportunity to travel through the northern parts of the empire, including Yesso. The *Coniferae* naturally attracted his particular attention, and the results of his observations we have before us in a publication which is of the greatest interest.

The first chapter is taken up with the consideration of the Japanese names, and of the most convenient manner of rendering them in the German language. Then follow some remarks on the characters available for distinguishing the species, and amongst them the number and position of the resin-canals in the leaves. In this connection, he mentions that the position of the canals in *Abies homolepis* is very variable. As this is one of the points relied on to separate it from *A. brachyphylla*, this variability found by Dr. MAYR supports the view that the two names really refer to one and the same species. Remarks on the geographical distribution of the species follow, together with indications of the heights attained by certain species. The *Cryptomeria* attains, we are told, an average height of 120 feet, but trees of more than 200 feet are mentioned; *Retinospora obtusa* attains a height of about 150 feet, the *Sciadopitys* of about 120 feet; the range of all the species varying from 20 to 68 metres.

So far as the limitation of the species goes, Dr. MAYR adopts the grouping of his predecessors, but adds a few new species, such as *Abies umbellata* which, judging from the figure, is very close to *A. brachyphylla*, *Picea Hondensis*, allied to *P. ajanensis*, and one of the forms which has been probably confused under the names of *Alcockiana*, *ajanensis*, and *jessoensis*; *Larix kurilensis*, a species from the Kurile Islands, *Pinus pentaphylla*, a very interesting species closely related to the Weymouth Pine, *P. strobus*, and discovered by the author on the central mountains of Japan. *Pinus pumila* of Mayr is the *Pinus cembra* var. *pumila* of Pallas. All these species are described in German and figured, as also some presumed hybrids between *P. Thunbergii* and *P. densiflora*. It is to be regretted, we think, that the descriptive portions were not in Latin.

From a cultural point of view, perhaps the most important feature of Dr. MAYR's treatise is the account of the cultivated varieties. These appear to be very numerous, though almost entirely unknown here. Thus of *Pinus Thunbergii* there are described the following varieties: *monophylla*, *variegata*, *oculus draconis*, *tigrina*, *globosa*, *tortuosa*, *pendula*, *pectinata*, and *trifoliata*. Of *P. densiflora* are mentioned as varieties, *variegata*, *oculus draconis*, *tigrina*, *globosa*, *tortuosa*, *pendula*, *mollis*, *prolifera*, *recurva*, *aurea*, *albo-terminata*, *octo-partita*, *barbata*, *umbraculifera*, *longiramea*, *hospitalis*, *asamensis*, *aspera*, *rubro-aurea*, and certain pendulous forms; each of these has its appropriate Japanese name. Of *P. Koraiensis*, there are two varieties, *variegata* and *tortuosa*. Of *P. parvifolia*, there are cited as forms, *brevifolia*, *variegata*, *oculus draconis*, *tortuosa*, *recurva*, *albo-terminata*. The Japanese Weymouth Pine, *P. pentaphylla*, is credited with two varieties, called *brevifolia* and *tortuosa*; and *P. pumila* with one, named *brevifolia*. In all, there are forty-three varieties described, of which twenty-eight are mentioned in Japanese books, while fifteen are for the first time described in the present work by Dr. MAYR and all are worth introducing into this country.

Coloured figures of the species are given, and a full table of contents, but no index. Dr. MAYR's work is a most important addition to the literature of the subject, and his comments will be received with great respect, on account of his capacity and his opportunities.

BOCKING PLACE, BRAINTREE.—In our illustration (fig. 53) is seen a representation of a view in Mr. S. COURTAULD's garden at this place, the lately-built residence being seen in the distance. In our issue for October 4 last year, a detailed notice of the plants in this garden was given, and to that number our readers are referred for a full account. The trees which are represented in the figure embrace several elegant specimens; there is a curious Cedar, which in growth resembles the Lebanon form, but appears to have more of *C. atlantica* in it, with some resemblance to a *Deodar*. There are other Cedars in fine specimens, and also Pines and Spruces in plenty, and a beautifully-formed Golden Queen Holly, which has attained a height of over 20 feet. Beeches, Tulip trees, Oaks, Elms, and such-like trees form the bulk, and an *Araucaria imbricata* is a conspicuous object; and a curious object of interest is an old pollarded Oak, a flight of steps leading up to its branches, where seats are placed sufficient for about a score of persons—a cool and shady retreat in the summer time.

PLANT DISEASES.—Professor FLOWRIGHT's lectures at the Royal College of Surgeons have been delivered this week. The first was devoted to generalities, and to the effect of fungi in producing over-growth (hypertrophy), from irritation or wasting (atrophy), by depriving the plant of its natural food, and appropriating it to its own use. Various illustrations were given. The second lecture was devoted to the Potato disease. As we shall be in a position to publish these lectures with numerous illustrations, we forbear from further comment at present.

THE LATE MR. DOMINY.—A short paragraph, which reached us as we were going to press last week, announced the decease of a man who, by his intelligence and insight, became the pioneer in the hybridisation of Orchids and *Nepenthes*, and firmly established his reputation as one who has largely advanced both the science and the practice of horticulture. In our next issue we hope to lay before our readers a portrait of this distinguished man, whose kindness of heart was equal to his practical sagacity.

HORTICULTURAL CLUB.—The annual dinner of this Club took place on Tuesday, February 10, at their rooms, Hotel Windsor, Victoria Street, Westminster. The chair was taken by the President, Mr. J. LEE, and amongst those present were the Rev. W. Wilks, Secretary of the Royal Horticultural Society; Mr. P. Crowley, Treasurer of the Royal Horticultural Society; Mr. H. R. Williams, Past Master of the Fruiterers' Company; Mr. J. Butcher, Solicitor to the Nursery and Seed Trades' Protection Society; the Rev. F. H. Gall, Messrs. T. W. Girdlestone, H. J. Veitch, J. Herbert Veitch, C. T. Drury, H. J. Pearson, H. Wallis, C. E. Pearson, Geo. Prince, H. Herbat, H. Turner, George Bunyard, W. J. Jefferies, A. F. Barron, J. Cheal, &c. There was a selection of vocal and instrumental music, kindly given by some amateurs, which had been arranged by Messrs. Bunyard and Turner, and a most successful meeting was enjoyed by all present, the only matter of regret being that the venerable and venerated Chairman announced his intention, owing to increasing years, to retire from his office, which he has found latterly to be somewhat of a burden. The announcement was received with universal regret. He has been Chairman since the formation of the Club, and has always shown great interest in its welfare. The toast of the Royal Horticultural Society was proposed by Mr. H. J. Veitch, and responded to by the

* *Monographie der Abietinen des Japanischen Reiches*, &c. Bearbeitet von Dr. Heinrich Mayr. M. Rieggersche, Universitäts-Buchhandlung, München.

Rev. W. Wilks, who spoke encouragingly of its prospects, and was glad to bear witness to the fact mentioned by the Secretary, that the first step in the improvement of its position was made at one of the dinners of the Club, when the outside committee was proposed, and he hoped that both the Society and the Club might go on and prosper.

THE CRYSTAL PALACE COMPANY.—We have received a copy of the schedule of prizes offered at the horticultural exhibitions for this year, and which is modeled on the same plan as former issues. The spring show will take place on March 21, and the summer show on May 9. The fruit exhibition is fixed

THE WINTER IN FRANCE.—The *Revue Horticole* contains woeful accounts of the effects of the winter in the West of France, as at Cherbourg, Brest, &c., localities famous for the general mildness of their winter temperature, which has induced the plantation of Eucalypti, Dracænas, Camellias, and other half-hardy things, which have now met their fate. The Cauliflowers, which for four months of the year constitute the principal freight of several steamers plying between Cherbourg and the English ports, are completely ruined. From the South, and even in Algiers, the reports are equally disastrous.

PRUNUS CAPULI.—A Mexican fruit tree, little

well brighten up the large house in which the older plants are arranged. Ne Plus Ultra is a very fine orange-scarlet; Princess Beatrice, a pretty blush-white; Maiden's Blush, another delicately-tinted variety; Diadem and Conqueror, rich reddish-scarlet; Vesta, clear yellow; and Scarlet Crown and Taylori, both good. The last-named, although an old variety, is very distinct; the petals pink, and the tube pure white. Of the new dwarf section of *R. multicolor* hybrids, Juno, rich crimson, and Rosy Morn, are both fine. It may incidentally be mentioned, that the collection of *Amaryllis*, also in the charge of Mr. JOHN HEAL, is now in the flowering-house, some 3000 bulbs being all pushing



FIG. 53.—ROCKING PLACE, BRAINTREE. (SEE P. 240.)

for September 4 and 5; hardy fruits October 8, 9, and 11; and Chrysanthemums November 6 and 7. Beyond these, arrangements have also been made for the exhibition of the National Rose Society on July 4; the National Co-operative on August 15; the National Dahlia Society on September 4 and 5, in connection with the fruit show, on the first day of which a Conference of the British Fruit Growers' Association will also be held.

ROSE WABAN.—This is described as a sport from Catherine Mermet, with which it is identical, except in colour, which is a deep bright pink. A coloured figure is given in the *American Florist* for January 22.

known in Europe. In the Jardin des Plantes, it proves to be hardy, flowers freely, but rarely produces fruit. In Mexico the fruits are sold in the market under the name of Capulinos, and possibly under orchard-house treatment the fruits might be utilised over here. In the *Revue Horticole* for February 1, are figures showing the flowers and fruit.

MESSRS. J. VEITCH & SONS' RHODODENDRONS.—Looking in to see how the long, dull winter had affected the hybrid Rhododendrons at Messrs. JAMES VEITCH & SONS, we found them not a whit inferior to what they have been in what have been considered more favourable seasons for plant-life in London gardens. Enough were in flower to

up spikes. A good idea of their proper culture may be gained by a visit to see them in this stage.

CHISWICK HORTICULTURAL SOCIETY.—We have received from G. G. HARTLAND, Esq., Hon. Secretary of the Society, the report for last year, and the schedule of prizes for the summer show July 2, this year. He says, "We are offering two Silver Cups for competition, and the amount for prizes including them is £195 17s. 6d.; we have introduced several new classes."

COLTSFOOT.—The first flower was observed this year on February 16 near Chiswick, about three weeks later than last year on the same bank.

ROYAL GARDENS, KEW.—The following are the regulations for the admission of young gardeners to Kew:—Applicants for admission as gardeners into the Royal Gardens are furnished with a paper, which, when filled in, must be signed by their present or last employer and returned to the Curator, accompanied by a letter in applicant's own handwriting. The wages are 18s. per week, with extra pay for Sunday duty. Applicants must be at least twenty, and not more than twenty-five years of age, and must have been employed not less than five years in good private gardens or nurseries. Preference will be given to men who have had most experience in the cultivation of plants under glass, and no application will be entertained from men who have not had some such experience. Where obtainable, testimonials from known practical gardeners should accompany the application. The applicant will be informed if his name has been entered for admission, and, on a vacancy occurring, he will receive notice to that effect. Should there be no vacancy within three months from the date of application, it must be renewed if employment at Kew is still desired. If not renewed, the applicant's name will be removed from the book. Gardeners who remain at Kew a year, and whose conduct is satisfactory, will be eligible, as vacancies arise, for the positions of sub-foremen, and will be recommended, according to the capacity they display, for employment in other first-class gardens, either at home, in India, or in the Colonies.

W. T. THISELTON DYER, Director.
GEO. NICHOLSON, Curator.

Name _____

Age _____

Names of employers in whose gardens applicant has worked, and length of time in each:—

Science and Art Classes (if any) attended by applicant, stating subjects studied, and certificates obtained by him:—

Employer's signature _____

Place _____

Date _____

CALCUTTA AND DARJEELING: Conditions of appointment of gardeners for service in the Botanic Gardens.—1. The engagement will be for three years. 2. The pay will be at the rate of 150 rupees per month. 3. Free quarters, or an allowance in lieu thereof, will be provided. 4. A free 2nd class passage per P. and O. steamer will be provided. 5. A sum of £20 will be granted for purchase of outfit. 6. The candidate will be required to pass an examination before the India Office Medical Board to prove his physical fitness to serve in India. 7. A free 2nd class passage back to England at the expiration of the three years will be provided if his services are not further required.

"BOTANICAL MAGAZINE."—The plants figured in the February number are:—

Magnolia Watsoni, t. 7157.—A deciduous species, native of Japan, with oblong leaves margined with yellow, and with white flowers 5 inches across. The outermost segments are flushed with rose, and the yellow anthers are raised upon red filaments.

Catasetum fimbriatum, t. 7158.—Flowers in pendulous racemes, each about 3 inches long, the segments oblong, acute, reflexed, greenish-yellow, finely barred with red; lip with a short hollow spur,

anterior portion three-lobed, lobes rounded, and laciniate.

Rhododendron scabrifolium, t. 7159.—A shrub, native of Western China, with lanceolate, coarsely hairy leaves, and terminal trusses of small star-shaped pinkish flowers. It is one of many Chinese species received at Kew from the Jardin des Plantes.

Tricuspidaria dependens, t. 7160.—A small Chilean Tiliaceous tree, with shortly-stalked lanceolate leaves, white on the under surface. The peduncles are axillary, solitary, 2 to 3 inches long, pendulous, each bearing a single urn-shaped flower an inch and a quarter in length, and of a rich crimson colour. Kew.

Angræcum fragrans, t. 7161.—Interesting for its Vanilla-like perfume. It is the "Faham" of Bourbon and Mauritius, where the dried leaves are said to be used as tea. Kew.

CARDINAL HAYNALD.—On the occasion of the fiftieth anniversary of the ordination of this distinguished prelate, a sketch of his career as a botanist was published in the Hungarian language. This was translated into German, and we are now favoured with a French version, executed by Professor MARTENS, of Louvain. The friend of FENZL, PARLATORE, BOISSIER, and other botanists, the Cardinal has ever shown his interest in botany and botanists. He has accumulated a fine herbarium and library, and these are placed with great liberality at the disposal of botanists. As Cardinal Archbishop of Kalocsa, it may be well imagined that the time he can devote to original work in botany is very limited; nevertheless, as the bibliography attached to this pamphlet shows, the Cardinal's contributions to botanical literature have been varied and interesting.

NICOTIANA COLOSSEA.—The *Revue Horticole* reminds us that this plant recently figured in our columns, was originally described by M. ED ANDRÉ in the *Revue Horticole*, 1888, p. 511, and was sent out by M. GODEFROY LEBŒUF, of Argenteuil. The plant, it appears was grown from seed introduced from Brazil by M. MARON, who exhibited at the Universal Exhibition of 1889 in Paris, superb specimens nearly 10 feet in height, the enormous green leaves traversed by a central red rib.

SALE ROOM GOSSIP.—Those who are in the habit of regularly attending the Orchid sales can tell by the catalogue, if the name of the vendor be given, what the quality of the plants will be before entering the rooms. Most of the sellers have found out that it is best for the interests of all concerned to send up either the whole of an importation as received, or, at least a fair sample of it, but others have yet to learn that fact. If the whole of a small consignment is sent, as received, buyers will readily forgive the vendor, even if the quality is not all that could be desired; but when it is picked over and the worst only sent, it is inexcusable, and soon gets the firms who practise it an unenviable name for bad stuff. The plan adopted by Messrs. CHARLES-WORTH, SHUTTLEWORTH & Co. in offering the rare true *Lælia grandis*—viz., "the whole consignment is offered"—at Messrs. PROTHEROE & MORRIS' on Friday, February 20, will, therefore, doubtless bring good results.

EARLY-BLOOMING VIOLA. In the neighbourhood of Birmingham, a large bed of the deep yellow variety "Bullion," is in full bloom, and has been so since the early part of February, and it will continue so until the plants are transplanted to other beds in April for the summer and autumn blooming. Violas are very much used about Birmingham, and this variety is the earliest in coming into bloom.

STOCK-TAKING: JANUARY.—The conclusion arrived at, on looking down the "summary" columns of trade returns for the month of January is, that in imports and exports there is a decline in values. With two or three exceptions the decrease in the imports is general, and amounts, as will be seen, to the respectable figure of £4,402,768. There is no

cause for alarm here, however, for the reason of the decline is very near at hand, and is for the most part contained in the familiar topic for English conversation—the weather, which has been terribly "exceptional" over a most extended area. Here is our usual extract from the "summary" of the month's imports:—

	1890.	1891.	Difference.
	£.	£.	£.
Total value of imports	£ 8,143,850	£ 3,741,082	—£4,402,768
§ II.—(A.) Articles of food and drink—duty free	10,335,301	9,409,912	—925,389
(B.)—do., dutiable	2,257,091	1,929,831	—327,170
§ VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)... ..	11,923,163	10,443,376	—1,479,792
§ VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)...	2,651,310	2,378,863	—272,447
§ IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,535,884	1,124,289	—411,615
(B.)—Parcel Post ...	55,513	63,209	+7,696

Of course, not alone is the sad mess called the weather of the past few months to blame—for tariff "arrangements" and revolutionary episodes in South America—where now-a-days we do a large trade—tend to cripple temporarily the efforts of producers and speculators; but just now the temperature is rising, and the whirr and clang of machinery is increasing in volume—home railway trade begins to swell in quantity, in spite of the railway strike now happily ended in the North; the loss caused by this alone reaching £250,000; and there is a promise of better things to report concerning stock-taking for February, although at sundry English and Welsh ports a struggle is going on between employer and employed. As may be inferred, some of the above remarks apply to decreased output, which figures at £1,752,437 in articles of British and Irish produce, and of £390,149 in foreign and colonial produce. It is always safe to predict that however steep may be the hill-side he has to mount, the British commercial traveller has always a heart equal to it. So have his backers! The following is our usual extract from the general returns for the benefit of the fruit and vegetable growing community at home and in the colonies:—

	1890.	1891.	Difference
§ II. Fruit:—			
Apples, raw bush.	201,880	117,382	—84,498
Unenumerated, raw	14,410	15,439	+1,029
Onions	279,255	222,612	—56,533
Potatoes cwt	15,722	53,685	+37,963
Vegetables, raw, unenumerated	£ 4,601	31,379	—1,222

LIQUORICE.—In *A Modern Apostle: Alexander N. Somerville, D.D.*, by GEORGE SMITH, C.I.E., LL.D., there is an interesting account of the manufacture of liquorice as witnessed by Dr. SOMERVILLE at Sokia, near Smyrna. In his (Dr. SOMERVILLE's) own words—"The juice is extracted by machinery, here and in America; for the firm (Messrs. MACANDREW & FORBES) has a factory there, and exports from Asia Minor a large quantity of the root. Only a trifling amount now is employed for medicinal purposes; it is principally used for combining with Tobacco leaf to make 'Cavendish,' which is much in vogue with sailors. The whole valley of the Meander for above 100 miles is more or less overspread with diggers, men and women, extracting the roots from the ground, stacking them, putting them into bags, and sending them on to various stations on camels. I was led to understand that this gives employment to nearly 100,000 persons. Indeed, the business has an

important influence throughout the district, by teaching the people habits of industry. . . . We went over the factory, connected with which are Scotchmen, Circassians, Turks, people from the Isle of Patmos, and Scala Nuova, near Ephesus. The manufacture of liquorice paste is accomplished by grinding down the root between ponderous mill-stones. JAMES, observing in the yard some seventeen of the stones formerly used, and detecting in them a resemblance to the drums of colossal pillars, inquired whether they had not been taken from some antique structure, and elicited the information that the worshippers in the temple of Artemis, at Magnesia, in the days of THEMISTOCLES, had not been unfamiliar with them when occupying a very different position." *Athenæum*.

SHOW FIXTURES.—The dates of the shows to take place in Bath this year are May 13, July 2, September 2 and 3, and November 11 and 12; the bulb show of 1892 being fixed for March 16 and 17. The Reading Horticultural Exhibitions are fixed for June 3 and September 2, in the Abbey Ruins. The Torquay Society's shows are for March 17, June 24 and 25, and November 11. Highgate and district, November 5 and 6; and Tiverton on November 11. The Maidenhead Society has fixed its annual show for August 13. By the schedule of the Glasgow and West of Scotland Society to hand, we see there will be shows in the St. Andrews Hall, Glasgow, on March 25 and Sept. 2, when £75 17s. and £253 17s. respectively, are offered in prizes.

ROSE SHOWS IN 1891.—Mr. MAWLEY, Rosebank, Berkhamsted, Herts, sends the following list of all Rose shows whose dates are as yet definitely fixed. The next list will appear early in March. In the meantime, he will be glad to receive any Rose show fixtures not mentioned below as soon as they have been arranged:—June 23 (Tuesday), Westminster (N.R.S.); 24 (Wednesday), Richmond (Surrey); 25 (Thursday), Winchester; 30 (Tuesday), Canterbury. July 1 (Wednesday), Croydon; 2 (Thursday), Bath, Farningham, Norwich, and Woodbridge; 4 (Saturday), Crystal Palace (N.R.S.); 7 (Tuesday), Gloucester; 8 (Wednesday), Sutton; 14 (Tuesday), Wolverhampton—this is a three days' show; 16 (Thursday), Hereford (N.R.S.) and Helensburgh; 18 (Saturday), Manchester; 21 (Tuesday), Tibshelf; 23 (Thursday), Worksop. August 1 (Saturday), Ripley (De. by).

THE MIDLAND CARNATION SOCIETY.—This is a new Society, recently formed at Birmingham, and it is arranged that an exhibition shall take place in the Botanical Gardens in that town, on August 8, subject to any change which the season may render advisable. A schedule has been issued, having a few classes of a comprehensive character, so that all the types are provided for, two of them being for border Carnations in bunches, cut just as they grew in the open border, with buds and foliage. The chairman of the committee is Mr. R. SYDENHAM, and the Hon. Secretary is Mr. W. DEAN, Sparkhill, Birmingham.

THE ROSE OF SHARON.—In an interesting article on Anenomes, published in the December number of the *Illustrierte Garten Zeitung* of Vienna, Dr. Carl Mueller says of *Anemone coronaria*, that it grows in western and southern France, in Italy, Dalmatia, Turkey, Greece, and the Levantine countries, as well as in Algiers, but then explains that one thinks of it especially as the characteristic flower of Palestine. Here, he says, "it as commonly grows wild as about Smyrna and in Asia Minor, spreading far and wide as the most beautiful of spring blossoms, growing on chalk soil along the edges of shrubberies. We cannot wonder that it was already in ancient times a favourite of the inhabitants, and excited in poetic minds sensations such as can only be excited by surprising beauty. 'I am the Rose of Sharon and the Lily of the valleys,' sings the first verse of the second chapter of Solomon's Song, and there can be no doubt to-day what is here

meant by the Rose of Sharon. It was an American, Fiske P. Brewer, who decided this question; *Narcissus tazetta*, which likewise grows in Palestine, having previously been considered the Biblical flower. This gentleman, according to the *Edinburgh Review* of 1886, while travelling in the year 1859 from Jaffa to Ramleh, came upon a place where a considerable expanse of ground was half covered with brilliant red flowers. At the sight of them some of his native companions immediately exclaimed, 'Roses of Sharon;' and, when he inquired about the name, he was told that the *Anemone* was there universally so called. In truth, it would not be easy otherwise to speak of a Rose in Palestine, for native Roses do not exist there—at least, not where they would justify the association of the Plain of Sharon with their name. Wild Roses are found in Palestine only on Lebanon, or where, here and there, *R. centifolia* is cultivated for the production of attar, as in the Wadi-el-Werd (Rose valley) near Hebron. According to EBERS and GUTHREY, in their *Palestine*, the translators of the Bible often use the word Rose where there is no warrant for understanding by it a true Rose. The Roses of Persia and Media were not introduced into Palestine before the Grecian period." *Garden and Forest*.

GARDEN SCHOLARSHIPS.—In a recent reference to the establishment of garden scholarships in the Botanic Garden at St. Louis, a Scottish correspondent mentioned Professor BALFOUR as having been appointed Examiner in Scotland, of such pupils as wished to avail themselves of the splendid opportunities for acquiring practical knowledge, based on scientific principles, offered by the American Institution above-named. The statement was, it appears, premature, and not strictly correct. Next year Professor TREBLE will probably afford the same facilities for the examination of candidates in Europe as in America. Pupils have for the first year to devote themselves exclusively to garden-work.

"HISTOIRE DES PLANTES."—Prof. BAILLON'S *Histoire*, of which we have often spoken, has now its eleventh volume. The last part contains the monograph of the genera of *Acanthaceæ*, and which comprise so many plants of interest to horticulturists. One hundred and thirty-six genera are included in the order.

THE GARDENERS' COMPANY.—Readers of horticultural bent will, we venture to believe, learn with satisfaction that a movement has been set on foot for the revivification of the Gardeners' Company, a guild that of late years has been declining in point of numbers. The company, which stands seventeenth amongst the guilds, can boast a long and useful career. Incorporated by charter in the year 1605, its privileges being confirmed on several subsequent occasions, the Company, in days gone by, exercised no little influence in connection with horticultural affairs. As time went on, the influence waned somewhat, the hold over horticulture being eventually so lessened that, to all intents and purposes, the members, as a body, ceased to take any interest in the "craft" the guild was originally formed to nurture and foster. As the task of infusing fresh vigour into the Company has been undertaken by gentlemen of weight and standing, the movement, without a doubt, will meet with all the success it deserves. Amongst the gentlemen interesting themselves in the matter are the Lord Mayor—who has consented to undertake the duties devolving upon the master—Mr. Sheriff Farmer, Mr. Under-Sheriff Shephard, Sir Trevor Lawrence, Bart., M.P., the Rev. W. Wilks, M.A. (Hon. Secretary of the Royal Horticultural Society), Mr. Ex-Sheriff Burt, Major Lambert, F.S.A., and Colonel North. *City Press*, February 7.

INTERNATIONAL EXHIBITION AT ANTWERP, 1891.—This exhibition will be held during the months of August and September in the handsome buildings of

l'Athénée Royale, Place de la Commune. It comprises three sections:—1. Section devoted to vegetable products and their relations with science, commerce, trade, and general utility. 2. Section devoted to plants (to botanical geography), including a permanent collection of species from temperate regions, and three temporary collections of specimens of tropical flora. 3. Microscopical department, subdivided into two parts, one relating to retrospective, and the other to general microscopical science. The prospectus and rules will be sent to those who are interested in the matter towards the end of this month. Exhibits should be sent—if for the microscopical department, to M. le Dr. H. VAN HEURCK, Botanic Garden, Anvers; and if for other sections, to M. CH. DE BOSSCHÈRE, President of the Executive Committee, Lierre-lez-Anvers.

COCHLIOSTEMA MEDIO-PICTA.—This remarkable variety has been raised by the firm of M. LOUIS VAN HOUTE, of GHEENT, from *Cochliostema striata*, from which it differs considerably by its more brilliant markings. The leaves are creamy-white, the edges bordered with a broad band of green, stripes of the same colour traverse the white centres (of the leaves) longitudinally. These splendid leaves are suggestive of those of *Dracæna Lindenii*; the new species is, however, distinguished by its fine habit.

CHRYSANTHEMUM EXHIBITION IN BERLIN.—We are informed by Professor WITTMACK, General Secretary of the Verein zur Beförderung der Gartenbaues, that an exhibition of Chrysanthemums and other flowers will be held in November next, under the auspices of the Verein named. Exhibitors are invited to attend from this side. The programme will appear about the middle of March.

CYPRIPEDIUM LATHAMIANUM.—This species, lately described in the *Gardeners' Chronicle*, is now in flower in the houses of M. ED. PYNAERT VAN GEERT, and is probably the first time that this magnificent species has bloomed in Belgium.

THE HORTICULTURAL SOCIETIES OF CROYDON, of which there are three, and all flourishing, met together at the Greyhound Hotel, Croydon, on Wednesday evening last, to dine, when about 130 persons sat down under the presidency of the Mayor, F. T. EDWARDS, Esq. Amongst those present being the Hon. S. Herbert, M.P., Sir T. R. Edridge, J.P., E. W. Grimwade, Esq., J.P., The Rev. W. Wilks, and Messrs. P. Crowley, F. Cooper, P. A. Peacock, W. Gunner, S. Cummins, King, Ritchin, and Goldsmith, the tables being elegantly decorated with plants, &c., by Messrs. J. Laing & Sons, Forest Hill, S.E. The "Three Societies" was proposed by the Hon. S. Herbert, M.P., in suitable terms, speaking of the harmony of the three institutions all having the same object in view; replies being made by Messrs. Roffey, Carr, and Baxter, on behalf of the Horticultural, the Chrysanthemum, and the Gardeners' Improvement Societies, respectively. The Vice-Chairman, T. Wickham-Jones, Esq., proposed the Royal Horticultural and kindred Societies, to which a reply was made by the Rev. W. WILKS, Secretary of the first-named, who, in the course of his remarks, gave a brief history of the Society and its work, especially as regards the introductions through its collectors, as DOUGLAS and FORTUNE. The idea of joining the energies of the several Societies into one festival was undoubtedly a wise one, and met with great success; and the same idea could with profit be carried out in other districts.

PUBLICATIONS RECEIVED.—*II. List of Botanical Works*, including *Phanerogams, Floras, Miscellaneous Subjects, and Practical Botany*. By EMIL SÖLDING, Wallner St. 13, Vienna, I.B. *Die Nadelholzer, Nieder Oesterreichs*. By Dr. GÜNTHER Ritter Beck von Mannagetta. Verlag des Vereines für Landeskunde von Niederösterreich, Vienna.) — *Bees and Bee Keeping*. By F. R. CHESHIRE, Part 10. (Upcott Gill, 170, Strand.)

ORIGIN OF STIRLING CASTLE PEACH.

MR. MILLER, of Rood Ashton, is mainly right in his facts about this Peach, but as I myself was the means of its being first brought into notice, and as its merits as the best early-forcing main-crop Peach seem to be now fully recognised, a fuller account of its origin and history may be interesting to your readers generally. George, the late Earl of Dunmore, was a great horticulturist, and kept up a large correspondence with growers, both in this country and America. From the latter country he had a number of Peach stones sent him; many trees were raised by his gardener, Mr. John Taylor. When I went to Dunmore as head gardener, these were handed over to me by Mr. Taylor, who told me all about them. Some of them turned out so well that I exhibited them at the then Horticultural Society in Edinburgh, and a medal was awarded by the Society to the one named Stirling Castle, this being a conspicuous object from the grounds at Dunmore. The seedling tree was planted in a house 12 feet in width, at an angle of 45°; length of the rafters, 22 feet. It was planted 18 inches from the front wall, which was about the same height, and covered the entire expanse of glass. While I was at Dunmore the present Earl was a minor, consequently I had to charge the dowager Countess for the fruit and vegetables supplied. Her ladyship thought that I charged her too much for the Peaches, 8s. a dozen, at the end of May. I told her that they were worth three times as much, so she told me I had better dispose of them. Knowing that the late Mr. Samuel Solomon was then the leading man in Covent Garden, I sent them to him, and he returned me £2 7s. 6d. a dozen for them. And thus the tree, although a great number had been sold for 8s. a dozen, brought in between £60 and £70. The Pomological Society was then in existence in London, and I asked Mr. Solomon to send a dish of the Peaches to one of their meetings. The committee awarded me a Gold Medal for the Peach. The late Mr. Thomas Osborne, of Fulham, was at the meeting, and he wrote me at once asking what I wanted for the stock. On coming to terms, I sent him the buds, as his stocks were ready for working. He used the Mussel Plum and Brompton as stocks. Unfortunately, Stirling Castle never really succeeds on the Mussel, so that in following years he only used the Brompton. This is a proof, if Mr. Shepherd is still unbelieving that the Peach is a veritable seedling and quite distinct from Royal George. When I laid out the Sandringham houses, I used nothing else for a main-crop Peach, and Sandringham Peaches were then known at all the Royal Horticultural Shows. Mr. Taylor did not tell me he raised the Peach in 1822, if he did, the tree must have lived over sixty years, for it has only lately died. *W. Carmichael, 14, Pitt Street, Edinburgh.*

FOREIGN CORRESPONDENCE.

CORFU.

THE mountains and Olive-grounds here are beautiful just now with *Polyanthus Narcissi* (Tazetta), *Phlomis*, *Rosemary*, and *Iris reticulata*; the latter, though dwarf, is very conspicuous among the Cork trees. *R.*

BRUSSELS.

Linnean Society of Brussels.—At a well-attended meeting, held on February 8, Mr. Fr. Peeters, jun., lectured on the cultivation of *Odontoglossums* in cold and temperate-houses. In order to better illustrate and elucidate his remarks, the lecturer had a number of specimens at hand, and in an adjoining room a good collection of Orchids was on view, among the plants being finely-flowered *Odontoglossums crispum*, *Humeanum*, and *Wilckeanum*, *Cattleya Trianae*, var., *Cypripedium Boxalli atratum*, *C. Harrisianum polychromum*, and *Dendrochilum glumaceum validum*, *Ch. D. B.*

The *Orchid  enne* held its twenty-fourth meeting in the Winter-garden of the Horticulture Internationale, Brussels, on the 8th inst., and was very satisfactory when the long-continued bad weather is considered. Among the ninety-nine plants shown, was a fine variety of *L  lia anceps*, from M. G. Warocqu  ; it was 1½ metre in diameter, and bore 205 flowers of rose-colour, with a deeper-hued lip. This gentleman also sent a beautiful lot of *Odontoglossums*, including one covered with very large spots on the petals only. M. G. Miteau had a plant of *Oncidium ornithorhynchum*, bearing 1328 flowers.

First-class Certificates were awarded to *Catasetum Wallaerti* and *Zygopetalum triumphans*, from M. Linden; and to the same exhibitor a Second-class for *Catasetum noctuum*.

First-class Certificates of Merit went to *Cattleya Trianae*, from M. Miteau; *Odontoglossum macrospilum*, from M. Vuylst  ke; *Odontoglossum sp.*, from M. G. Warocqu  ; *Cypripedium vernixium* var. *maximum* and *Cattleya Trianae* var. *Cannaertae*, from M. du Trieu de Terdonck; *Cattleya Trianae* var. *Cabuzaciana*, from M. Martin-Cabuzac; *Selenipedium Wallisi*, from M. Moens; *Cynoches ventricosum*, from M. Jean Houzeau de Lehaie; and *Lycaste Skinneri alba*, from M. J. Moens.

Second-class Certificates of Merit to *L  lia autumnalis* var. *Gouldiana*, from M. J. Moens; *Odontoglossum Cervantesi* var. *decorum*, *Odontoglossum Cervantesi* var. *lilacinum*, and *Odontoglossum Pescatorei* var. from M. G. Warocqu  ; *Odontoglossum Rossi majus*, from M. A. Van Imschoot; *Cypripedium insigne* var. *marmoratum*, and *Cypripedium Leeanaum*, from M. E. Wallaert; *Cypripedium Curtisi*, from M. J. van Lansberge; *Cypripedium selligerum* var. *sanguineum*, from Dr. van Cauwelaert; *Cypripedium insigne* var. *maximum*, from Messrs. Verv  t & Co.

Cultural Certificates were granted to *L  lia anceps*, from M. G. Warocqu  ; *Oncidium ornithorhynchum*, from M. G. Miteau; *Cypripedium Lindleyanum*, from M. G. Warocqu  ; and to *Dendrochilum glumaceum* from M. van Lansberge.

WINTER SEASON PLANTS IN PARIS.

As Christmas-time in England, and the Easter and other holidays in America, are the most busy periods for the florists, in Paris, and in France generally, New-year's Day occupies the leading place. It is interesting to note which plants, &c., are in favour at that season.

Of course, many of those things seen in England are to be seen here as well, but also much that is different. The use of Holly and Mistleto at Christmas, of course, is much smaller than in England, but the masses we saw were much larger than we had expected; probably the many English and Americans residing in Paris are the principal buyers. We also frequently noticed great lots of Fir branches, and also bushes of Butcher's Broom, with its red berries. The many nurseries in the South of France along the Mediterranean coast being at no great distance, are, of course, very important providers of the Paris and other markets. Cut flowers are sent from there in such great masses that many of them can no longer be produced near Paris with profit. Waggon loads of flowers arrive daily in Paris; Violets, Roman Hyacinths, branches of *Acacia dealbata*, Roses in many varieties, and especially the yellow Safrano, with long red stalks and fine foliage, *Reseda*, double White Stocks, *Anemone fulgens*, Carnations, and Daffodils, are seen everywhere, and sell at rather low prices. Lily of the Valley is forced around Paris, but not in such masses as may be seen at Rochford's nurseries, Broxbourne, and at others around London. Forced Bulbs, such as Hyacinths in several colours, and Tulips, are plentiful, but only a few Daffodils are seen in shops.

Among forced shrubs, we noted especially the *Rhododendron* as being much in favour, they were seen in many varieties; *Azalea indica* was very often seen, among the white ones especially "Deutsche Perle," to which even the Frenchman seemed to have no objection. *Azalea mollis* and *A. pontica*,

so valuable for forcing, were hardly anywhere to be met with, and we saw but little of *Poinsettia pulcherrima*, nor *Hydrangeas*, so much grown for the London market.

The "floral arrangements" are generally loose and graceful, and are made either in baskets or in vases, though, of course the one shows more taste than the other. We think that in some places the use of ribbons was rather too plentiful. In some of the fashionable shops we saw as many as three different colours used on the same basket. Button-holes are not much in favour in Paris, and are hardly to be seen anywhere, for which reason many flowers, like *Gardenias*, &c., are rare. *Camellias*, *Eucharis*, *Stephanotis*, *Callas*, *Euphorbia jacquini-flora*, and many others so common in London at that time of the year, are not to be seen in quantity; so we see that, with the exception of Orchid blooms in variety, the more choice and costly flowers are not much used in the French capital.

Among green stuff, we see used much the same plants as in England. Forced Lilacs were plentiful, and sometimes *Guelldres* Roses and other shrubs. Most of the first are pure white, though they are often met with in several shades of lilac as well. *Cyclamens* are very much in favour, and are grown extensively in many nurseries, especially at Mr. Truffaut's, in Versailles. Its companion in London, the Chinese *Primula*, seems not to be in favour here.

Ericas are well grown near Paris, especially in the neighbourhood of Vincennes. At this time *E. hyemalis*, *barbata*, *gracilis*, and *alba* were mostly to be met with. *Bromeliads* are grown more extensively than in England, and very ornamental they are. The *Vriesia psittacina* varieties and hybrids, *V. hieroglyphica*, *V. splendens*, *Tillandsia Lindeni*, *Guzmania tricolor*, and many others, are very valuable, either for their foliage or their flowers, or for both together. *Epiphyllums*, too, were seen here and there, and are especially worth growing for their glowing colours.

Orchids seemed to be in fashion, many species being represented by cut bloom, though hardly any but *Cypripediums* as plants, which are displayed in baskets together with Ferns. Plants for indoor decoration, as *Aspidistras*, *Cliveas*, *Aralias*, *Ficus*, *Drac  nas*, and others, are equally in favour. Among Palms, *Cocos Weddelliana* is very much grown, it being very useful in baskets and for table decoration, though the latter is not carried out so extensively as it is in many large houses in England.

A new feature in the market is seen in the supplies of Palms, as *Phoenix*, *Cocos*, *Corypha*, *Cham  rops*, which, coming from the South of France, are distinguished by dwarf habit, and by being very hardy and fine specimens. Many Ferns, as *Asplenium bulbiferum*, *Adiantum*, *Pteris tremula*, *P. argyrea*, *P. cretica*, *P. serrulata*, and *Davallia* are grown; and also *Selaginella Kraussiana*, *S. Martensi*, and *S. Emiliana*, for baskets, &c.

Among other plants which we saw were used generally must be mentioned, variegated *Drac  nas*, *Crotons*, *Marantas*, *Ophiopogon*, *Pandanus Veitchi*, *P. utilis*, *Araucarias excelsa* and others, *Asparagus*, and fine-foliaged *Begonias*, these last being in great favour with the French people, who are continually obtaining new varieties. *H. J. Goemans*.

THE APIARY.

As far as may be judged from reports to hand by the weekly journal devoted to bee-keeping, the severe cold cannot be made responsible for any abnormal losses this winter. From the details furnished of disasters that have occurred, the causes are traceable to the ordinary mistakes of improper feeding, in the shape of unsuitable sugar used for syrup-making, or the want of winter passages. Bees in single-walled hives have come through safely, and this speaks volumes in their favour. By turning quilts back, so that the eye can be run along between each frame, it can be easily ascertained,

with little or no disturbance, if hives are running short of stores, and candy must be given where necessary. It is better to place a cake outside the quilt over a feed-hole than to push it underneath. If damp, coverings should be dried and replaced, and as breeding is now commencing in earnest, everything should be done to assist the bees to maintain the heat required for brood raising. To this end entrances may be contracted, as well as additional packing provided. Now is a good time to get frames and sections made up, and fitted with foundation.

I do not think that much time or trouble is saved by having frames with a saw cut through top bar for fixing foundation, and the opening provides a secure harbour for the larvæ of the wax moth. Frames of the Simmin's pattern are good. These have a solid top bar $\frac{5}{8}$ of an inch deep, excepting the ends, which are the usual $\frac{3}{8}$. A great advantage is, that they can be taken out of the hive by grasping them in the centre with the finger and thumb of the left hand, thus leaving the other at liberty, if required, and the bees do not, as a rule, build brace comb on the tops of them. Foundation can be quickly fixed on them by running molten wax from a spoon down each side, and by having a piece of board about $\frac{1}{10}$ of an inch thick, to fit loosely inside the frame, with two cross-pieces nailed at the back; it can be laid on this, and kept in position. Foundation is sometimes wired into frames; but there is no economy in so doing, as the thin foundation sold for the purpose comes out as much per sheet as the ordinary, and the bees often amuse themselves by mutilating and spoiling the combs in their vain endeavours to remove the wire. For fixing full sheets of foundation in sections, there is nothing to beat Howard's "Champion Fixer," and a good way of putting in starters is to lay the wax flat on the wood, and imbed it by running a roller which can be procured for this purpose, along the edge. The prize list of the honey and hive classes at the Royal Agricultural Society's show, to be held next June, at Doncaster, is published. *Expert.*

VEGETABLES.

LILY WHITE SEAKALE.

THOSE who visited Canford Manor last autumn will have observed the fine quarter of Lily White Seakale, with leaves and stems of great size, which Mr. Crasp, the gardener, has so successfully propagated and grown.

The large and even size of the many thousands of crowns gave promise of excellent produce when forced, which will be of the utmost service now that ordinary vegetables have been so cut up by the frost. Mr. Crasp is, at the present time, cutting some of the finest white heads which I have ever seen. Seakale roots, in some gardens, show when broken, marks of decay, and never produce fine fleshy heads when forced; but Canford Kale is of large size and healthy. *Visitor.*

VICTORIA SPINACH.

I have previously recommended the Victoria to be grown instead of the old prickly seeded variety, for it is a better cropper as a winter Spinach. The leaves are large and of good substance, and produce in abundance. I now depend upon it solely in the winter, it being very hardy. At this date, it is the best looking vegetable in the garden. The chief danger to Spinach that has survived the winter, comes from east winds just when new growth starts. But by drawing up a ridge of soil, or by putting low hurdles here and there across the border, the ill-effects of the wind may be much lessened. The variety does not run to seed readily in warm weather, remaining fit for use quite a fortnight longer than some others; we usually make a sowing early in the month of August, and another three weeks later. More space from plant to plant, and between the rows than the older kinds, is necessary, as it is a larger grower than those. The late sowing will not require to be thinned so much, the growth

not being so rapid. The Monstrous de Viroflay Spinach is also good for winter use, but it differs slightly from the Victoria. *G. Wythes.*

CHELTEMHAM GREEN-TOP BEET.

Mr. Hudson speaks highly of this variety of Beet at p. 181, and I can also recommend it, having grown it largely for the past seven or eight years. I now grow it for the general crop in preference to any other. It is one of the best coloured Beet roots when properly boiled, and I am sure when better known it will be more largely grown. I would advise two sowings being made—one early in May, and the other one a month or six weeks later. *G. Wythes.*

PRUNE CURING IN THE SOUTH OF FRANCE.

ATTENTION has recently been drawn to the subject of the production and curing of prunes in the South of France, by an article in the December number of the *Kew Bulletin*, some notes from which were given in the *Gardeners' Chronicle* for January 10 last, p. 56. We are now enabled to give a sketch of one of the "claies," or drying trays there described. Speci-

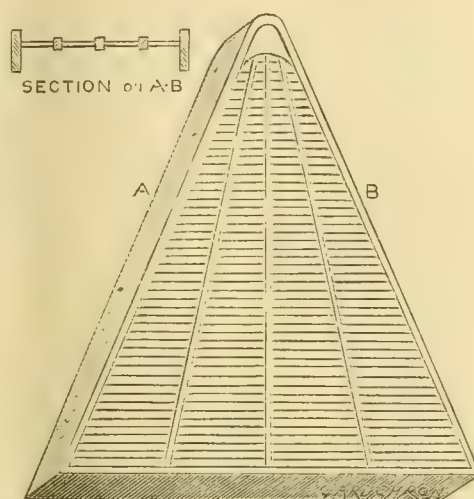


FIG. 54.—PLUM DRYING RAFT, OR CLAIÉ.

mens of these claies have recently been received at the Kew Museum, one of which is made of Willow, or osiers, and is of an elongated or oval form, rounded at one end, and somewhat pointed at the other. Osiers appear to have been the primitive material from which the claies were made, the peasants making their own; the original form, however, seems to have been circular. The oblong, or unequally triangular wooden ones, as shown in the cut (fig. 54), have since been adopted, by reason of them utilising the space in the kiln better, though the original form is still used in outlying spots. The introduction of saw-mills has caused strips of wood to be more generally used, and the shape is somewhat varied, to suit the kiln. With Willow claies the fruits had to be turned by hand singly, while with the wooden ones an empty claie is put on the top, and the whole lot turned over at once by reversing the position of the claie. *John R. Jackson, Museum, Kew.*

HOME CORRESPONDENCE.

SEWAGE AND SOIL.—You charge me (p. 201) with being too dogmatic; with wanting in the modesty which becomes a man of science; and state that there is an absence of proof of the truth of my deductions. I quite agree with you that assertion is not necessarily truth, but surely that which is true of the minor, is also true of the major, if the con-

ditions are the same, and the sewage of a thousand years ago would have the same intrinsic value as that of to-day. It contains so many grains of ammonia as the produce of each person. There is only one known means of easily abstracting the ammonia from its surroundings in sewage—and that is, agricultural soil. If the farmer applies so many grains of sulphate of ammonia to a superficial rod of land, he expects to get a return. If that is applied as sewage, he will get a similar return. It may cost more to get the sewage applied than it will to distribute the sulphate of ammonia. It is here that the political economist should have something to say. I fear to go into this part of the subject, as I should be intruding on your space at command, but it is associated with the question of rental paid by the tiller of the soil to the landlord. Your accusation of a want of modesty as a man of science I can scarcely rebuf. Modesty does not succeed when the object is to influence local boards, municipal corporations, and other elective bodies. The principles at stake are such as do not allow of personal considerations, and I plead guilty to your indictment; but I should be wanting in courage if I failed to press forward the subject when opportunity offered. In season and out of season, it is my duty to press it before the public, and I am obliged to you for giving it the prominence which you have done. Lastly, as to the want of proof. If you will refer to my paper on the transactions of the International Medical Congress, held in London in 1881, you will find a series of propositions which distinctly state the grounds upon which I claim for sewage farming its safety, and its capacity of dealing with disease germs. There are nine propositions, not one of which has been disproved. The only evidence which can be brought against the plan is that which results from sentiment, and ideal damage to neighbouring property. These are really baseless, though positive in their effects, and it is to counteract this sentimental and ideal obstruction that I do not hesitate to urge the proofs everywhere afforded of the simplicity, safety, and national advantage of sewage farming. *Alfred Carpenter, M.D.* [The expressions to which in the interests of science we objected, were not addressed to "local boards," or any such impermeable bodies, but to an assembly of the lecturer's compeers, able to appreciate the value and significance of the lecturer's statements. *Ed.*]

REMOVAL OF STRAWBERRY LEAVES.—When I tendered a few notes on Strawberry culture from my own observation, I did not think that it could be supposed that I agreed with the practice of defoliating the plants, and have at no time "advocated" the practice of "cutting off the old leaves." When I said that I was in "touch" with Mr. Sheppard, I did not advise cultivators of the popular fruit to follow the example of the two friends whose efforts were attended with such splendid results (the one a most felicitous little Englishman, and the other a frank and self-reliant little Scotchman), both of which showed truly that "mind made the man." I simply recorded the facts to show how success may be realised by opposite methods of manipulation—and in latitudes 500 miles apart the same course may be pursued which may not be supported by some popular theories. The writer has more than once received censure for striking out of beaten ruts, which seemed in opposition to the lines in which many of the savants of horticulture have travelled. "Ne exeat." In passing I may refer to one or two of such "malpractices"—viz., the complete removal of all wood-buds from Peaches and other fruit trees under glass, except those required for bearing fruit the following season. These are taken all at once, to prevent any check to the trees as soon as they are visible and before the fruit buds open. Another of my favourite malpractices is—when fruit trees are fruitless and the cause is from gross growth—to root-prune piecemeal as soon as it is thought that a failure is certain, say May or June, and if need be, again in August, which makes certain of perfect health of the trees, the early ripening of the wood, and an abundant crop the following year. It is difficult to shake off notions which have led to the best tangible results for more than a quarter of a century. I have Peaches setting at present which have several times had severe root-pruning after their crop was removed early in July. And a report of new gardens in Worcestershire, which appeared in the pages of the *Gardeners' Chronicle*, from the pen of one of your reporters in 1881, October 1, p. 427, where all the fruit trees had been root-pruned as indicated; and several times since, in other journals, reference has been made to the excellence of these trees, and the fruit they bore, which I had much pleasure in leaving to

go to fresh labours where good results were supposed not likely to follow. Reverting to Strawberries, one may be pardoned if they related a few more facts at this juncture which are not unfavourable to me, but to show that success may be attained practically by manipulation, opposed to advice often given very consummately by talented writers. The old practice of digging down weeds, litter, and a good coating of manure, as soon as the crop is gathered, is by no means extinct, and whilst men get crops of the best description every year, and get their gardens in good order early in the season by this deep tilth, and cutting away the roots to their entire satisfaction, they will not be persuaded to give up their practice, or even be influenced by eloquent advisers. I have never yet seen finer British Queen and Keen's Seedling Strawberries than were grown by my father and grandfather, who often dug deep, and manured liberally round the plants; and one of the most successful growers of Strawberries I ever knew (a mutual friend of Mr. Sheppard's and mine), gave up the non-digging system, and resumed his early practice of wielding the spade deeply among his Strawberry plants. There are also "double-convictioned" practitioners who adopt both systems, when circumstances suggest to them such a course—perhaps under the same laws as in medical practice—which direct both homoeopathy and allopathy [?]. *M. Temple, Carron House, Stirlingshire.*

THE SEVERE WINTER: BIRDS AND BERRIES.—In this district the frost was not so severe as was the case further south; yet the following low temperatures were recorded:—

	Thermometer on Screen.	Thermometer on the Grass.
	Deg.	Deg.
December 14, 1890	19.2	9.5
" 21	16.4	8.3
" 22	11.3	5.0
" 23	14.8	7.7
January 11, 1891	12.4	9.8
" 18	14.9	5.5
" 19	10.1	2.7

The damage done to evergreens is of the slightest, only a few browned outer twigs; and the reputed tender Privets and Laurels are green and uninjured. Berries of all kinds have all been taken by the birds, the Mountain Ash and Berberry being the first to go, the starlings taking the latter; then followed the Holly, Cotoneaster, wild Rose, and Hawthorn, not one being left; the fieldfare took the largest share. Several song thrushes were killed by hunger and cold. Insects were probably frozen in under the snow, for sparrows, deprived of their accustomed food, began to pick the Gooseberry buds off the bushes during the latter part of the winter, and only the ensuing mild weather saved them from further damage. On October 27, all the leaves of Apples were blackened on the trees by a frosty wind, the thermometer reading, at 9 A.M., 34° 2. *J. Lovel, Driffield.*

PEACHES AND NECTARINES.—I quite agree with Mr. Sheppard in his remarks on the above fruits, having tested Early Beatrice and Early Louise, and I found that they are inferior to Royal George, Grosse Mignonne, Noblesse, and other old good Peaches. Early Beatrice and Louise are certainly early in point of ripening, but not more so than Royal George and Early York, which may be forced to give ripe fruits in March, larger, heavier, and of better quality than those latter-day varieties. At any rate, gardeners of thirty and forty years' standing, still stick to them, which is a very good recommendation indeed. I have not seen any better Peach or Nectarine crops inside or outdoors than I saw when I began my gardening career thirty years ago, although as a rule forcing-houses are better built now than was the case at that time. Gardeners, now-a-days, "go in" far too much for novelty as against good quality. *W. C. Leach, Albany Park, Surrey.*

THE ROYAL HORTICULTURAL SOCIETY.—There is a cry that there is a dearth of amateur exhibitors and competitors at the meetings of the Royal Horticultural Society. Might we suggest that the *Gardeners' Chronicle* should lend its valuable aid very effectually in remedying this by reminding amateurs of the number of medals and prizes that are offered to unprofessional growers in 1891. Mr. J. Kelway is again presenting the Silver Gladiolus Medal, and Mr. W. Kelway is offering four Kelway

Medals, in order to extend the cultivation of improved forms of some of the most beautiful flowers which can be grown in our gardens. One of these medals (a silver-gilt) is to be awarded for herbaceous Peonies, the other three (silver) for Pyrethrums, Delphiniums, and Gaillardias. Any information as regards dates and conditions may be obtained upon application to the Secretary, Royal Horticultural Society, 117, Victoria Street, London, S.W., or to us—*Kelway & Son.*

TIME OF SNOWDROPS FLOWERING.—To mark the difference between last year and the present one, I note that, in 1890, Snowdrops on the grass, of which we have some thousands, were in bloom on January 6, while the first blooms this year did not appear until February 1, a difference of 25 days. A clump of *Galanthus Elwesii*, growing on the south side of a rockery, burst into bloom at the same time as did the *G. nivalis* above alluded to, while a similar clump on the north side of the same rockery, are only just breaking into flower now, February 9. *E. M., Hants.*

THE FROST AT BELVOIR.—The roll-call of the more valued occupants of our gardens, after the prolonged elemental battle which has signalled the winter of 1890-91, is not without its tragic aspect; but, happily, in the case of this particular district, not so seriously fatal as might have been expected, from the intense character of the frost, which for seven weeks assailed us. A report on the relative power of certain shrubs to withstand cold, would be misleading, if not accompanied with a description of the position of the gardens in which they grew. The advantage of the shelter afforded by large trees, and of a southern exposure on a dry hill-side, is equal to several degrees of south latitude; north Leicestershire is not recognised as remarkable for the warmth it possesses, and yet, enjoying the protective circumstances I have named, several grouped masses of Camellias show no signs of injury from the late severe weather, but, in bud and leaf, seem the better for it. That lovely shrub, *Andromeda japonica*, has passed unscathed through what is locally called the blast. *Azara microphylla* is equally uninjured; the vanilla-scented flowers which it produces in profusion in early summer should alone recommend this evergreen shrub. *Bambusa Metake*, without any advantages derived from shelter, is quite untouched; *Arundinaria falcata* has slightly suffered; *Choisya ternata*, on dry slopes, and in sheltered places, exhibits no signs of injury. *Daphniphyllum glaucescens* is untouched; *Elaeagnus macrophyllum* has scarcely a stained leaf; *Escallonia macrantha*, *Garrya elliptica*, Sweet Bay, *Laurustinus*, *Olearia Haastii* and *macrodonata*, have borne their wintry trial bravely; a noble specimen of *Rhododendron Falconeri* shows no signs of impaired vigour from frost. *Veronica decussata* in the kitchen garden is likely to lose much of its foliage, but on rocky banks in the pleasure garden looks fresh and green; *V. chathamica* is greatly injured in low ground, and the dwarf-growing *V. epacridioides* is killed; two other low-growing kinds, *V. cupressoides* and *V. salicifolia*, are not in the least injured. I have mentioned shrubs as typical of their several classes, and some of doubtful hardihood even in places not so far north as Leicestershire, rather to show that with properly selected positions, and not the shelter afforded by forest trees and hardy evergreens, they may still be grown successfully. It is yet too soon to speak with confidence of deciduous shrubs, and the lesson of the influence of the season on herbaceous and alpine plants has to be learned as the season advances; with only a few exceptions, these plants have received the chilling effects of the frost as a monitory hint to be quiet for the present. I wish I could give a report equally favourable of kitchen garden productions: whole quarters of Broccoli have been utterly destroyed, young plants of Lettuce and Cauliflowers planted in sheltered places have also been killed, sprouting Cabbage has shared the same fate; those two invaluable greens, Brussels Sprouts and Rosette Coleworts, have withstood the weather and afforded unfailing supplies. *Stachys tuberifera* is growing in favour, and has proved useful as a variety; it is very productive. The frost of 1890 commenced here on November 24, and with one break between December 1 and 6, lasted until January 23, 1891—fifty-six days of frost. The dates of lowest cold were:—December 21, 22° in the air; 22nd, 125°, and 31° on grass. In January, on the 18th and 19th, 24°, and zero on grass. The sum total of frost amounted to 400°. *W. L., Belvoir, P.S.*—I omitted to add, in sending the record of the frost

at Belvoir, that the observations were taken in the kitchen garden, and not in the warmer pleasure garden, protected as I described. The frost in this sheltered spot is never so severe as in the less protected vegetable garden. *W. L.*

BURNT LOAM.—The usefulness of this substance almost entirely depends on the way it is prepared, and I assume in the first place that the crude article is a very stiff or clay-like loam, or ranging from that to clay itself. I believe, however, that almost any kind of garden earth, either mixed or otherwise with vegetable refuse, is improved as plant food by being burnt to any degree short of that which would leave it hard and unpulverisable by ordinary open-air conditions. Where the material being burnt is largely composed of vegetable matter, it is more likely that burning it may cause a waste of valuable plant-food rather than convert it into hard pieces, and it would be better that such material should not be burnt beyond the charred stage; and as a matter of fact, properly used, such material could be profitably employed without being burnt at all. I have only mentioned it here as an extreme contrast to the clays, or very stiff loams, which are the only kinds that I should ever think of burning for garden purposes; and let it be kept in mind that in burning such strong soils they are improved in proportion to the amount of heat applied, and yet beyond a certain point the whole thing would become a failure, simply because if burnt too much—like a piece of brick—the lumps will remain hard, whereas they should by slow degrees, and under the influence of moisture and frost turn to fine powder. I send you with these remarks a few samples. No. 1 is the burnt clay in a dry, but broken and roughly sifted, state. No. 2 is the same material carefully picked out of the ground and off the surface, after being in use twelve months. All the crushing is done by hand, and I mention the crushing here before the mode of burning, merely in order to explain how we come at No. 3 sample, which was found to be so hard by the hand-crushing process as not to be deemed fit for general purposes. I use it, however, to advantage for mixing with the potting material of Orchids, and it proves invaluable as rough material for mixing with ordinary loam for such things as Narcissi of the *Triandrus* section, and the somewhat fickle white-flowered *Ajax* section. It is excellent, too, for such *Iris* as *Susiana*, so that although No. 3 may be too rough and hard to ever turn to a fine mould again, it is not likely to be a wasted material with the gardener apt at his work. I have found the best means of burning loam or clay to be the spreading of it in bits of equal size on the floor of a brick kiln, where the heat is likely to be least intense. It seems that by remaining on the ground it burns more slowly, and though it may be as red as a brick, it crumbles in a very desirable way. I consider the breaking up and sifting to be an important part of the business, inasmuch as it is then that overburnt portions are to be detected and readily separated; for if in trying to break it with the back of the spade there should be a clear ring, such portions are thereby proved to be too hard. The business is both simple, and the process by no means slow, when once fairly in going order. A boy can easily prepare for me in a week 2 tons of the best sifted sample. I use it largely, and I am quite prepared to hear it said, that to do so is a very superficial mode of gardening. Where, however, one has to seek to accommodate something like 2000 species and varieties of alpine and other hardy plants, within the limits of an acre of space, such gardening might fairly be termed unnatural, and might also warrant exceptional means. Anyhow, I can safely say, that there are scores of alpine plants that I now manage with great ease by the aid of burnt loam, which I could formerly but barely keep alive. I find the finer portion a splendid medium for seed raising: it is warm, does not hold too much moisture, but owing to its porous quality, is well adapted for assisting germination; it sets or fixes the seeds better than light loams, and when charged with moisture is heavier and more solid. Even when only used on the surface of seed-pans, it is very useful in the way of preventing the disturbance of the seed by newly-applied water, and somehow or other, since using fine burnt loam in this way, I rarely suffer from malted seeds. As a top-dressing for rockeries it is most useful in several ways: from its roughness and looseness (for a while) it acts mechanically against the crawling of slugs. It has latterly the property of holding itself together as a surfacing crust, without the quality of caking. It so acts not only as a preventer of evaporation, but as a feeder of moisture

during rain to the lower strata, as might well be imagined of an absorbent like burnt clay. It has also a good colour effect; the warm, almost brick-red colour being perhaps second to Nature's verdancy. After one winter it becomes a fine powder, when it may be profitably turned into the lower soil by a small hand tool, and, if necessary, resurfacing may be done with a fresh supply for the ensuing summer. I use it largely for propagating purposes. I have sometimes shown my friends the results of placing cuttings and offsets in shallow beds of it in full sunshine. I should not have cared to have attempted a description of the masses of roots formed in a week or two, as it might not have been credited; and for the same reason I do not wish to say too much at present. One or two more facts, however, might be useful. I have em-

sale manner, and then passed through a grinding machine, to reduce it to powder. As I could not, however, see this work done myself, I might not only reasonably fear that the clay would be sometimes burnt too much, but the grinding machine would largely deprive me of the means of detecting such a fault; and on the other hand, as I have already said, a boy can crush and prepare a fair quantity in a proportionately short time. *J. Wood, Woodville, Kirkstall, Yorkshire.*

KUDZU, PACHYRHIZUS THUNBERGIANUS.—This plant was brought to Europe by the Imperial Japanese Commissioners to the International Exhibition at Vienna in 1873. When the Commissioners departed, they left the renowned nurseryman Mr. D. Hooibrenk as the possessor of all the plants

shrubs, some of which have been lost, and are not under cultivation now in Europe. I remember, as if it were yesterday, a small shrub, *Euonymus*-like, with dark green, bright shining leaves, adorned by numerous pure white speckles; this was quite a gem. *Max Leichtlin, Baden-Baden.*

BURNT EARTH FOR TOMATOS.—Allow me to say that I consider burnt earth a capital addition to Tomato composts. Last season I grew a number of Chiswick Perfection Tomatos in pots in a cool house, and burnt earth was largely used in the soil they were grown in. I was well satisfied with the results, for they produced an excellent crop of large, heavy fruit, the plants growing with single stems, which were very short jointed, the foliage dark green, and leathery, and quite free from disease. The plants were syringed, and they were not artificially fertilised. I grew some on in 32's, and planted them out early in June on a south-east wall, mixing burnt earth with the staple, and restricting them to one stem as with the others. So soon as they produced three trusses of fruits I stopped them, and these plants gave a good crop, but owing to the bad weather, numbers of the fruits did not ripen. The use of rich manure in Tomato soils, I consider, is conducive to disease, and too rich stimulating plant-foods have a like effect. *G. Potts, Heronden Hall, Tenterden.*

ROYAL HORTICULTURAL SOCIETY.—What a beautiful show this Society had at the Drill Hall on the 10th inst., but how few visitors. As I heard one of the principal exhibitors say, "I should much like to know that the daily newspapers are informed of these monthly minor exhibitions, as they would be, most of them, glad to insert notices of such in their columns, and in that manner they would be brought to the notice of the public at large." *John Carvill.* [Our correspondent's wishes are pretty fully carried out. Ed.]

HARDINESS OF GUM CISTUS.—On p. 180, Mr. Wilson says, of the effects of frost, "the old Gum Cistus has stood the best." This surprised me, because in my garden it has stood the worst, that is, it is one of those which has been killed outright; but then, in common with most authorities on gardening, I call *Cistus ladaniferus*, Linnaeus (*Bot. Mag.*, t. 112), the old Gum Cistus. Mr. Wilson says he meant *Cistus Cypricus*, Lamarck, which is quite distinct from it, though often confused with it. The distinction is important, because excepting *C. laurifolius* and a probable hybrid of *C. Cypricus* called *C. lusitanicus*, *C. Cypricus* is the hardest Gum Cistus in cultivation, not a leaf of it having been hurt in this damp garden during the present winter. I shall have much to say about the effects of the frost when the winter is quite past, but it is too soon to boast of unexpected survivals yet. *C. Wolley Dod, Edge Hall.*

BRIDAL WREATH.—In your notices to correspondents of February 14, there is an answer to R. W. Pearson about Bridal Wreath; and curiously enough I was asked the name of the plant myself a few weeks since, and I found on seeing it that, as you surmised, it was *Francoa appendiculata*. *J. Rempshall.*

PEACHES AND NECTARINES.—Mr. Divers now says he used the term "new varieties" in a relative sense, but it is not at all usual to speak of any plant or fruit as "new" that has been well known between thirty and forty years, and most gardeners who have had much to do with Peaches and Nectarines will agree with me that there are only two or three of these raised within the last quarter of a century that will compare with others in existence before that time. This being so, I am quite content to take Mr. Divers' advice "to keep them if I am so well satisfied with them." Referring to *Grosse Mignonne*, one that I named in my list of desirable sorts, Mr. Divers says it is too small, and has no special quality to recommend it; but against this, let us see what Dr. Hogg, in his *Fruit Manual*, states respecting it, which is, "Fruit large and roundish;" and goes on, "this is one of the very best mid-season Peaches." Messrs. Veitch, in their *Fruit Catalogue*, speak thus of it, "*Grosse Mignonne*, large, melting, and excellent; forces well: one of the best." I am, therefore, borne out by these authorities as regards that variety. And now we will turn to the Calendar page of the *Gardeners' Chronicle*, January 31, and have a look there. Running my eye down the column headed, "The Hardy Fruit Garden," I find the writer, Mr. Markham, is actually recommending the very sorts I did, and which Mr. Divers takes exception to or condemns. I now give them again



FIG. 55.—HAMAMELIS ARBOREA. WINTER FLOWERING SHRUB: CALYX PURPLE, PETALS YELLOW.

ployed the rougher portion for mixing with *Cliveas*, *Aspidistras*, *Eucharis*, *Pancratiums*, *Strelitzias*, and similar things in the houses, and I never before had such free root action, rapid growth, and deep green foliage; and, be it understood, I never use an artificial manure, nor even liquid from stable manure. In planting almost all kinds of bulbs, including Lilies, I surround them with the finer samples, as many would employ sand. In the dampest portion of the garden, purposely made and kept so, it (the soil) used to turn up somewhat sour, but since a free incorporation of burnt loam, sourness is untraceable; and, indeed, neither in the open, nor inside (in the case of pot plants), does one ever find the soil sour where burnt loam (or, as I sometimes term it, "refined loam"), has been freely used. It has been suggested to me, seeing that I use so much, that I should have clay burnt in a somewhat whole-

brought over, and it was in his garden that I saw for the first time this interesting plant. Its constitution did not seem to me very robust, though the Yam-like root was about one foot in diameter. It succumbed in one of the following winters, but I do not exactly remember the cause of its loss. If the plants in France or England resist this present winter, it will be a very fair test of its hardiness. Whatever its good qualities may be, it will not, to my mind, become a useful plant of importance, because the corm or tuber, to become of good size, wants several years' growth, and small tubers are of no value. With this plant also came *Rodgersia podophylla*, *Eulalia japonica variegata*, *E. zebrina*, *Juncus spiralis*, *J. effusus zebrinus*, wonderful varieties of *Iris Kämpferi*, a remarkable collection of Lilies—many of which I have never seen again, and a large collection of useful trees and flowering

here, and they are:—Noblesse, Grosse Mignonne, Stirling Castle, Bellegarde, Barrington and Walburton Admirable. In these Mr. Markham has made a good choice, and they are all "old." I quite envy Mr. Divers the room and accommodation he has for growing fifty fine kinds of Peaches and Nectarines; but I do not covet the sorts, and shall remain true to my old loves, and not take on with the new. As to the market and prices in Covent Garden, I am thankful to say that I have never sold a fruit of any kind or description there or elsewhere, and know nothing of the prices they fetch; but this I do know, that quality does not count for much, or Louise and Beatrice Peaches would not be worth 2s. 6d. wholesale in that mart, or any other, and it is only when rich people buy them, when scarce, and have them just to show that such sums are paid. *J. Sheppard.*

MISTLETO.—In my opinion, grafting or budding is better than seed for establishing the Mistleto. I remember when living in North Yorkshire no Mistleto was to be found on the estate, but on some being bought at Christmastide, a portion was put into a moist place for a month, and grafted and budded on an Apple tree hedge that ran round the frame-ground. I used matting for fastening the larger scions, and clay only for the smaller ones and buds, and every bud and graft grew. I mention this, as it was done somewhat earlier in the year than is generally recommended. In Bucks, the Mistleto grows to an immense size on the Oak and Elm, quite disproving the assertion that it does not thrive upon these trees. *G. B. Claydon, Holbecks Park.* [Enough has been said on the subject. Ed.]

DIOSPYROS KAKI.—I should like to add my testimony on this shrub. It is not only perfectly hardy here, but it will ripen its fruit out-of-doors. I have had it for some years growing against a south wall, and for the last three or four years have had good fruit from it, some nearly as fine as those figured in the *Gardeners' Chronicle*, but most of them smaller. Unfortunately the fruit ripens late, and so gets caught by the early frosts; and last year, owing to the dull summer, the fruit came too late to be of use. Still, even without the fruit, it is a plant worth growing as a handsome foliage shrub, and I do not think a wall would be a necessity in the warmer parts of the south of England. *Henry C. Ellacombe, Bitton Vicarage.*

POINSETTIA PULCHERRIMA ALBA.—The white or light cream-coloured form of *Poinsettia pulcherrima* is not often seen, but it is a pretty object and we have grown it in numbers nearly equal to the red-bracted species. Arranged between Palms, Ferns, and *Asparagus plumosus*, the effect the plant produced was admirable. The bracts of our plants are quite free from any green tinge. With good culture, fine bracts may be grown on plants standing in quite small pots, if cuttings are taken late in the summer. *W. Kipps, Walton Lea, Warrington.*

THE NARCISSUS FLY.—Our experience of a bag of *Narcissus* bulbs is, perhaps, worth a note. A lot of 200, of a desirable species, appearing in a sale catalogue, I sent to buy it, the bag remained in our hall through the long frost till the ground was fit for planting. When the bulbs were turned out my gardener noticed something wrong, and we counted eighty, most of them fully grown grubs of the *Narcissus* fly, *Merodon clavipes*. *George F. Wilson.*

DANDELION LEAVES FOR SALAD.—Now that it is seen that the frost has made great havoc amongst Lettuce and Endive, we must look around us for some plant that will furnish a partial substitute for these. Dandelion will answer very well, and if the roots are dug and put into heat, covering them with some leaf-mould, nice leaves may be obtained in about a week, which, with a little Mustard and Cress, will make a salad not to be despised by anyone. *E. S.*

EUCHARIS SANDERI.—I have a bulb of this species of *Eucharis*, which flowered four times last year, viz., January, April, August, and November, and it is again sending up a spike of bloom. I have three offsets from it, two of which have flowered three times since last March; the other is showing a spike of bloom at the present time. I never have had more than three flowers on a spike. There is a peculiarity about this *Eucharis*: although it grew side by side with *E. amazonica* and *Gardenia* plants having mealy-bug on them, I have never seen any bug on it. Has anyone else noticed this freedom from bug of *E. Sanderi*? *G. B., Knightons, E. Finchley.*

TREES AND SHRUBS.

HAMAMELIS ARBOREA.

This is one of the finest deciduous winter-flowering trees that we have, standing out conspicuously clothed in a mass of rich golden blossoms, which will continue in perfection for the next five or six weeks (fig. 55, p. 247). Its flowers have long and twisted petals of a rich primrose colour, while the sepals are deep red. This interesting half-tree, a native of Japan, is well worth a place in the most select of gardens. A light sandy soil with a good addition of leaf mould will be found a very suitable compost for planting it in, but on no account should it be planted in a soil retentive of moisture, and it should be placed in the full sun, either singly on the lawn, or with other deciduous small trees, and not with evergreen shrubs, as the effect obtained is not nearly so nice. Very little pruning is necessary, as it is not a rapid grower. Propagation may be performed by means of grafting in March on Witch Hazel stocks (*H. virginica*), potted, and then plunge or stand them on Cocoa-nut fibre in close cases, with a temperature of 60°, giving a slight syringing overhead twice a week, to help them to break; after the grafts have taken, stand the pots on the side stages of the house, when they will soon become fit for planting in the nursery rows. *H.*

PICEA PUNGENS VAR. "KÖNIG ALBERT VON SACHSEN."

Under this name is described and figured in the *Gartenflora*, p. 71, 1891, a seedling variety of this Colorado Spruce, which is apparently a long-leaved form of the lovely Silver Fir now known as *P. pungens glauca*—the *Parryana glauca* of gardens. The best variety of this that we know is the one called *argentea* by Messrs. Waterer of Knap Hill.

THE DOUGLAS FIR.

Taking all points into consideration, the above noble tree is one of the finest ever introduced; as a timber tree of very quick growth it has no equal, and when planted for ornamental purposes it has few, if any, equals. As to its requirements, it may be said to grow almost anywhere, and in any soil, and in almost any situation. We have it growing here in wet marshy situations, and had the late Dr. Lindley seen the trees planted, he would have said at once the gardener was mad, and would have advised his instant dismissal. Yet these lovers of marshy places are some 100 and some 20 feet in height, and plainly show that they like plenty of water at the root. But I wish to call attention to the fact—for it is a fact—that Douglas Firs of a very inferior variety are, and have been for years, sent out as the true kind, and I would invite discussion on this point, being prepared to show that the true Douglas Fir differs very much from many of those sent out as such. *W. C. Leach, Albury Park Gardens.*

ILEX LATIFOLIA OR MAGNOLIA HOLLY.

This plant—indigenous to Japan—is the most distinct representative of the genus, besides being one of the finest of evergreen shrubs. Its leaves, for an *Ilex*, are very large, measuring 8 or 9 inches in length and 2 to 3 inches in breadth, oblong, lanceolate, and rather deeply toothed at the margins. In the south of England it is quite hardy, but in the north it requires some sort of protection during the winter months. It should be planted in a mixture of good loam and leaf-mould, spreading the roots out, and treading them firmly; and if any should happen to get broken in the process, it is advisable to cut below the injured parts with a knife, and not to chop them off with a spade, as is commonly done. If trained on a wall, it has a very pleasing effect; but whatever position is assigned to it, care should be taken not to expose it to frost. It may be propagated by grafting, which is best done in the month of October, on stocks of the common Holly. The scions should be 5 inches long, and the grafted stock should be placed in close cases, with a temperature of

about 60°, and there allowed to remain until a union is formed, when air may be afforded gradually, so as to harden them off. *H.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 10.—W. T. Thiselton Dyer, C.M.G., in the chair. Present: Mr. McLachlan, Professor Scott, Professor F. Oliver, Professor Marshall Ward, Professor Church, Dr. Müller, Rev. W. Wilks, G. F. Wilson, Dr. Bonavia, and Dr. Masters.

Action of Galvanised Wire on Peach Trees.—The Rev. W. Wilks showed specimens of the injuries observed on shoots of Peach trees which were in contact with galvanised wire during the recent severe frost. The shoots at the point of contact with the wire were apparently blackened and frozen through, so that the distal part of the shoot, although for a short time it retains its healthy appearance, shortly dies of starvation. Similar illustrations have been before the committee on other occasions.

Effect of Fog on Plants.—Professor F. Oliver showed a number of water-colour drawings showing the effect of fog on the leaves and flowers of various plants; but reserved a full statement of his observations till a future time.

The Aboriginal Chinese Primrose.—From Mr. Myles, Appley Towers Gardens, Ryde, came plants of *Primula sinensis*, raised from seed collected at Y-Chang by Mr. Pratt, under conditions very unlike those under which the plant is cultivated in this country. The history of the plant was alluded to at the *Primula* Conference in 1886, and was also adverted to in Mr. Sutton's paper on the Chinese Primrose which will shortly be published in the *Journal of the Society*.

Self-sown Seedlings of Chamaerops Fortunei.—From the same garden came seedling plants of this Palm, which is growing in the shrubberies at Appley Towers, and beneath whose shade a large number of seedlings spring up.

Species of Pinus.—From Mr. Rashleigh came cones of *Pinus* "El Doctor," which appeared to be very closely allied, if not identical with *Pinus Montezumæ*. A cone of an undescribed species collected by Captain J. Donnell-Smith, at a height of from 10,000 to 12,000 feet on the Vulkan de Agua, in Guatemala, was also exhibited. Mr. Godman and other travellers make mention of the forest composed of this tree, which forms a belt round the mountain at the above elevation, but which does not appear to have been described; indeed, in the *Loudon Herbaria* there are no specimens that correspond with it. It will shortly be described as a new species.

Timber and Cones of "Wellingtonia."—From Mr. Leach, gr. to the Duke of Northumberland, Albury Park, Guildford, came a fine cluster of cones of *Sequoia gigantea*, and also a transverse section of the trunk of a tree that had been planted twenty years, and had grown with great regularity and rapidly, as evidenced by the rings.

Ivies and the Frost.—Various leaves of *Ivies* from plants growing on the same wall were exhibited, showing the varying effects of frost on the different varieties—some being completely killed, whilst others were scarcely if at all injured. The Himalayan form, as pointed out by Mr. Dyer, was the most severely injured of all.

The Rind of the Orange.—With reference to this subject, Dr. Bonavia read a communication referring to the two specimens shown at the last meeting. One had of course an enveloping peel. Within this was a whorl of pulp carpels. Within this again was a second whorl without peel on its outside. So that we can hardly consider the peel as the outside of the pulp carpels. The peel is evidently not an essential part of the pulp carpels. It can be suppressed, while the pulp carpels remain, as in this case of the inner Orange.

But what is most interesting in this specimen is, that in the centre of the inner Orange there were two strips of peel, adherent to the placental margins of the inner carpels, each strip having its oil-cell-coloured surface directed towards the centre, and not, as is usual, towards the outside of the Orange.

To my mind, this would indicate that the peel is a distinct whorl independent of the pulp carpels. In the doubling of this Orange, we have (a) a peel

whorl, (b) a pulp whorl, (c) another pulp whorl, (d) a peel whorl represented by two strips only, and with the coloured glandular surface twisted towards the central axis of the Orange, showing that these peel strips are no other than transformed stamens, or carpels, or leaves.

In my opinion, the relation of the coloured peel to the pulp carpels is exactly that of the purple sheath of the Moutan Pæony to the green carpels it encloses. The peel is no more the outer surface of the carpels than the calyx of *Physalis Alkekengi* is the out surface of its pulp carpels.

In the Tangerine Orange there is only slight adhesion between the peel and the pulp-cells. Then take fig. e, pl. 125, and fig. n, pl. 126, in *Oranges and Lemons*, and you will find one-third of an inch of space between the peel whorl and the pulp whorl; all degrees of adhesion and non-adhesion are to be found. Some varieties of Citrus have the peel so closely adhering to the pulp that it can only be detached with a knife, while in others the pulp ball actually rattles within the peel envelope.

What is most convincing of all, however, is that in those species of Citrus in which the peel is divided into segments with their edges covering, and thus forming a continuous envelope, the segments of the peel do not tally with the segments of the carpel ball. How can I, therefore, believe that each peel segment is the outer surface of a carpel.

The second specimen was of common occurrence. The small inner orange was enveloped in its own peel. That is the doubling occurred—peel pulp, peel pulp. This is exactly what occurs in the doubling of some kinds of Narcissus. In these we have the doubling occurring in this fashion—calyx corolla, calyx corolla, calyx corolla, and so on up to the centre of the flower. In some cases the calyx retains its greenish colour throughout the series.

The interest of the second specimen was in the smallness of the inner Orange. Its juice vesicles were so small and sessile, that they were almost indistinguishable from the oil-cells of the peel, the prominent difference being, that the former had an acid taste.

Yucca flaccida.—From Mr. Barbidge, Trinity College Garden, Dublin, came leaves of this plant, bearing at or near the margin, and sometimes from one surface, sometimes from the other, short tubular, horn-like processes, the significance of which is not apparent. Dr. Masters gave the details of the histological structure of the leaf, the main points of interest being, that in addition to the central row of vascular bundles, there are two other series of smaller bundles, one between the central bundle and the upper epiderm, the other between the centre and the lower epiderm. In the central bundles the relation of the xylem and phloem is normal, that is to say, the xylem is directed towards the centre of the leaf the phloem towards the lower epiderm. In the lower or outer series of bundles the phloem is external, the xylem central. In the upper or inner series the phloem is also external, the xylem internal, so that the section of the central bundles and of the uppermost ones taken together resembles a section of a stem. In the horn-like portions, the palisade cells are absent, and the cells are nearly uniform in size and shape, the vascular bundles arranged in a ring, each bundle having its bast towards the periphery, its wood towards the centre. Thus, while the flat portion has the structure of a leaf with indications of stem structure also, the horn-like portion assumes completely the appearance of an axis. The specimens were referred to Dr. Scott for further examination.

MARKETS.

COVENT GARDEN, February 19.

Business quiet, with little alteration. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Lettuces, per dozen ... 3 0-...
Beans, French, lb. ... 2 6-3 0	Mushrooms, punnet 2 0-...
Beet, red, per dozen 2 0-3 0	Mustard and Cress, punnet ... 0 4-...
Brussels Sprouts, lb. 0 4-...	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 2 0-3 0
Cauliflowers, each ... 0 9-1 0	Shallots, per lb. ... 0 6-...
Celery, per bundle ... 2 6-3 6	Spinach, per bushel ... 7 0-...
Cucumbers, each ... 1 0-2 0	Tomatoes, per lb. ... 0 9-1 3
Endive, per dozen ... 4 0-...	Turnips, per bunch 0 6-...
Herbs, per bunch ... 0 4-...	

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 4-sieve ... 3 6-6 0	Lemons, per case ... 15 0-20 0
Nova Scotia, brl. 15 0-25 0	Oranges, ... -
Cobs, Kent, 100 lb. ... 45 0-50 0	Fine-apples, St. Michael, each ... 2 0-8 0
Grapes, lb. ... 0 9-3 0	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Ficus elastica, each 1 6-7 0
Aspidistra, doz. ... 18 0-42 0	Foliage plants, various, each ... 2 0-10 0
—speci. plants, each 7 6-10 6	Genista, per dozen ... 10 0-18 0
Azalea, per dozen ... 24 0-42 0	Hyacinths, per doz. 6 0-9 0
Bouvardia, p. doz. 9 0-18 0	—Roman, per doz. 9 0-12 0
Cineraria, per dozen 9 0-12 0	Lily of the Valley, per dozen pots ... 12 0-24 0
Cyclamens, dozen ... 9 0-18 0	Marguerites, doz. ... 6 0-12 0
Cyperus, per dozen ... 4 0-12 0	Mignonette, per doz. 4 0-6 0
Dielytra, per dozen 9 0-15 0	Myrtle, per doz. pots 6 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Palms in variety, each ... 2 6-21 0
—viridis, per doz. 12 0-24 0	Poinsettias, dozen ... 9 0-15 0
Euonymus, in var., per dozen ... 6 0-18 0	Primula sinensis, doz. 4 0-6 0
Ericas, various, doz. 8 0-18 0	Spiraea, per dozen ... 9 0-12 0
Evergreens, in var., per dozen ... 6 0-24 0	Solanums, per doz. ... 9 0-15 0
Ferns, in var., doz. 4 0-18 0	Tulips, per doz. pots 6 0-9 0

ROOTS IN VARIETY FOR BEDDING, IN BOXES, FROM 1s. TO 3s.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Azalea, 12 sprays ... 0 6-1 0	Narcissus (double), 12 bun. ... 3 0-6 0
Bouvardia, per bun. 1 0-1 6	—Poeticus (Pheasant Eye) 12 bun 9 0-12 0
Callaethiopica, 12 bl. 2 0-4 0	Mimosa (French) 12 bun. ... 12 0-15 0
Camellias, white, 12 blooms ... 2 0-4 0	—(French) basket 5 0-7 6
—colrd., 12 blms. 1 0-2 0	Myosotis, 12 bun. ... 4 0-6 0
Carnations, 12 blms. 1 0-3 0	Pelargoniums, scarlet, 12 spr. ... 0 9-1 0
Christmas Roses, 12 blooms ... 0 6-1 0	Poinsettias, 12 blms. 1 0-4 0
Chrysanth., 12 bun. 4 0-6 0	Primroses (French) 12 bun. ... 1 0-2 0
Cyclamens, per doz. 0 3 0 6	Primulas, double, 12 sprays ... 0 6-1 0
Daffodils, various, 12 blooms ... 1 0-2 0	—single, 12 sprays 0 4-0 9
Eucharis, per dozen 3 0-5 0	Roses, 1 ea, per doz. 1 0-4 0
Gardenias, each ... 0 6-2 0	—coloured, dozen 3 0-6 0
Heliotropes, 12 spr. 0 6-1 0	—yellow (Maréchal), each ... 0 6-0 9
Hyacinths, Rom., 12 sprays ... 0 6-1 0	—red, per dozen ... 3 0-6 0
Hyacinth, various, 12 spikes ... 3 0-6 0	—ditto, per dozen 1 0-3 0
Lily of the Valley, 12 sprays ... 0 6-1 3	Snowdrops, doz. bun. 1 0-3 0
Maiden Hair Fern, 12 bunches ... 4 0-9 0	Tuberose, 12 blms. ... 1 0-2 0
Marguerites, 12 bun. 3 0-6 0	Tulips, various, 12 bl. 1 0-2 0
Narcissus (paper white), 12 sprays 0 9-1 6	Violets, 12 bun. ... 1 6 3 0
—French, 12 bun. 4 0-9 0	—Parma, Fr. bun. 4 0-0 5
—(yellow), 12 bun. 9 0-12 0	—dark, Fr. bun ... 1 6-2 6

ORCHID-BLOOM IN VARIETY.

OLD POTATOS.—Stocks on hand have fallen very much since last report, and prices are firm with 5s. per ton rise, for many samples.

NEW POTATOS.—Canary Islands, best sample kidneys, 30s., ordinary 12s. to 18s.; Malta, best, 22s. to 24s., ordinary, 10s. to 16s.; Malta Rounds, 7s. to 10s. per cwt. Market firm, supply good. *J. B. Thomas.*

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending February 14, and for the corresponding period last year. 1891:—Wheat, 32s. 3d.; Barley, 28s.; Oats, 18s. 1890:—Wheat, 29s. 8d.; Barley, 31s. 8d.; Oats, 18s. 7d. Difference, Wheat, + 2s. 7d.; Barley, — 3s. 8d.; Oats, — 0s. 7d.

FRUIT AND VEGETABLES.

SPITALFIELDS: Feb. 18.—Moderate supplies of green-stuffs, Potatoes, &c. Demand good, without material change in prices:—Cauliflowers, 2s. to 3s. per dozen; Cabbages, 3s. to 6s. per tally; Savoys, 2s. 6d. to 6s. 6d. do.; Curly Kale, 1s. 6d. to 2s. per bushel; Seakale, 1s. to 1s. 6d. per punnet; Brussels Sprouts, 1s. 6d. to 2s. 6d. per half-sieve; Turnip-tops, 3s. to 4s. per sack; Sprouting Broccoli, 3s. to 4s. do.; do., 1s. 6d. to 2s. per sieve; Greens, 3s. to 4s. 6d. per dozen bunches; Turnips, 2s. 6d. to 3s. do.; Carrots, 2s. 6d. to 3s. 6d. do.; Parsley, 2s. to 3s. do.; Celery, 4s. to 11s. per dozen bunches; Horseradish, 12s. to 16s. do.; Leeks, 3s. to 3s. 6d. per dozen; Cabbage Lettuces, 1s. 6d. to 2s. do.; Endive, 1s. to 1s. 6d. do.; Parsnips, 1s. to 2s. per score; Beetroots, 3d. to 6d. per dozen; English Apples, 5s. to 10s. per bushel; American do., 16s. to 28s. per barrel; foreign Tomatoes, 1s. 6d. to 2s. 6d. per box; forced Rhubarb, 1s. to 2s. per dozen bunches; English Onions, 6s. to 6s. 9d. per cwt.; Spanish do., 6s. to 7s. 6d. per case; Bordeaux do., 6s. to 6s. 6d. do.; Belgian do., 5s. to 5s. 9d. per bag of 110 lb.; Carrots, 25s. to 50s. per ton.

HAY.

Averages.—The following are the averages of the prices at the principal metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior, do., 40s. to 75s.; hay, best, 60s. to 87s.; inferior, do., 26s. to 50s.; and straw, 20s. to 37s. per load.

POTATOS.

BOROUGH AND SPITALFIELDS: Feb. 17.—Quotations:—Hebrons, 85s. to 120s.; Magnums, 80s. to 135s.; Bruce's, 80s. to 130s.; Imperators, 80s. to 105s.; per ton.

SPITALFIELDS: Feb. 18.—Quotations:—Hebrons' 85s. to 95s.; Imperators, 100s. to 130s.; Magnums 85s. to 120s.; Champions 90s. to 100s.; Regents 95s. to 120s. per ton.

STRATFORD: Feb. 17.—Quotations:—English Magnums, 90s. to 100s.; Imperators, 90s. to 105s.; Elephants, 80s. to 100s.; Hebrons, 80s. to 100s. per ton.

THE WEATHER.

By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths In.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
	Above (+) or below (—) the Mean for the week ending Feb. 14.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.	More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.
1	1 +	8	29	+ 8	aver. 6	7	36	8.7
2	1 +	11	38	+ 1	11	4	19	1.8
3	1 +	10	31	+ 14	34	4	18	1.0
4	0 aver.	5	33	— 4	8	4	21	1.8
5	1 +	10	28	+ 4	39	5	16	1.9
6	2 —	5	35	— 28	100	5	19	2.6
7	1 +	11	28	— 2	6	8	27	4.7
8	1 +	9	24	— 2	24	5	18	2.2
9	2 —	12	30	— 33	77	8	19	3.6
10	0 aver.	15	27	— 6	12	6	24	2.1
11	0 aver.	29	15	— 12	27	8	21	2.6
12	2 —	20	12	— 35	45	7	20	2.3

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending February 14, is furnished from the Meteorological Office:—

"The weather has been fair and dry in nearly all parts of the Kingdom, with mild days and cold nights. Fog and mists were reported from time to time, but the intervening periods were generally clear and bright. In the extreme north of Scotland, however, the weather was dull, with frequent heavy falls of rain, and on Wednesday a large amount of snow was experienced.

"The temperature has differed little from the mean, but has been rather above in the north, and below in the south. The highest of the maxima were generally recorded either on the 11th or 12th, and varied from between 57° in 'Ireland, S.', and 56° in 'Scotland, E.', to 50° in 'England, E.', and the 'Midland Counties.' The lowest of the minima were registered on irregular dates, and ranged from 19° in 'Scotland, W.' (at Glenlee), and 20° in 'Ireland, N.' (at Markree and Brookboro'), to 28° in 'England, E.', and 29° in the 'Channel Islands.'

"The rainfall has largely exceeded the mean in 'Scotland, N.'; in the other Scotch districts the fall has been slight; while in Ireland and England, it has been almost nil.

"The bright sunshine shows a considerable increase on that recorded last week, and in most districts it

has exceeded the normal. The percentage of the possible duration has varied from 48 in the 'Channel Islands,' and 40 in 'England, S.W.', to 31 in 'Scotland, E.', 27 in 'England, S.', 20 in 'England, N.W.', and 14 in 'Scotland, N.'"

NOTICES TO CORRESPONDENTS.

ABIES NORDMANNIANA: *J. W.* The insect occasioning the mischief is allied to the American blight which attacks the Apple. It is most injurious if not taken in time. Remove and burn affected branches and continue the kerosene emulsions, applied with a force-pump. There is a plan used in America of killing the insects by means of the vapour of prussic acid (see *Gardeners' Chronicle*, April 26, 1890, p. 518), but the plan involves great danger to careless workmen, and we have no personal experience of it. If you decide to try it, do so on a small scale first.

AMARYLLIS: *C. W.* Strictly speaking, Mr. Milner was right when he called *Amaryllis* "Cape Bulbs," but he was describing the treatment to be pursued with *Hippeastrums*, commonly known as *Amaryllis*, the broad leaved species, which are now so much grown, and here he was in the wrong, as these hybrids spring from *H. Leopoldi*, *H. vittatum* (Peruvian Andes), *H. Regina* (Mexico and West Indies), and others from Brazil, &c.

APPLES AND AMERICAN BLIGHT: *F. S.* Wash the whole of the branches forthwith with Petroleum emulsion, a preparation kept by most florists and nurserymen; lay the upper roots bare, for it is here the insects congregate and work mischief on the roots, and thoroughly soak the soil with strong soapsuds; and if new soil can be obtained to take the place of the old, which should then be charred, better results still will follow this kind of treatment. Next autumn, or early winter, again wash the trees with emulsion or strong brine, and deluge the roots with soapsuds; in fact, the soapsuds may be used occasionally during growth. See that the soil is relieved of its surplus moisture by good drainage, or canker will be added to your other troubles. It is scarcely likely that the pests will be got rid of in one or two seasons, but the remedies must be often repeated.

APPLE BARK: *W.* The mussel scale (see fig. 56). Scrape off the outer bark of the old shoots, and burn it, or plaster it.

ARAUCARIA IMBRICATA: *Captain Williamson, Rothesay.* The poverty of the soil has probably been the cause of the loss of the lower tiers of branches, and a 4-inch top-dressing of stiffish loam and leaf-mould would have a good effect on the health of the trees. Means should be taken to extend the area of good soil at the extremities of the roots, and to ascertain the condition of the staple soil as regards moisture, as it is very likely to be very dry on a hill side.

ARUM LILY: *F. H.* Size in the spathe and leaf is due to culture only. The size of spathe—9 inches—given in your note is not unusual.

BEGONIA LEAVES DISFIGURED: *E. F.* If the winter treatment of the plants, that is keeping them quite dry at the root in a house having a warmth of 50° at night and 60° by day, and distant from the heating apparatus has been followed, we are unable to account for the appearance of the leaves. Please send specimens for microscopic examination.

BOOKS: *J. H. Orchid Manual*, by B. S. Williams; apply at the Victoria and Paradise Nurseries, Holloway, N.; *Orchids for Amateurs*, by J. Britten & W. H. Gower, is a smaller work than the above, it is published at 170, Strand, London, W.C. *Chrysanthemums and their Culture*, by E. Molyneux; published 171, Fleet Street, London, E.C.—**HERBACEOUS PLANTS:** *G. H. Handbook of Hardy Herbaceous and Alpine Flowers*, by W. Sutherland. (W. Blackwood & Sons.)

CATTLEYA FLY: *H. H. A.* Why not try bird-lime or some kind of sticky substance, such as gardeners use on stems of Apple trees for catching the winter moth? We are sure that many kinds of troublesome insects might be caught by these simple means.

CHOISYA TERNATA: *J. C.* A Mexican plant of the natural order Rutaceae, of which only one species is known.

FRENCH BEANS: *C. B.* Your treatment has, so far,

been fairly good; but you have earthed them up rather early. Manure will not be required before the pods begin to form, and only then, if the pots are filled with roots. To keep up a succession, sow another lot of seed at the time the plants of the previous one are earthed up. The night warmth may be 5° higher than that hitherto given; by day it may range from 70° with fire-heat, to 80° with sunshine.—*Vesta.* We can detect no appearance of disease, but the leaves are very thin, as if the plants were grown in great heat, with but little ventilation.

GRAFTING WAX: *H. P.* Melt 2½ lb. resin, and nearly as much of Burgundy pitch; mutton suet 9 oz.; the suet when melted being poured into the mixture of the first two, stirring it well for a long time; 18 oz. of red ochre may be added when the other ingredients are well mixed. The stuff is best made in a glue-pot, and when using it put it in a vessel over a spirit-lamp and use lukewarm.

GRUB: *T. S.* The grub in your Apple-shoots had disappeared, but we have no doubt it was that of the leopard-moth, *Zeuzera aesculi*. Get the creatures out with a hooked wire, or inject with a syringe some methylated spirit into the burrow. This will dislodge the grub.

HARICOT BEANS: *G. K. G.* Yes, we believe they are all varieties of the annual, *Phaseolus vulgaris*. That particular form is not cultivated in this country, so far as we know, but it is imported, we fancy, from Italy; but of this we are not sure.

HELLEBORES: *Constant Reader.* Your plants are affected with *Peronospora ficariae*, the fungus causing the disease referred to, with illustration, in our issue of July 7, 1888. Burn all the affected specimens, and destroy also any buttercups near by.

HUMEA: *G. S.* The seed in "D. M.'s" case was doubtless old, hence the long time taken in germination.

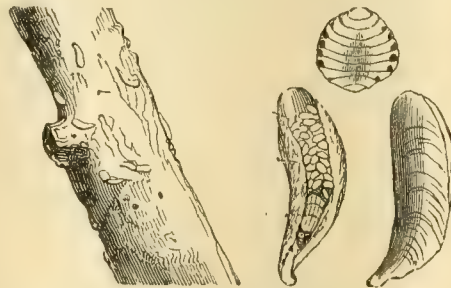


FIG. 56.—MUSSLE SCALE OF APPLES.

LINSEED OIL: *Union Street.* When the oil is put into a heated retort, it gives off just before ebullition, vapours which if condensed yield a limpid colourless oil having the odour of new bread. When ebullition ceases no more vapour is given off.

MARKETING FRUITS, &c.: *Scotia.* We have not published the information found in our columns on the above, in pamphlet form. In the brochure "Fruit Farming for Profit," G. Bunyard, Old Nurseries, Maidstone, much of the kind of information you need is to be found.

NAMES OF FRUITS: *P. O. M.* 1, Norfolk Beaufin; 2, Lane's Prince Albert; 3, not recognised.—*W. W. J. & S.* Apple Gloria Mundi.

NAMES OF PLANTS: *U. B.* 1, *Cephalotaxus drupacea*; 2, *Cephalotaxus Cunninghamii*; 3, *Cunninghamia sinensis*; 4, *Pinus*, not recognised.—*J. D.* *Phillyrea angustifolia*.—*C. C. H.* *Begonia Digswelliana*.—*J. W.* 1, *Asplenium flaccidum*; 2, *Asplenium appendiculatum*; 3, *Adiantum hispidulum*; 4, *Onychium japonicum*; 5, *Adiantum formosum*; 6, *Litobrochia biauaria*.—*F. M.* 1, *Aloe verrucosa*; 2, *Anthericum lineare variegata*.—*J. H.* *Duranta Baumgartneri variegata*, *Begonia nitida*.—*G. H.* We have not seen the large yellow *Abutilon* before.—*Ted.* *Spiraea bella*.—*B.* 2, *Thuopsis borealis*; 3, *Abies Lowii*; 5, *Picea Morinda*; 6, *Sciadopitys verticillata*. The others next week.

PROF. FLOWRIGHT'S LECTURES: *J. J. S.* These will be issued in our columns from time to time.

SEEDS: *G. S.* *Bauhinia*, tropical evergreen climbers, that rarely flower in this country. Sow in sandy loam with a small quantity of fine leaf-mould, burying the seeds to a depth equal to their thickness, and plunge the seed-pots in a hotbed having a bottom-heat of 80°. *Gardenia Rothmannii* is a Cape of Good Hope plant, with tubular

flowers, yellow and purple-coloured. Sow the seeds in peat and loam, placing the pot in a mild hotbed, or on a shelf in the stove. *Gerbera Jamesoni* is a warm greenhouse half-shrubby plant, with scarlet and yellow flowers of a tubular shape. Sow in pots in a mild hotbed, or in the greenhouse. *Lonchocarpus*, tropical climbers, belonging to *Leguminosae*, with racemes of purple or white flowers. Treat as for *Bauhinia*. The second and third are the only plants worth your attention.

SHOW REPORT: *D. C.* We do not undertake to make a record of every exhibit at a show, but to give a general idea of the whole.

TENANTS' GREENHOUSES: *Inquirer.* Whatever tenants' erections are built on foundations in the soil, or which are fastened to brick or other foundations so constructed, become, in the absence of any agreement to the contrary, the landlord's property at the end of the tenancy.

THE BLACK FENCING VARNISH ON HOT-WATER PIPES: *G. E.* No, it will destroy plant life quickly; employ lamp-black and boiled linseed-oil—no turpentine.

VARIEGATION: *J. L.* You need not apologise, for we are always glad to assist young men, whether as individuals or as members of mutual improvement societies. Variegation must be distinguished from coloration. In variegation, the green colouring matter of the leaf is, from some cause or other, defective. If completely absent, the leaf can do no work, and either shrivels up, or leads a parasite's life by feeding on the stores laid up by other leaves, or in the tuber, as in a *Caladium*. Variegation, then, is the result of the absence of colouring substance. Coloration occurs from the addition of colouring matter, generally fluid, or from the change of some substance already within the leaf into coloured juice. Coloration of this kind is specially favoured by a relatively high degree of exposure to light and heat.

WIREWORM IN TOMATO-HOUSE SOIL: *G. W. S.* No treatment of the soil short of hand-picking every bit of it, will be of any use now. Scalding-water might kill some of those near the surface. Better to wheel out the soil, and grow the plants in clean soil, in pots.

CATALOGUES RECEIVED.

V. LEMOINE & SONS, 134, Rue de Montet, Nancy—New Plants.

G. W. PIPER, Uckfield, Sussex—Roses.

J. CLOW, 88, High Street, Banbury—Seeds, &c.

B. R. DAVIS, Yeovil, Somerset—Begonias.

JOHN GOULD, 17, Old Millgate, Manchester—Seeds.

THOS. IMRIE & SONS, 137, High Street, Ayr—Garden Seeds.

E. G. WILLIAMS, West Street Nursery, Hertford—Garden and Flower Seeds.

W. THOMPSON, 34 and 36, Tavern Street, Ipswich—Flower Seeds.

WILLIAM WATT, Cupar and Perth, N.B.—Seeds, Bulbs, &c.

JOHN WATKINS, Pomona Farm, Withington, near Hereford—Seed Potatoes.

PITCHER & MANDA, Hextable, Swanley, Kent—Chrysanthemums.

VILMORIN-ANDRIEUX & Co., 4, Quai de la Mégisserie, Paris—General Seed List.

V. H. HALLOCK & SON, Queens, New York, U.S.A.—Seeds.

WEBB & SON, Wordsley, Stourbridge—Farm Seeds.

W. M. BEALE, 7, Leicester Road, Loughborough—Garden Seeds.

JAS. CARTER & Co., 237 and 238, High Holborn, London, W.C.—Grass and Farm Seeds.

H. CANNELL & SONS, Swanley, Kent—Floral Guide for 1891.

H. GUSMUS, Klagenfurt, Austria—Bulbs and Roots, &c.

DIED.—On the 15th inst., at Hastings, Mr. THOS. GILBERT, aged 61 years, nurseryman of that town.

COMMUNICATIONS RECEIVED.—*J. J. S.*—*H. W.*—*H. C.*—*J. R.*—*G. P.* with thanks.—*P. McO.*, Cape Town.—*G. K. G.*—*W. W.*—*C. W. D.*—*J. V. & Sons.*—*J. D. S.*, Baltimore.—*A. K.*, St. Petersburg.—*C. N.*—*B. T.*, Prague.—*J. C.*—*F. F.*—*J. K. B.*, Haarlem.—*F. M. & J. S.*, next week.—*G. Fulford.*—*W. A.*—*W. K.*—*A. D.*—*W. N.*—*W. Swan.*—*I. L.*—*J. A. K.*—*T. H.*—*R. D.*—*J. Read.*—*G. F. Wilson.*—*W. H. D.*—*W. B. H.*—*J. Colebrook.*—*P.*—*H. M. R.*—*Bayonian.*—*H. M. B.*—*W. D.*—*H. D.*—*J. D.*—*W. B.*—*W. C.*—*J. Anderson.*—*A. G.*—*Dicksons.*—*E. Webb & Sons.*—*W. R. W.*—*J. J. W.*

R. SANKEY & SON.

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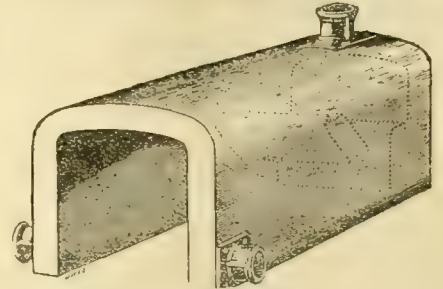
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PEARSON & SONS CHARNELL

BOULTON & PAUL, NORWICH.

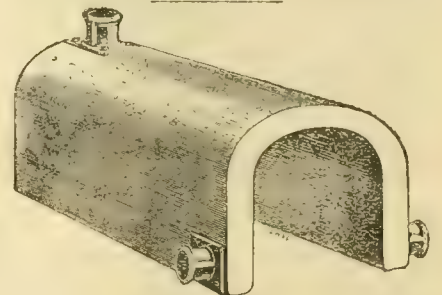
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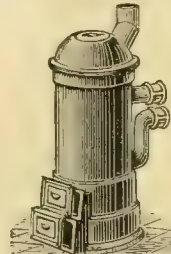
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Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of

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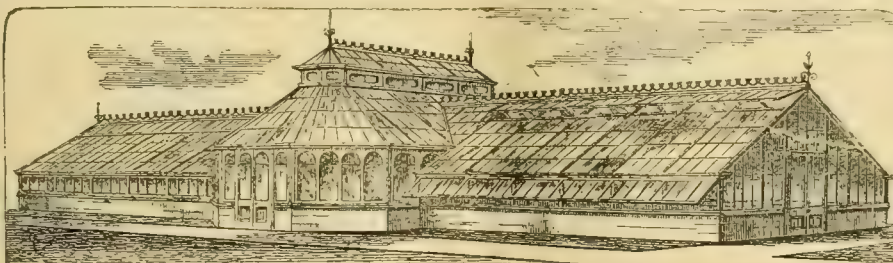
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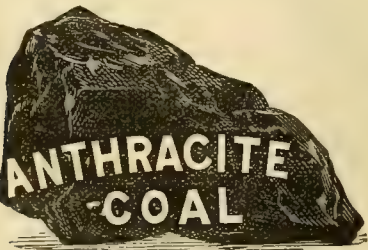
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Genuine Garden Requisites,

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Feb. 21 1891.

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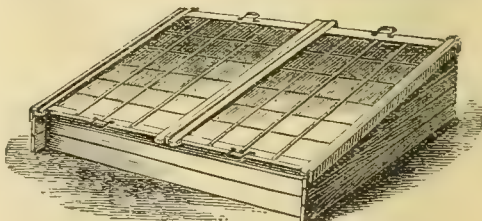
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GARDEN REQUISITES.

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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 26s. per ton, in 2-bushel bags, 4d. each.

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GARDENING APPOINTMENTS.

Mr. JOHN DAVIES, until recently Head Gardener to ALFRED WALKER, Esq., J.P., F.L.S., Lead-works House, Chester, as Head Gardener and Estate Bailiff to Colonel GAMBLE, C.B., Windlehurst, St. Helens, Lancashire.

WM. ALLARDICE, as Gardener to Lord STRATHMORE, Streatham Castle, Darlington.

Borough of Richmond, Surrey.

PUBLIC PLEASURE GARDENS.

WANTED, a HEAD-WORKING GARDENER.—The Council propose to appoint a Head-Working Gardener, who, with not less than three Under Gardeners, shall look after the various Pleasure Grounds and Trees within the Borough. Salary, £2 per week. Applications by letter only, stating age, qualifications, where now or last employed, with copies of recent testimonials, must be sent to me on or before Saturday, the 23rd inst., endorsed, "Head-Working Gardener." Canvassing any Member of the Council disqualifies the candidate.

FREDK. B. SENIOR, Town Clerk.

Office: 1, Hill Rise, Richmond, Surrey.

February 13, 1891.

WANTED, a GARDENER, for jobbing, and to work occasionally in Nursery. Must have good knowledge of Pruning, and Kitchen and Flower garden work. Either married or single.—T. HUTCHINSON, Nurseryman and Seedsman, Thirsk.

WANTED, a WORKING HEAD GARDENER, where another is kept. Age: not over 43, married. Must thoroughly understand all branches of gardening, Stove and Greenhouse Plants, Orchids, Chrysanthemums, Roses, Vegetables, Tomatoes, Peaches, &c. Must be very industrious, tidy, respectable, and obliging.—Only those with First-class character need apply, by letter, stating wages and all particulars to H. J. HOWARTH, Colemans, Horwich, Lancs.

WANTED, a GARDENER.—Flowers, Vegetables, Greenhouse, &c. Must be handy, and make himself generally useful. Wages, One Guinea per week, nothing else found. Good character.—Write, J. B., 258, Upper Richmond Road, Putney, S.W.

WANTED, a GARDENER (SECOND), where Head Gardener is Estate Bailiff, must thoroughly understand Vines, Peaches, Stove and Greenhouse Plants, &c., and Kitchen Garden. Married, no children; cottage provided; must have good testimonials.—F. WOLLASTON, Shenston Hall, Nuneaton.

WANTED, a good GARDENER, without children; if well up in Orchids, preferred. Wife as Cook; both to live in the house. State full particulars to R. S. V., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a SINGLE-HANDED GARDENER.—Understands Cows, Pigs, &c., and make himself generally useful. State age, wages, and give references.—G. BOND, Nurseries, Calne, Wilts.

WANTED, a PROPAGATOR and GROWER for Suburban Trade, a thorough practical and energetic Man, able to produce Cut Flowers and Plants in quantities.—State experience, reference, and wages required to M. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, BUDDER and GRAFTER, and to act as UNDER FOREMAN.—Young man preferred. State age, wages, &c.—W. TROUGHTON, Nurseryman, Preston.

WANTED, a PROPAGATOR (ASSISTANT), or PROPAGATOR and GROWER. One used to General Routine of Nursery Stuff. Wages 18s. per week.—Address, with reference, MANAGER, Redlands Nursery, Emsworth, Hants.

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WANTED, an active young MAN, for OUTSIDE NURSERY WORK, used to Planting, Training, Getting-up and Packing Orders, and take the lead in absence of Principal. To a careful trustworthy man the place would be permanent.—Age, references, and particulars to EDWIN HILLIER, Nurseries, Winchester.

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WANTED, a young MAN, used to Grow Soft-wooded Plants and Tomatoes for Market, &c.—Apply, giving full particulars, giving reference, to G. L., *Gardeners' Chronicle* Office, 41, Wellington Street, W.C.

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WANTED, a Young MAN, for Tomatoes, Chrysanthemums, &c.—JAMES GREEN, Reliance Nurseries, March, Cambs.

WANTED, at once, a PROPAGATOR.—Well up to his work. Steady and active young man. State wages and experience to HEWITT & CO., Royal Nurseries, Harborne Road, Edgbaston, Birmingham.

WANTED, several MEN, used to Fruit, Flower, and Plant Growing, under Glass; also an experienced MAN as STOKER.—Apply to FOREMAN, Tamford Hall Nurseries, near Broxbourne, Herts, and state wages.

WANTED, FOUR or FIVE MEN, accustomed to Nursery work, and who understand planting of all sorts of Seedling and other trees. Good Spacemen. Wages, 18s. per week.—ISAAC MATTHEWS & SONS, Nurserymen, Milton, Stoke-on-Trent.

WANTED, AT ONCE, a MAN well up in GROWING FERNS for Market. Also one for CHRYSANTHEMUM GROWING. State Wages, with references.—5, Queen Street, Cardiff.

WANTED, a HANDY MAN, for the Garden, used to Carpentering. Married, no family. Small cottage found.—State particulars, with wages expected, to A. BRIDGES, Carvill Hall Gardens, Brentford.

WANTED, a young MAN, quick at Potting, Tying, &c. Wages 18s.; one from Market Nursery preferred.—FERKINS AND SONS, Warwick Road Nurseries, Coventry.

WANTED, a respectable young MAN, inside and outside. Wages, 14s. per week, with Lodgings paid.—CHAS. SIMS, Bovington, Hemmel Hempstead.

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WANTED, an INVOICE CLERK, in a large Nursery Establishment near London.—Apply, giving age, references, and salary required, to S. V., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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GARDENER (HEAD), where two or more are kept.—Age 31, married; fifteen years' practical experience Inside and Out.—**GARDENER**, Rownham Park, Southampton.

GARDENER (HEAD), where two or three are kept (or good SINGLE-HANDED).—**F. W. RUSSELL**, Head Gardener to E. T. Doxat, Esq., Woodgreen Park, Cheshunt, would be pleased to recommend E. Jenner, who has been here for the last two and a half years, as a thoroughly efficient and reliable man.—For particulars, please reply as above.

GARDENER (HEAD) where two or three are kept; single.—**Mr. E. BLAND**, Fordham, Cambs, can with every confidence recommend a young man as above. First class references.

GARDENER (HEAD), where one or more are kept.—Married, no family; thoroughly experienced in all branches. Ten and a half years' good character.—**F. M.**, 8, Chignell Place, Ealing Dean, W.

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GARDENER (HEAD); age 34.—**G. BURT**, Esq., Purbeck House, Swanage, would be pleased to highly recommend his late Head Gardener, who lived with him six years, as a thorough practical Gardener.—**GARDENER**, 6, Purbeck Place, Swanage.

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GARDENER (HEAD); where two or three are kept.—Age 30, single man; fourteen years' experience in all branches of Gardening.—**G. BAKER**, 4, Queen's Terrace, Gomer Road, Teddington, Middlesex.

GARDENER (HEAD WORKING), where three or four are kept. Age 28; single; thoroughly experienced in all branches. Good references. Seven years with present employer, and three years with previous employer.—**H. O.**, Mr. Maher, Yattendon Court, Newbury.

GARDENER (HEAD WORKING).—Age 44, married, no family. Thoroughly experienced in all branches. No objection to Land. Eight years' good recommendation.—**J. PENFORD**, Thruxton, Andover, Hants.

GARDENER (HEAD WORKING), where two or three are kept.—Age 29; thoroughly experienced in all branches. Good character.—**A. W. FISHER**, Batheaston, Bath.

GARDENER (HEAD WORKING), where more are kept.—Age 36, married, one child (five years' old); experienced in all branches. Good characters. Abstainer. Five years in last situation. Left through death.—**H. G.**, 103, Quentin Road, Lee, S.E.

GARDENER (HEAD WORKING), where three or four are kept.—The late Bishop of WINCHESTER wishes to recommend highly his Gardener as above. Ten years' excellent character; left through breaking up of establishment.—**W. SMITH**, Farnham Castle, Surrey.

GARDENER (HEAD WORKING); age 27, married when suited.—**Mr. STAGG**, Gardener to P. Rawson, Esq., Woodhurst, Crawley, Sussex, wishes to recommend his Foreman, C. Prior, to any Lady or Gentleman wanting a trustworthy man. Abstainer; thirteen years' experience.

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GARDENER (HEAD WORKING).—Age 31, married, one child; sixteen years' practical experience in all branches of the profession. Good references.—**GARDENER**, Brooklands, Lyndhurst, Hants.

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GARDENER (good SINGLE-HANDED).—Age 24, single; eight years' experience in all branches. Good references.—**G. P.**, Blizewood Park, Warrington, Surrey.

GARDENER (good SINGLE-HANDED), or where help is given.—Age 27. Experienced Inside and Out. Ten years' good character.—**F. ANSTEAD**, Princes Road, Weybridge, Surrey.

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GARDENER (good SINGLE-HANDED); age 24, single.—**W. COTTERELL**, Yotes Court, Mere-worth, Maidstone, can with every confidence recommend a Man as above.

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GARDENER (UNDER), Inside and Out.—Age 20. Bothy preferred. Good character from last situation.—**R. BARTON**, Brooke, Norwich.

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GARDENER (UNDER).—Age 18; six years' experience. Strong and willing.—**W. A.**, 27, Hurst Road, Ocklynge, Eastbourne.

GARDENER (UNDER), or GROOM.—Age 21; good character. Sober, steady and willing.—**C. GILES**, 2, Arnsdale Villas, Holmesdale Road, Bromley, Kent.

GARDENER (UNDER), Inside.—Age 24; seven years' experience. Would like situation for further advancement of Inside Work. Good character and reference.—**S. WOODCOCK**, Loddington Hall, Leicester.

GARDENER (UNDER).—Age 21; seven years' experience in good place. Used to Inside and Out. Strong and willing. Good character.—**W. DOUGHTY**, Ryston Gardens, Norfolk.

GARDENER (UNDER).—Age 22; eight years' experience both Inside and Out in large establishment. Good references.—**A. W.**, 53, Biggin Hill, Norwood, S.E.

GARDENER (UNDER), where five or six are kept.—Age 17; three and a half years' experience. Can have personal or written character.—**S. HUMPHREY**, Lodge Lane, Keymer, Sussex.

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FOREMAN, or FIRST JOURNEYMAN, in good place (age 34); nine years' experience, excellent references; total abstainer.—**Mr. GRAY**, will be pleased to recommend as above, **A. PRATT**, Bodongan Gardens, R.S.O. Anglesea.

FOREMAN, in a good place.—**Mr. J. TURNER**, Head Gardener to R. H. Combe, Esq., Pierrepont, Farnham, Surrey, will be pleased to recommend a strong, active, and intelligent Man as above.

FOREMAN, or NURSERY MANAGER.—Age 28; used to General Management, Plants, Cucumbers, Tomatos, Wreaths, Sprays, Correspondence, &c. Good Salesman. Eleven years' experience.—**STREET**, Nonsbury Cottages, Turnford, Broxbourne.

FOREMAN.—**C. PUZEY** can with every confidence recommend his Foreman, F. Lupton, as Foreman in a good establishment.—Scampston Hall, Rillington, York.

FOREMAN, Houses or General; age 26.—**Mr. BEAMISH**, Head Gardener, Gorse Hall, Stalybridge, would be pleased to recommend his Foreman, Harry Lee, to any Gardener requiring a good practical, energetic, trustworthy young man. Address above.

To Nurserymen and Florists.

FOREMAN, in the Houses of a small Market Nursery. Good experience in Vines, Tomatos, Cucumbers, Roses, Carnations, and Ferns. Excellent character and recommendations. Total abstainer.—H. B., 3, Odessa Villas, New Hampton.

FOREMAN, or GROWER of Fruit and Plants for Market, Cut Flowers, &c. Good references.—A. B. C., 1, Brook Cottages, Turnford, near Broxbourne.

FOREMAN.—Age 25. Eleven years' experience in Fruit and Plant culture. Good table decorator and house furnisher. Was Foreman in previous situation.—E. LYNAM, 2, Wharf Road, Wormley, Broxbourne, Herts.

FOREMAN, in the Houses; age 26.—Mr. TEGG, Bearwood Gardens, Wokingham, Berks, can with confidence thoroughly recommend W. Hammond, who has lived with him six years, two years as Foreman.

To Nurserymen.

FOREMAN and PROPAGATOR (Inside).—Age 28; able to produce in quantity Cut Flowers, Cucumbers, Tomatos, Palms, Ferns, and general Plants for Market or otherwise. Good references.—PALMS, 41, Wellington Street, Strand, London, W.C.

FOREMAN, in the Houses.—Age 25. Well acquainted with Stove and Greenhouse plants. Early and late forcing. Ten years' experience under Glass.—X. Y. Z., The Gardens, St. Leonards, Malling, Kent.

FOREMAN, in the Houses, in a good Establishment; age 24.—Mr. S. DAVIES, Weybridge Park, would be pleased to recommend a highly respectable and persevering man as above. Seven years' experience in good places.

FOREMAN (INDOOR).—Age 25; ten years' experience. Good knowledge of Fruit and Plants, House Decoration, &c. Two years in last place as Foreman. First-class certificates.—C. B. A., 18, Salisbury Road, Upper Holloway, London, N.

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To Nurserymen.

GROWER, FOREMAN (or SECOND).—Age 24; eight years' Nursery experience. Wreaths, Bouquets, &c.; general Propagation and Growing.—H. ALCOCK, 35, Ordish Street, Burton-on-Trent.

To Nurserymen.

BUDDER and GRAFTER and GENERAL KNIFESMAN.—Age 23, single; eight and a half years' practical experience.—JOHN MOORE, 71, Whiting Street, Bury St. Edmunds.

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PROPAGATOR (Stove and Greenhouse).—Understands Roses, Lapsagerias, Gardenias, Euphorbias, Poinsettias, &c. Seven years' experience.—W. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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JOURNEYMAN (FIRST), in the Houses.—Single, age 26. Eleven years' experience Inside and Out. Two years in present situation. Good character from same and previous situations.—WM. OWEN, The Gardens, Fritenden House, Staplehurst.

JOURNEYMAN (FIRST), in good establishment; age 24.—Mr. J. LOCKYER, gardener to J. C. Hanbury, Esq., Pontypool Park, Pontypool, can thoroughly recommend F. Bengough to any gardener requiring a good, steady, and obliging all-round man. Has been with him two years.

JOURNEYMAN in the Houses.—Age 22. Eight years' good character. Two and a half years in present place. For particulars apply, HEAD GARDENER, Wood End, Chichester, Sussex.

JOURNEYMAN (FIRST), Inside.—HENRY MARKHAM is open to an engagement as above. References permitted to G. Goldsmith, Leonardlee, Horsham; or to G. T. MILES, Wycombe Abbey, St. Mary Street, High Wycombe, Bucks.

JOURNEYMAN (INSIDE), under Foreman; age 19; three and a half years' good character.—WALTER SURMAN, 34, Park Place, Bryn Road, Swansea, South Wales.

JOURNEYMAN in the Houses.—Age 22; eight years' experience. Good character.—H. EDWARDS, Glenshes Gardens, Loudwater, Rickmansworth, Herts.

JOURNEYMAN (SECOND).—G. HOWES, Merton Hall Gardens, Thetford, can strongly recommend a good young man (age 18). Wants a change. Three years' close supervision here.

JOURNEYMAN (FIRST), in good establishment.—Age 23; seven years' experience under Glass. Good recommendations from previous employers.—J. HAYES, East Tyherley, near Stockbridge, Hants.

JOURNEYMAN, under Foreman, Inside, or Inside and Out.—Age 21; abstainer; good character. Willing.—GARDENER, Heath House, Weybridge.

JOURNEYMAN, Inside and Out.—Age 20; excellent character. Bothy.—R. J. SARGENT, 1, Napier Cottage, Hanger Hill, Ealing.

JOURNEYMAN (FIRST), Inside.—Age 23; nine years' experience; four and a half years in present place. Good knowledge of Chrysanthemums, &c. Highest references.—H. HIRST, Linton Spring, Wetherby, Yorks.

JOURNEYMAN, in Houses.—Age 20; four years' good character. Bothy preferred. Abstainer.—R. HITCHMAN, Tusmore House, Bicester.

JOURNEYMAN (SECOND), Inside.—Age 23; ten years' experience, Inside and Out. Good character.—A. P., The Gardens, Beedingwood, near Horsham, Sussex.

JOURNEYMAN (FIRST), in good establishment.—Age 24; has a thorough good knowledge of Vines, Peaches, Melons, Cucumbers, and Stove Plants. Can be highly recommended; two years at present situation.—J. KEEN, 14, Vincent Street, Leamington.

JOURNEYMAN, Inside.—Age 22; seven years' experience. Good character.—WM. CHARMAN, The Gardens, Great Stanmore Hall, Middlesex.

JOURNEYMAN.—Age 20; six years' experience in Ferns and General Stuff. Market preferred. Good character. Disengaged.—C. COWLIN, 4, Havelock Houses, Hollington, St. Leonards-on-Sea.

JOURNEYMAN.—G. C. MAYNARD, Cole Orton Gardens, Ashby-de-la-Zouch, can strongly recommend a young man, age 24. Has been with him over two years.

JOURNEYMAN, in the Houses.—Age 20.—Mr. BEST, Head Gardener to His Grace the Duke of Hamilton, Easton Park, Suffolk, can well recommend a young man as above, who has been with him seven years.

JOURNEYMAN, in the Houses, under a Foreman.—Age 21 in May. Five and a half years' experience. Good character.—W. H. METCALFE, Great Langton, Northallerton, Yorkshire.

JOURNEYMAN (FIRST), in the Houses, in a good establishment.—Age 23; eight years' experience. Can be well recommended.—W. BOOKER, Avisford, Arundel, Sussex.

JOURNEYMAN (FIRST) in the Houses; age 27.—Mr. PERKINS, The Gardens, Thornham Hall, Eye, would be pleased to recommend J. Nichols. Four and half years in present situation.

To Nurserymen.

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JOURNEYMAN (FIRST), in good establishment.—Age 22; six and a half years' experience, three and a half years in present place.—W. G., Mr. Gray, Home Farm, Little Gaddesden, Hemel Hempstead, Herts.

JOURNEYMAN, in a good Gentleman's garden.—Age 19. Inside and Out. Five years' experience. Good character. Willing and obliging.—A. GRAY, Hempland Gardens, Lowestoft.

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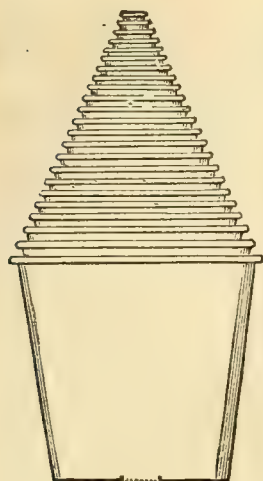
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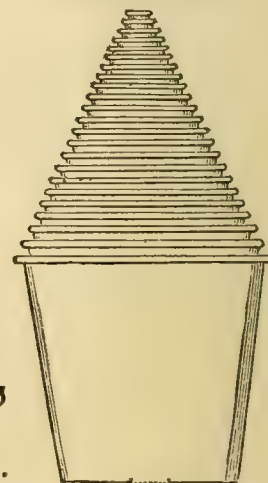
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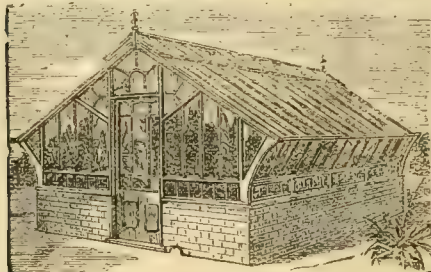


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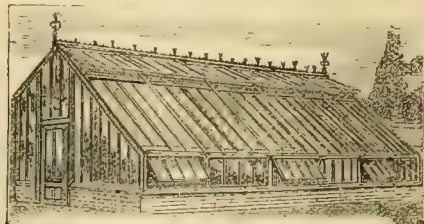
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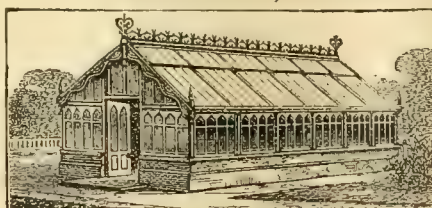
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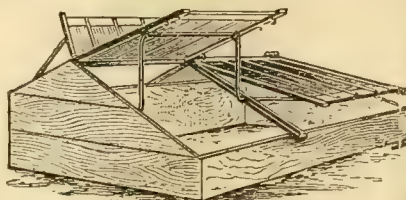
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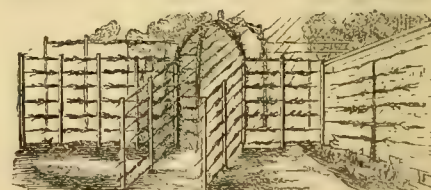
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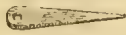




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ESTABLISHED 1841.

No. 218.—VOL. IX. { THIRD SERIES. }

SATURDAY, FEBRUARY 28, 1891.

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Wednesday Next.

TREE PÆONIES AND LILIES FROM JAPAN.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, March 4, at half-past 12 o'clock, **10,000 fine bulbs of LILIUM AURATUM, 2,000 L. SPECIOSUM RUBRUM**, and **1,000 of the beautiful Japanese TREE PÆONIES**, all received from Japan, **5,000 AMERICAN PEARL TUBEROSES**, received direct, **500 STANDARD and DWARF ROSES**, **ROSES** in pots, **English grown LILIES**, **HERBACEOUS PLANTS, CARNATIONS, GLADIOLI**, **50 lots of FERNS and GREENHOUSE PLANTS, AZALEA INDICA, A. MOLLIIS**, and **PALMS** from Belgium, **30,000 seeds of CROCUS WEDDELLIANA, &c.**

On view morning of Sale, and Catalogues had.

Paignton, Devon.—Without Reserve.

Highly Important SALE of well-grown **NURSERY STOCK**, by order of Mr. W. Rossiter (who is transferring the Business to his Son at Midsummer Next).

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises, the Branch Nurseries, at Paignton, Devon, on WEDNESDAY, March 4, and following days, at 12 o'clock each day, the whole of the well-grown **NURSERY STOCK** in three branch establishments, consisting of an extensive assortment of **Conifers** and **Hardy Shrubs**, **5000 Green Hollies**, **1 to 5 feet**, bushy, handsome plants; **12,500 Laurels** of sorts, **1 to 6 feet**, extra bushy; **10,000 Laurestinus**, **1 to 3 feet**; **500 Pinus insignis**, **3 to 6 feet**, extra fine; **7000 Fruit Trees**, comprising the choicest varieties of **Standard, Pyramid, and Dwarf-trained Apples, Pears, Plums, and Cherries**, correctly named; **13,000 Standard Flowering and Ornamental Trees**, **70,000 Larch, Spruce**, and **Scotch Fir** and other **Forest Trees**; **80,000 Thorns**, **1 to 3 feet**; **15,000 English Yews**, **3 to 4 feet**, bushy; **5000 Euonymus**, **1 to 2 feet**; **500 Araucaria imbricata**, **1 foot**; and quantities of other stock.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—A conveyance will leave the Paignton Station for the Nurseries on each morning of Sale at 11 o'clock.

East Dulwich, S.E.

Close to East Dulwich Station. ESTABLISHED and IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises, the Orchid Nurseries, Lordship Lane, East Dulwich, on WEDNESDAY, March 4, at half-past 12 o'clock, by order of Messrs. Seeger & Tropp, a large and very varied selection of **WELL ESTABLISHED, SEMI-ESTABLISHED and IMPORTED ORCHIDS**, including colossal specimens of **Lælia purpurata**, far surpassing, in size and excellence of variety, what are usually met with, and unequalled for show purposes; similar specimens of **Cymbidium** varieties and **Sobralias**; grand plants unfowered of **Cattleya Sanderiana**, and other species; **Dendrobiums** in great variety; also a large and choice selection of **Cypripediums**, embracing leading kinds, as **C. Niobe**, **C. vexillarium**, the true **C. Carnusianum**, **C. Argus Moensii**, **C. Thibautianum**, **C. grande**, **C. Liebertianum**, and many others of great variety and beauty.

May be viewed one week prior to the Sale. Catalogues may be obtained on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Thursday Next.—Sample Sale.

NURSERY STOCK, FERNS, ORANGE TREES.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, March 5, at half-past 12 o'clock, the following items of **NURSERY STOCK &c.**, from SAMPLE:—

600 <i>Adiantum cuneatum</i>	5,000 Standard Forest and Ornamental Trees
600 Double White <i>Primulas</i>	1,000 Standard Fruit Trees
6,000 <i>Scaevola elegans</i>	5,000 <i>Cupressus</i>
10,000 <i>Lily of the Valley</i>	10,000 <i>Laurels</i> in variety
20,000 <i>Pinus</i> in var.	1,000 <i>Rhododendrons</i>
20,000 Fruit and other Stocks	40,000 Thorns

Beautifully grown **Oranges, Lemons, Limes**, and **Citrons** in pots, 2 to 4 feet, for fruiting next year, including such varieties as **St. Michaels, Maltese Blood, Tangerine, Seville Imperial Lemons**, and many others, **Hardy Perennials** in choice variety, &c.

Samples will be on view morning of Sale. Catalogues of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ODONTOGLOSSUM (COCHLIODA) NÆZLIANA.

This new species was found by one of our collectors on the Andes of Peru, at an elevation of 9000 feet. Its striking colour, which the collector describes as being that of a Scarlet Pelargonium, will prove very acceptable in the cool-house; the bulbs are from 2 to 3 inches high, of a green colour, carrying narrow green leaves 8 inches long; the scape, which is often branched, carries from 12 to 15 flowers, $\frac{1}{2}$ inch in diameter, of a brilliant scarlet colour, and being all open at the same time, produce a charming effect, which is not equalled by any cool Orchid in cultivation.

MESOSPINDIUM VULCANICUM GRANDIFLORUM.

A splendid variety, discovered by one of our collectors in the Andes of Peru, at an elevation of from 8000 to 9000 feet. It will form a most striking addition to the cool Orchid-house, supplying a colour much wanted. The plant produces slender scapes 12 to 18 inches high, carrying 10 to 12 flowers, $\frac{2}{3}$ inches in diameter, of a bright carmine colour; lip three-lobed, of a rather brighter shade, except the centre lobe, which is prolonged and darker. This plant has been collected at great trouble and expense, coming from a quite unexplored country, where the difficulties of travel are very great, the collector having lost many plants during his return journey. We have well-preserved spikes, photos, and water-colour drawings, showing the habit of plant. The flowers of this plant are much superior to *Mesospindium vulcanicum*. The plants offered are in excellent order, with sound breaks, and can be recommended with every confidence to intending buyers. These two grand novelties should be in every collection.

The above, together with a valuable consignment of **CATTELYA SCHRODERÆ**, **C. WARNERI**, the new and truly noble **LÆLIA GRANDIS**, **SOPHRONITIS GRANDIFLORA, &c.**, will be

OFFERED FOR SALE by

MESSRS. PROTHEROE AND MORRIS, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., by order of Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, and 213, Park Road, Clapham, S.W., on FRIDAY NEXT, March 6, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Friday Next.

ANSELLIA SP. NOVA.

From the Upper Reaches of the Zambesi River.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, March 6, at half-past 12 o'clock, 40 Plants of a remarkably handsome new **ANSELLIA**, collected by an Amateur, on the Upper Reaches of the Zambesi River, and now offered in nice established plants. It is of very free growth, and of nice compact habit, the plants growing from 9 to 15 inches high. These neat-habited plants give immense corymbs of large attractive flowers, the ground colour lemon-yellow, heavily blotched and spotted with crimson-chocolate, while considerable diversity of colour and marking will be found in the different plants. It is a very free-blooming species; exceedingly handsome, attractive, and desirable. Several of the plants now offered are showing for bloom.

On view morning of Sale, and Catalogues had.

American Nurseries, Leytonstone.

FINAL CLEARANCE SALE of **RHODODENDRONS, LAURELS, AUCUBAS**, with other **EVERGREEN** and **CONIFER** SHRUBS, fine **LONDON PLANES, LIMES, FRUIT TREES**, **Standard and Dwarf ROSES, BORDER SHRUBS, &c.**

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises, as above on THURSDAY, March 5, at 12 o'clock punctually.

Now on view. Catalogues had on the Premises, and of the Auctioneers, Leytonstone, also 67 and 68, Cheapside.

Preliminary Notice.

The RAWDON HILL COLLECTION of ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to sell the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, March 17. The plants are in splendid condition, and the whole will be sold without reserve. Fuller particulars will appear next week.

Re G. Poulton, Limited.

SALE of the whole of the **GLASS ERECTIONS, STOCK IN TRADE, BENEFICIAL INTEREST** in the LEASE and **GOODWILL** in ONE LOT by TENDER.

MESSRS. PROTHEROE AND MORRIS are instructed by the Receiver to offer for SALE by TENDER in one lot, the **BENEFICIAL INTEREST** in the LEASE of the Property known as the **FOUNTAIN NURSERY**, Angel Road, Edmonton, close to the Angel Road Station, together with the whole of the **Glass Erections**, comprising 26 Greenhouses and several Pits, containing about 62,000 superficial feet of Glass and Woodwork heated by about 21,000 feet of hot-water-piping mostly 4-inch, also the whole of the extensive **STOCK IN TRADE**, comprising amongst other items 20,000 *Polypodium aureum*, 50,000 Ferns, of sorts; 1180 *Calla Ethiopica*, 2000 Old Red Clove Carnations, 1400 pots *Lilium lancifolium*, 3200 Kentias, 1500 Geraniums, mostly old stock-plants, 89 White Camellias, planted out; 140 White Azaleas in pots, &c., together with the Goodwill of the Business.

Tenders must be delivered at the office of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C., on or before THURSDAY, March 12, at 12 o'clock. The Vendors do not bind themselves to accept the highest or any Tender.

Forms of Tender can be obtained of C. J. MARCH, Esq., Receiver (Messrs. W. B. Keen & Co.), 3, Church Court, Old Jewry, E.C.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

The Celebrated Fernside Collection of Established ORCHIDS.

PRELIMINARY NOTICE.

Without the least Reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from H. M. Pollett, Esq., to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, April 8 and 9, at half-past 12 o'clock precisely each day, a Portion of the celebrated **FERNSIDE COLLECTION** of **ESTABLISHED ORCHIDS**, in splendid health. First-class Certificates have been awarded by the Royal Horticultural Society to many of the plants, and the names of several will be found in the *Gardeners' Chronicle* for February 21.

Catalogues with Coloured Plates of some of the principal *Odontoglossums* will be ready for circulation early in March, and can be had of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers and Valuers, Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Wednesday and Saturday Next.

BORDER PLANTS, ROSE TREES, FRUIT TREES, RARE BULBS, and ROOTS, &c.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, March 4 and 7, at half-past 12 o'clock precisely each day, 2000 *Standard, Half-Standard, and Dwarf ROSES*, to name, from a well-known English grower, including many of the best known sorts; 500 *AZALEA MOLLIIS* and *INDICA* well set with flower-buds, from Ghent; a fine collection of **Home-grown LILIES**, several hundred **FRUIT TREES, CARNATIONS, FRENCH PÆONIES, PINKS, PICOTEES, DAHLIAS**, and other **BORDER PLANTS**; **South African TUBEROSES**, 5000 *LILIUM AURATUM* and *L. SPECIOSUM RUBRUM* from Japan, in extra good condition; some fine sorts of *GLADIOLI*, *ANEMONES*, *DAFFODILS, &c.*; **LILY OF THE VALLEY** Crowns and Clumps, **SPIRÆA, DUTCH BULBS, &c.**

On view mornings of Sale, and Catalogues had.

Thursday Next.

VALUABLE ESTABLISHED and IMPORTED ORCHIDS.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 5, at half-past 12 o'clock precisely, a fine collection of **ESTABLISHED ORCHIDS**, many in flower and bud, comprising *Cattleya Trianae*, *Lycaste Schilleriana*, *Oncidium macranthum*, *Odontoglossum Edwardii*, *Cymbidium Lowianum*, *Cypripedium Leeanum superbum*, *C. Insigne Maulei*, *Dendrobium Nobile Cooksonii*, *Oncidium amplicatum majus*, *Phaius Tuberculatus*, *Cattleya Walkeriana*, *Vanda saurvis, &c.* **IMPORTED ORCHIDS**, *Calanthe Bulbs, &c.*

On view morning of Sale, and Catalogues had.

Thursday Next.

50,000 grand Bulbs of *LILIUM AURATUM* (many in cases as received), *L. SPECIOSUM RUBRUM* and *ALBUM*, *L. LONGIFLORUM EXIMEUM, &c.*, from Japan in splendid condition, 1000 Pearl and S. African *TUBEROSES*, **Home-grown LILiums, &c.**

MR. J. C. STEVENS will sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, March 5.

On view morning of Sale, and Catalogues had.

Thursday, March 19.

SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD, will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 19, and he will be glad if gentlemen desirous of entering Lots for this Sale will send LISTS AS SOON AS POSSIBLE.

FOR SALE, through a death, the **BUSINESS** of Mr. J. DANIELS, FISHMONGER, FLORIST, and FRUITERER, 207 and 209, Oxford Street, Manchester. The shop is splendidly fitted up with every convenience, including horses, cart, lorry, utensils, &c. Immediate possession. Apply as above.

FOR DISPOSAL, low price to an immediate purchaser, owner having another appointment, a **SMALL JOBBING BUSINESS**, situate in main road near Blackheath, one Greenhouse, 35 feet long, Plants, and Tools complete.
H. B., Morland Cottage, Shooter's Hill.

To Nurserymen.

FOR SALE, pleasant **RESIDENCE**, with LAND adjoining, suitable for **NURSERY**, in favourite locality for same. Easy terms, if desired.—F. J. CULLIS, Marling Park, Hampton-on-Thames.

Guernsey (Chanel Islands), Havilland Vineries.
GOING CONCERN. Grounds 2 Acres, contains Residence-house, with 12 Rooms and Bath-room, hot and cold supply, &c. Gardener's Cottage, 4 Rooms, with Packing-room attached. No. 1 Hot-house, 200 by 31 feet (span); No. 2 House, 150 by 40 do.; No. 3 House, 136 by 35 do. do.; No. 4 House, 145½ by 20 do. (lean-to).
Pumping-house, water forced with Hot-air Engine from pond on the Property, supplied by a stream. Grounds well laid-out, containing small Orchard of Apples, and good Artichoke bed. Pleasantly situated in a charming locality, 1 mile from Town and Harbour. Price £3500 (British).
Apply to B. W. DOVE, Havilland Vineries, Guernsey.

To Florists, Tomato, Fruit Growers, and Others.
TO BE LET, within a few miles of London, an old-fashioned House, containing nine Rooms, Coach house and Stabling, Cow sheds, and Outbuildings. Also 4 acres of excellent Land, upon which are three Greenhouses, two measuring 50 feet each. Rent on Twenty-one years' lease, £50 a year. Stock-in-trade of Vines, Glasshouses, and Premium for present Lease, £75 inclusive.
Apply to ALFRED RICHARDS, Auctioneer, Tottenham.

WANTED, to RENT on LEASE, about an ACRE of LAND, with Glass, suitable for Market purposes, and good Dwelling House.
FLORIST. *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

NOTICE.—CHANGE OF ADDRESS.

MR. H. E. MILNER begs to *Notify that in Order to Meet the need for Increased Office Accommodation at DULWICH WOOD, as well as to ensure more convenience for Consultations, he has taken additional Offices at WESTMINSTER CHAMBERS, 7, VICTORIA STREET, S.W., which, henceforward, will be his Chief Office.*

HENRY ERNEST MILNER, F.L.S., ASSOC. M. INST., C.E.
LANDSCAPE GARDENER.

Landscape Gardening.

B. MALLER AND SONS are prepared to Furnish Plans for, and to carry out all kinds of above work.
Burnt Ash Lane Nurseries, Lee, S.E.

THE TOWER FURNISHING COMPANY (Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.
Address, SECRETARY, 43, Great Tower Street, E.C.

MESSRS. POPE & SONS, HORTICULTURAL AUCTIONEERS and VALUERS, 6, Philp's Street, Birmingham, hold SALES at their Rooms as follows:—
CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday.)

MISCELLANEOUS PLANTS and BULBS every THURSDAY.
NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.
(JOHN COWAN), Limited,

Have an immense Stock of Orchids,
And they are constantly receiving Importations from various parts of the world.

NEW DESCRIPTIVE PRICED CATALOGUE
Post-free on application to

THE VINEYARD AND NURSERIES,
GARSTON near LIVERPOOL.

HARDY AZALEAS.—A selection of the most beautiful, many of which were raised in this Nursery, well furnished plants, covered with buds, from 1½ to 3 feet high.

AZALEA MOLLIS.—Very fine plants up to 2½ feet, well budded.

AZALEA OCCIDENTALIS × MOLLIS.—White, with lemon blotch—very beautiful, offered for the first time.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey

LOVEL'S YORKSHIRE STRAWBERRIES.
—Strong plants of Thury, Noble, Paxton, President, and others. Price, 3s. per 100; 12s. 6d. per 500; carriage paid. Sample dozen, 6d.; pamphlet, 3d.; descriptive list free.
W. LOVEL AND SON, Strawberry Growers, Driffield.

FOR ORCHIDS, and GARDENERS
to Grow Them, apply to SANDERS, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

FERNS! FERNS!! FERNS!!!—Trade offer. Twenty most saleable sorts, 12s. per 100s.; stores, 6s. per 100; 50s. per 1000. Adiantum cuneatum, for potting on at once, 16s. and 20s. per 100. Large Ferns, in 48's, 50s. per 100; out of pots, 45s. All packed free. Cash with order.
J. SMITH, London Fern Nursery, Loughboro' Junction, S.W.

Always Sow the Best.

J. E. DIXON'S President Carnot BRUSSELS SPROUTS. Hundreds of Testimonials.

Lord Scarbrough's Gardener says:—"It is the hardiest and best variety grown."

Price 6d. and 1s. per packet; per oz., 1s. 6d.; per lb., on application.

J. E. DIXON, Seed Merchant, Gainsborough.

BULBS—BULBS—BULBS.
Hyacinths, Tulips, Crocus, Narcissi, Spirea, Lily of the Valley, Liliums, Gladioli, American Tuberoses, still in stock. Customers at liberty to come and select for themselves at the—
NEW HAARLEM BULB WAREHOUSES,
34, Mansell Street, Aldgate, City, London.
Proprietors—MICHAEL RAINS AND CO.
Reg. Tel. Address—"Biotricus, London." Established 1856.
CATALOGUE on application.

Home-grown Vegetable and Field Seeds.

H. AND F. SHARPE will be pleased to make special offers of their fine selected stocks of **VEGETABLE and FIELD SEEDS** of 1890 growth, and raised from carefully selected stocks. The quality is exceptionally fine, and prices low.

Seed-Growing Establishment, Wisbech.

To Nurserymen, Builders, Local Boards, Vestries, and others who intend planting Trees and Shrubs this season.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to offer an extensive stock of **FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c.**, which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine **SEAKALE and RHUBARB** for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

H. CANNELL AND SONS are WANTING the following:—

GLOBE ARTICHOKE.

DAHLIAS, WHITE POMPON.

TACSONIA VAN VOLXEMI.

ALONSOA INCISIFOLIA.

LEONITIS LEONURUS.

AURICULAS, Green, White, and Grey-edged varieties.

SEMPERVIVUM ARBOREUM VARIEGATUM.

PACHYPHYTON BRACTEOSUM.

CRASSULA JASMINEA.

IMPATIENS ALBA and EPISCOPUS, and MARIANA.

BOUVARDIA "DAZZLER."

Send particulars to SWANLEY, KENT.

DREADNOUGHT CUCUMBER, the finest prickly Market Variety in Cultivation, long, dark green, and straight. 1s. per packet.

POPE AND SONS, Seedsmen, Birmingham.

Birmingham.—Primula Seed.

MESSRS. POPE & SONS can still supply the following **PRIMULA SEEDS** in separate packets: The Queen, Emperor, Marquis of Lorne, Princess Louise, Lady R. Churchill, at 3s. 6d. per packet; or, all the above, with the addition of Purity, Red and Pink, Queen, &c., in mixture, at 2s. 6d. and 5s. per packet. All grown at King's Norton Nurseries, Crop of 1890.

King's Norton, Birmingham.

Great Sale of Fruit Trees.

70,000 STANDARD FRUIT TREES, including 2,500 grand trees of Cox's Pomona APPLE, 20,000 Victoria PLUMS, 9000 prime DAMSONS, 5 years old, twice transplanted; 15,000 black CURRANTS, 2500 unblomed Standard Roses, choicest kind, faultless. Half their value. See printed list. Removing.

HEAD GARDENER, Honourable Gertrude Jones, Churchfield, Cradley, Malvern.

RHODODENDRONS, &c.—GEORGE FARNSWORTH has to offer a large quantity of the above. 3-yrs. seedlings, 4s. per 1000; do., and 3-yrs. bedded, 20s. per 1000; 6 to 9 inches, 40s. per 1000; 10 to 15 inches, very bushy, 100s. per 1000. PRIVET (true), evergreen, 1-yr. cut, 5s. per 1000; do., oval-leaved, 1-yr. cut, 7s. per 1000; also other NURSERY STOCK, price on application at The Nurseries, Matlock.

CABBAGE PLANTS, Autumn Sown, Extra
Early Etampes, fine plants, parcel-post free, 1s. 6d. sample 100. Strong forcing Crowns SEAKALE, 1s. 6d. per dozen, sample 10s. 6d. 100. free. New Rollinson's Telegraph CUCUMBER SEEDS, 10s. 3d.; 1000, 7s. 6d. free. LIST, with copy of testimonials, of
EDWARD LEIGH, Cranleigh, Surrey.

£5 GREAT LEEK COMPETITION.
OPEN TO ALL.—Particulars on application. "The Secret of Growing Leeks, &c., for Exhibition." 3½d. post-free. All should read this little book. "A sure guide to the competitor." The "Wonderful" Dozen of ROSES for 5s., post-free, including Tea, Moss, H.P., Climbing, and China—rare value, GLADIOLI, equal to named; sample doz. 3s., post-free. Catalogues free.—M. CUTHBERTSON, Florist, Rotherhay.

LILIAM AURATUM.—Heavy consignments in the finest possible condition. Bulbs usually from 6d. to 9d. each, to clear them out, 25s. and 30s. per 100; sample dozen, 5s. Special price per 1000 and 10,000.
PEARL TUBEROSES, 12s. per 100.
F. ROSS AND CO., Import and Commission Agents, Bletchingley, Red Hill.

CRYSTAL PALACE.
THE GREAT HORTICULTURAL EXHIBITION,
Comprising everything appertaining to Gardening, will open TUESDAY, MARCH 3, and remain open till SATURDAY, MARCH 21. NO EXTRA CHARGE.
Admission to Palace, Monday to Friday, 1s.; Saturday, 2s. 6d. before 5 o'clock, 1s. after.

BRIGHTON and SUSSEX HORTICULTURAL ASSOCIATION.
SUMMER SHOW, July 1 and 2.
AUTUMN SHOW, September 9 and 10.
Schedules of Prizes may be obtained from—

EDWARD CARPENTER, Secretary,

96, St. James's Street, Brighton.

CARDIFF HORTICULTURAL SOCIETY.

President:—The MAYOR of CARDIFF, the Most Hon. the MARQUESS of BUTE.

ANNUAL SHOW, August 12 and 13 next.

THREE HUNDRED POUNDS IN PRIZES.

Schedules ready. Apply—

SECRETARIES, 54, Woodville Road, Cardiff.

ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE. JAMES CYPHER, Exotic Nurseries, Cheltenham.

SPECIAL OFFER.—PRIMULA ROSEA.
For Spring bedding; in quantity only.
Brilliant pink Himalayan Cowslip.
"F. E." Messrs. Street & Co., 30, Cornhill, E.C.

STANDARD PLUMS, DAMSONS, and Single ALMONDS, per 100 or 1000. Price on application. Also AUCUBAS, 1 to 3 feet, per 100 or 1000.

FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

DOBBIE'S CATALOGUE and COMPETITOR'S GUIDE for 1891. 24th Annual Edition. 140 pages, illustrated. Price 3d., post free. "Best practical guide published."—DOBBIE AND CO., Seed Growers, &c., Rotherhay.

ORCHIDS A SPECIALTY.—CYPRIPEIDIUM LONGIFOLIUM, 2s. 6d. to 10s. 6d.; C. LAWRENCEANUM, 2s. 6d. to 7s. 6d., some showing spike; DENDROBIUM BENSONI, flower shortly, 5s., 7s. 6d., 10s. 6d.; D. JAMESIANUM, strong growths, 5s., 7s. 6d., 10s. 6d. Please write for LIST of cheap, healthy plants. Cash with order.

W. L. LEWIS, F.R.H.S., Chesham, Southgate, London, N.

NEW HARDY GLADIOLUS (HIPPOLYTA).

A distinct and handsome Hybrid from G. purpureo-auratus, of remarkably robust and vigorous growth. Colour, cream with a rosy blush, throat and blotch rich crimson-lake. Award of Merit, Royal Horticultural Society, August, 1889.

Fine corms, 1s. each, 10s. 6d. per dozen; of Mr. T. S. WARE, Hale Farm Nurseries, Tottenham, N.; or of the raiser, Mr. J. S. WHALL, 31, Park Street, Worksop.

OWEN'S IMPERIAL BEGONIAS.—New and distinct strain. The result of many years careful selection and hybridising. Habit dwarf, vigorous, and erect. Blooms of great size and bright colours. Awarded many Prizes and Certificates. Ten First Prizes by one Exhibitor. Price of Tubers—Single for pots, 6s., 9s., 12s., and 18s. per doz.; Double for pots, 9s., 12s., 18s., and 24s. per dozen. Seed, Single or Double, 1s. 6d., 2s. 6d., and 3s. 6d., per packet.

R. OWEN, Floral Nursery, Maidenhead.

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- (2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned. The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds.

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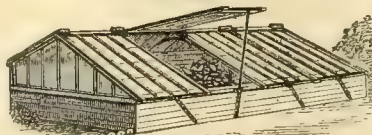
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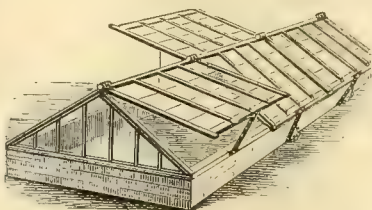
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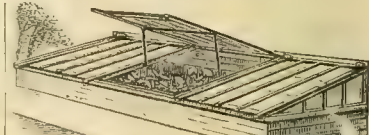
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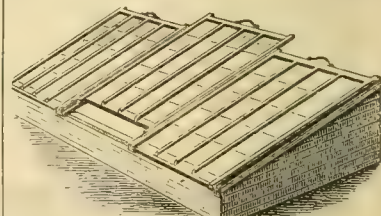
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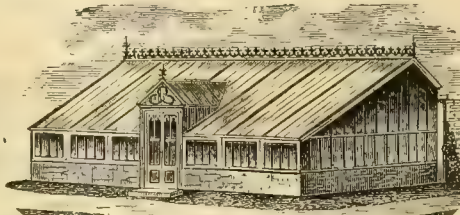
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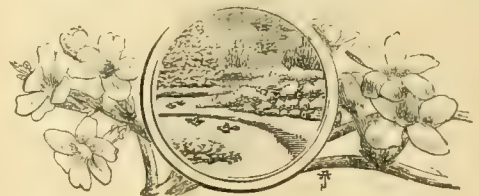
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 28, 1891.

DISEASES OF PLANTS.*

AFTER a few introductory observations on Phytopathology in its general aspect, the lecturer proceeded to discuss the questions relating to Parasitic Fungi in their connection with Plant diseases:—

The plant diseases caused by the presence of parasitic fungi are almost entirely local diseases; it is quite exceptional to find a plant constitutionally affected. True it is, that in many cases, especially with cultivated plants, the local disease is either so extensively distributed upon the host, or, more frequently, that the lesions are so numerous, that the host plant is killed by the parasite; but anything analogous to those human diseases, in which an entrance having once been effected by a microbe, the whole organism becomes permeated by disease, as in the case of febrile disorders, is practically almost unknown in plants.

Neither do we find that heredity plays nearly so important a part in the etiology of fungoid plant disease as it does in the animal kingdom. There are instances, and important ones, too, in which something akin to heredity comes into play. Certain varieties of Wheat are more liable to suffer from the attacks of mildew than others; certain varieties of Apple are more liable to canker than others; but these are more instances of the constitutional peculiarity of a variety than true heredity. A better illustration is, perhaps, afforded by the Potato, some sorts of which seem to be hereditarily disposed to take the disease more easily than others; while, on the other hand, certain sorts seem to have the power of resisting it better, inasmuch as their foliage longer withstands the attacks of the *Phytophthora*.

Just as we observe that certain epidemics affecting the human race, when first introduced into a community, assume great virulence, and spread with great rapidity; after a time, the type becomes less severe, and although the cases are not less numerous, yet the disease, we say, wears

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.

itself out. The outbreaks of cholera which have occurred during the present century, afford an apt illustration. The introduction of measles into Iceland, and into the Faroe, and the Fiji Archipelagoes took place in recent times. Like small pox and syphilis, it was much more severe and fatal when thus imported into virgin soil (Fagge).

In like manner, we find that many epidemics of fungoid plant disease, which at their beginning are marked by extreme virulence, after a time change in type, and become less and less severe. The outbreak of the Potato disease in 1845 is an illustration, and although the disease is still present only too severely amongst our Potato crop, yet we have never had so severe a visitation as occurred in the above-mentioned year. More recently, the Hollyhock disease has afforded us a parallel case. The fungus, *Puccinia malvacearum*, which causes this disease, was unknown in Europe prior to 1869, in which year it was observed in Arragon, in Spain. In 1872 it was noticed in the Department of Marne, in France; in the following year (1873), it had extended over France into England, devastating not only the Hollyhocks, but attacking also the indigenous Malvaceæ. For several years, so virulent was it, that the Hollyhock practically disappeared from our gardens. The fungus is still present with us, and can be found upon almost any of the common Mallows; but it has lost, to a great extent, the extreme virulence which characterised its first outbreak. Our indigenous Mallows remain with us, and the Hollyhock is beginning to re-appear in our gardens. A very similar case is that of the Celery disease. Some years ago *Puccinia Apii* appeared on cultivated Celery, and threatened to become as serious an affection as the Hollyhock disease subsequently proved. It spread very widely in Great Britain, and greatly alarmed horticulturists; but it soon spent itself, and although the *Puccinia* is common enough on our wild Celery plants now, yet we rarely meet with it in our gardens.

Hypertrophy.—One of the most frequent effects of the presence of the mycelium of a parasitic fungus on the tissues of its host is to produce hypertrophy; this is true not only of the foliage, but also of the stems and woody parts of the plant. It occurs in the branches of trees and in the roots of plants. Hypertrophy may be either general or local. The foliage of plants containing the perennial mycelia of the *Uredinæ* very frequently becomes hypertrophied (fig. 57); the leaves are thicker and stouter than those of healthy plants, as for instance the *Euphorbia* affected with *Æcidium cyparissia*, *Endophyllum euphorbiae*. The swollen foliage of *Abies pectinata* (Silver Fir), (fig. 58, p. 267), affected with *Æ. elatinum* is very similarly altered.

The mycelium of *Æcidium punctatum* on the foliage of the garden *Anemone* induces a very marked hypertrophy; not only are the leaves thickened, but they are also borne on longer stems than the healthy ones. *Peronospora parasitica* causes the various *Cruciferae* affected by it to become so hypertrophied, especially the stems, that the condition resembles one of elephantiasis.

Local hypertrophy, as the result of parasitic mycelium, is of very frequent occurrence in the vegetable kingdom; it may occur in almost every tissue. In the leaves as with *Urocystis violæ*; in the stems as with *Æcidium urticae*; in the woody parts as with *Nectria ditissima*, *Gibbera morbosa*; and in the roots as with *Plasmodiophora Schinzia*. Local hypertrophies in woody tissues often assume the form of localised tumours. One of the most striking instances of this is afforded by the American species *Gymnosporangium macropus* on *Juniperus virginiana*. In this instance, each tumour is a spherical enlargement of the twig into which the mycelium

has gained an entrance; it is common from Massachusetts to South Carolina. The "Cedar Apples," as they are called, sometimes measure as much as three inches across when fresh, and are covered with the sporiferous masses; when dry, from an inch to an inch and a half in diameter, originating, as Professor Farlow has pointed out, from the mycelium or spawn entering a leaf and growing downwards into the bark of the smaller branches; its presence acting as a source of irritation to the cells of the twig, cause these globose, or rather reniform tumours. These tumours are, as a rule, annual, beginning to appear about the

to death or decay in themselves, yet they impede the supply of sap to the peripheral extremity of the branch on which they occur, so that its foliage is thinner than that on healthy branches. We have in these two cases — *G. macropus*, an illustration of the fact that a rapidly-growing tumour soon tends to die, while with the slow-growing swellings of *G. clavariæforme* no such tendency is observable. Parallel cases in human pathology readily suggest themselves to our minds.

Marked tumours are caused by the mycelium of *Peridermium elatinum* on the Silver Fir, *Abies pectinata*. These barrel-like swellings on the stems

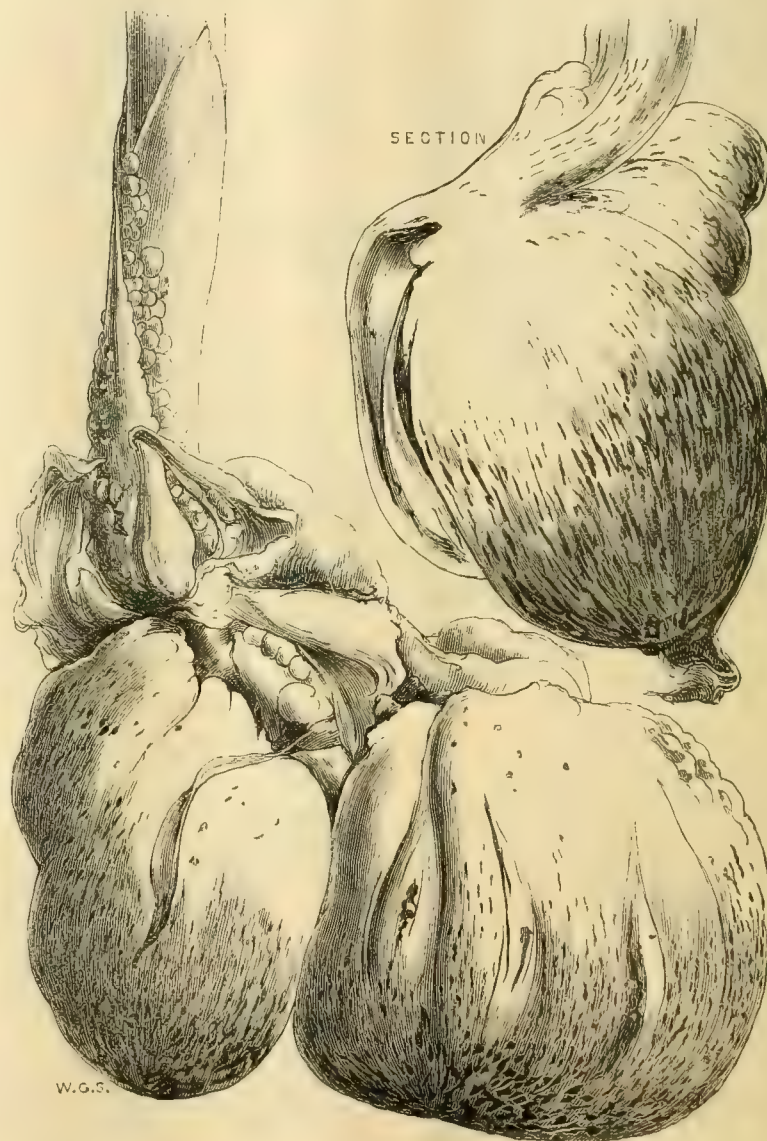


FIG. 57.—STEM OF MAIZE HYPERTROPHIED FROM THE PRESENCE OF AN USTILAGO.

end of August, and attaining their full development in the following May. In the allied species, *G. clavipes*, also on *Juniperus virginiana*, the tumours are perennial, and when covered with the sporiferous masses, sometimes attain, according to Wyman, a diameter of eighteen inches. The leaves springing from them, are hypertrophied to double their normal size (Farlow). In this country, the hypertrophies, as the stems of *Juniperus communis* by *G. clavariæforme*, consist of fusiform enlargements which, having little or no tendency to retrograde metamorphosis, last for years (fig. 59, p. 268). They are of slow growth, and although they have little or no tendency

and twigs last for many years, and sometimes bear abnormal branches (as in fig. 58).

The effect of the mycelium of *Coleosporium senecionis* upon *Pinus sylvestris*, as shown by Wolff, gives rise to hypertrophies of large size and long duration, when the stems, and not the foliage, of the Pine are attacked.

The large local hypertrophies which arise on the leaves of *Ranunculus repens*, *bulbosus*, and *Anemone nemorosa*, from the mycelium of *Urocystis Anemones* are familiar examples of the effect which the irritation of the mycelium of this fungus-parasite causes by its presence in the tissues of the foliage of

these plants. An even more striking illustration is afforded by *Urocystis violæ* on the common garden Violet.

In the foregoing instances we have illustrations of the formations of tumours or of local hypertrophies, in which the tendency to decay and death of the tumour does not occur, and we may look upon them as analogous to the simple tumours of human pathology. But there are many cases of hypertrophy due to the presence of parasitic fungoid mycelia, in which such tendency to death on the part of the abnormal tissue does take place, accompanied at the same time by a further development of the hypertrophy.

Larch Disease.—An example is afforded by the well-known and destructive Larch disease (fig. 60, p. 269). The presence of the mycelial hyphæ or spawn-threads of *Peziza Willkommii* in the cortex, cambium, and woody tissues causes their death, but this is associated with an hypertrophy of the surrounding tissues beyond the implicated area. This is followed sooner or later by the death and fissuring of the bark covering the swollen part; through these fissures a quantity of turpentine exudes. The circumferential extension of the mycelium is of an intermittent nature, being active in spring and summer, but quiet in winter. Although the disease may last for many years, it eventually ends in the destruction of the affected branch.



FIG. 58.—BRANCH OF SILVER-FIR AFFECTED WITH *ÆCIDIUM ELATINUM*. (P. 266.)

Black Knot.—The very destructive disease which attacks Cherries and Plums in America, known as the Black Knot, affords another example. This disease, which is common in all parts of the United States east of the Rocky Mountains, attacks the smaller branches, producing black warty tumours from one inch to eight or ten long, and two inches in circumference. Below and above the knot, the stem, unless completely killed, is swollen for an inch or two. The mycelial threads extend from the cambium outwards towards the cuticle. As it usually only implicates a part of the circumference of the stem, the unaffected part produces normal wood and bark, a section of a knot more than a year old showing more than one layer of wood on the sound side. In the affected portion the irritation of the mycelium has produced a mass in which all distinction between wood and bark is lost. Professor Farlow thus technically describes the structure of the tumour:—

"In the knot we find bast fibres, wood cells, and dotted ducts; but the prevailing tissue consists of a collection of dotted, rectangular, parenchymatous cells, with very thick walls, which closely resemble the cells of the medullary rays. These thick-walled cells, by their excessive growth, push the prosenchymatous cells out of their natural direction, parallel with the axis of the branch, and at intervals force their way through them, so that the latter seem to form a series of arcs or circles, with the concavities outward. The dotted ducts are numerous,

shorter than in the healthy part of the stem, and, owing to the abnormal position into which they are forced, cross sections of the stem frequently show them in lateral view rather than in section. The separate dotted ducts, instead of lying side by side as usual, are closely twisted or braided together. The bast fibres are less altered in their direction and appearance than the other elements of the stem. The mycelial threads of the fungus form bundles, which are embedded in the parenchyma of the knot. On the Plum tree, we not infrequently have a very hard layer next the wood composed of thick-walled dotted cells." The interior of the knot in its late stages crumbles and dries, while on the larger branches it extends downwards and upwards, eventually causing their death.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT PICKERING LODGE.

THE collection of Orchids of Mr. George Hardy, of Pickering Lodge, near Timperley, has been a considerable time in existence, and several of the plants have been well-known figures in the winning lists of the Manchester

roots not only filling the pots, but creeping all over the exterior. To name the different varieties would fill a goodly-sized leaflet—the most prominent among them being the superba, with the large flowers, and the ruby-blotch in the labellum. On asking Mr. Holmes if he treated his batch periodically to soap-suds, he said "No; they are only sponged down once a year," showing that proper climate will bar out these most provoking little enemies, that are too commonly seen about a hottish, dryish climate—the red thrrips. Tier upon tier of plants were ranged on the central step-stair platform with a few *Maxillaria grandiflora* specimens on the top dais. Along with these, doing equally well, were *Dendrobiums infundibulum* and *Jamesianum*, which in cool climates gets about the internodes as black as soot, and bristle with incipient flower buds. *Odontoglossum coronarium* does well here also, in the way of growth, but does not flower. On the contrary, the near relative, *Odontoglossum miniatum*, grows and flowers quite satisfactorily. Many good pieces of *Masdevallia* are about, the *Chimara* section doing well; the charming *Odontoglossum navius* was also in flower. It is always a treat to see that plant and its fellow *O. blandum* in any collection; pity we have not more of them. *Oncidium macranthum* is also at home here, and with these plants as associates, the culturist can easily divine that the climate for the successful culture of *Miltonia vexillaria* is a cool one, much cooler than the lovely species is generally treated to.

The next house was gay with *Cœlogyne cristata*, which is a noble plant in any of its varieties, but the differential features of some sorts are too infinitesimal for even garden distinction, and the sooner their varied fanciful names are obliterated the better. No doubt about one called *C. maxima*, which is in every feature the better of the original crested form. The *Lemoneana* variety is also distinct, and, of course, the pure white one is a gem. *Lælias* do excellently here, both the red and white forms of *anceps* are very distinguished. We have always a liking for *Dawsonii*—it seems to be hard to rival, more so to beat. *L. anceps Percivalliana* is very distinct, the soft rosy margin of the limbs and of the lip remind me of a heavily-laced Picotee.

The next house is filled chiefly with *Dendrobiums*; the noble *Sedeni* and its crosses with *heterocarpum*, with *nodatum*, with *Findlayanum*, with *moniliforme*, and such-like, will always hold an important place in Orchid gardening. One very charming thing that never crossed my eye before, is named *D. × Schneiderianum*. It is of the *Findlayanum* and the *heterocarpum* nature, with a distinctness of habit about it, and a noteworthy flower that will always hold the eye of a keen Orchidophilist. Its labellum is quite spoon-shaped and elongated, giving it a chance of showing the fine nankeen blotch with those capillary hairs that add to its beauty, and the fragrance is quite delicious. *D. Dominianum* × is also a grand thing, so rosy and brilliant and beautiful—quite a gem in point of finish, and a grand memorial of our departed friend's capacity as a successful hybridiser. After all, we Orchid people are capricious. Here *Dominianum* is the type after the florist flower model, whereas *Schneiderianum* is a rough-and-ready botanist's flower, and we estimate them both at the A 1 rate. *Dendrobium Deariei* goes along well in this climate, and *Odontoglossum Roezlii* is respectable. How difficult a plant that is to "do well" for any length of time. We always recollect Mr. Tod's (of Eastwood Park) "elephants." He has never "caught" them again, and he is not by himself, for which of us during the last thirty-five years has not had to "eat the Leek," or "take our physic" like men, and look pleasant at our losses.

Cattleyas in another house are well represented, some very large plants of *C. Mendelii*, *Trianae*, *Mossiae*, *amethystina*, *speciosissima*, *Skinneri*, and *labiata* showing abundance of sheath in great pans, point to the ultimate grandeur of these plants when in flower. We are apt to get lost among

Royal Botanic Society. Mr. Hardy has not exhibited for some years, but this collection has in no way suffered, either in extent or importance in consequence. We have always looked upon it as one of the great homes of Cattleyas in the Midlands, and although there are always ups and downs in cultural routine, the "lions" of this collection remain. It is always pleasing to see a collection housed well—comfortable-looking to the eye, as it is to the plants, and it gives a deal of enduring character to the plant-houses at little more annual expense. Such may be said of the skeleton work, in so far as Orchids are concerned, and we may throw in all the subsidiaries of the homes of these plants at Pickering Lodge.

There are eight or ten or more houses relegated to tropical, sub-tropical, and cool orchids, chiefly span-roofed, not too low, nor difficult to walk through, as is the case with many business houses, and the ranges are placed sufficiently apart to admit free play of light and air. The first one, a house some 20 by 16 feet, was filled nearly entirely with what used to be called *Odontoglossum vexillarium*, now *Miltonia vexillaria*. The health of these plants was very striking, the cleanness of the leaves from thrip infection was quite obvious, and when the flowering season comes round, it must be a blaze of the different forms of this showy epiphyte. Moreover, the plants were growing in pots, very small in comparison to the crowd of Iris-like shoots, the

Cattleyas now-a-days, there are so many of the labiate type bearing varietal or rather intended-to-be specific names. These Warnerii are grand things, and grand flowers even the worst of them are! and what, after all, is much better than a superline Mossie! Still they come, and we have now a Hardyana and Percivalliana, and Warocqueana, all grand, many of them as individuals, but very teasing and perplexing to the novice attempting to master Orchid nomenclature. *C. Dowiana* is always admirable, very distinct, very difficult to grow a plant 3 feet in diameter, and always will be. Those white flowers do strike me—none more than *Cattleya Skinnerii alba*, of which there are several good plants here. Then *Laelia purpurata* is the giant of the race, and beats out of court all its lesser fellows, although there are some more brilliant in colour, such as some of the fine forms of *elegans*, but then they all want the stateliness, and many of them want that distinguishing purity of parts that characterises a much-prized white-segmented *Laelia purpurata*; still, we must have variety, and welcome is the word to everything good in that way. Most of all these are admirably grown here. There are hosts of names that we must pass over; still, nothing of its kind touches *Cattleya exoniensis* X, and it will ever stand as a beacon-light to any Orchid-grower with which the name of Dominy, the raiser, will be associated; as the *Marnockiana* Heath is now, as a corresponding gain by artificial manipulation—the work of the late Andrew Turnbull, of Bothwell Castle.

In another range there is a set of houses for cool Orchids, of which there is a goodly band, not quite so large, as plants, as many of those that we have descendant upon, but comprising many excellent varieties. Without selection nowadays, our collections do not go for much; one good thing is worth a hundred indifferent, and so the feeling gets accentuated, and the cry is ever, "What varieties of so-and-so have you got?" How pleasant it is at all times to see the white *Lycaste Skinnerii*! We always prize it, although it is now much more common, and when under good culture, it is a notable plant. How we all lingered over these forms, no matter what the colours, a third of a century ago, and how earnestly we listened to Mr. Bateman descanting at the "Royal" meetings over their grandeur and general usefulness—drawing-room plants even in these days.

Another house is filled with a collection of *Phalænopsis*, and unexceptionally good it is. These Moth Orchids are troublesome fellows to grow, even the easiest cultured of them, and when one sees a house, such as the one filled at Mr. Hardy's, without a blotch, it is a feather certainly in the cap of the culturist. *P. Schilleriana*, *Stuartiana*, and *amabilis* and *Luddemanniana* are in quantities, and there are a few well-grown pieces of the most difficult to do of the whole lot—the *China Sea* and the *Bornean grandiflora*. Many people have the others named above, in fair condition; but it is now the few that have not, and *grandiflora* will grow for a length of years. Mr. Holmes, the gardener here, scores a point or two extra in his management of these things. They grow in a low span-roofed house on pyramidal rafts of Teak, and their roots indicate power enough to maintain existing leaves, and to produce more as the season advances. A few of the blotched-leaved low-growing *Cypripediums* are in this climate foremost, among them being *bellatulum*, which is not so difficult to do as its smaller companion *C. niveum*, or its miffy-growing half-brother *C. concolor*. As for the strap-shaped leaved ones, most of them did require special cultural measures—they are among the easy-to-do lot of Orchids. It is surprising how Lady Slipper culture has advanced within a very short period. Time was when this genus was only cultivated by the few. Cross-breeders have done much to make up a taste for these things. The colours, shape, and style altogether of the cross-bred forms differ in almost every degree.

A *Dendrobium*-house is well-filled with a variety of the best of everything, from *D. calceolus*, with its 3-foot stems, to the dwarf *D. capillipes*, with its hairy

coating. Formerly a vinery, this house is admirably suited for a collection of these things, for it gives head-room for the tall ones, and the smaller ones can be suspended from the glass. A fine lot of *D. Wardianum* and *crassinode*, and the noble section, of every shade of colour, are under culture here, Mr. Hardy having a particular penchant for the *Dendrobe* race. Buds were forming in the quiet temperature in which the plants were living, and when the flowering period comes round, there will be a blaze sufficient to captivate even those who care little for going into the individuality of any of the departments of the kingdom of Flora. J. A.

MESSRS. HUGH LOW & Co.

It was a pleasing sight which awaited us on a visit to Messrs. Low's Nurseries at Upper Clapton recently, there being a splendid display of *Phalæ-*

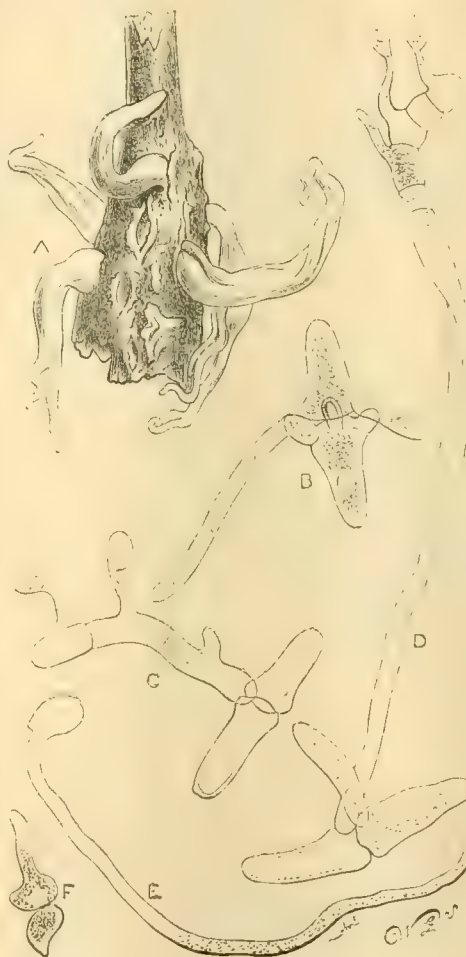


FIG. 59.—JUNIPER FUNGUS, CAUSING ENLARGEMENT OF THE BRANCH AT A; B, C, D, THE FUNGUS IN VARIOUS STAGES, MAGN. (SEE P. 266.)

nopsis, chiefly *Schilleriana*, in great variety of colouring, and including several very fine forms, and also of *P. amabilis*, the show of bloom produced from some hundreds of spikes being indeed a pleasant relief after the week of fog experienced in the opposite side of London. Of *P. Cynthia* X, with its reversed cross, *P. leuconoides* X, distinguished by the tendrils of the labellum being longer in the latter, there are numerous examples; and in *P. Curnoviana* is a new variety of *P. Schilleriana*, whose foliage it has, and from which it differs in the rosy suffusion of the otherwise white flower, bearing a tinge of violet in it, which *Schilleriana* (true) does not. Among the flowering occupants of other houses were a nice lot of the tiny *Angraecum hyaloides*, *Dendrobiums Findlayanum*, *Wardianum*, and *luteolum*, the pretty little *Cymbidium bellinum*; and of *Cypripediums* there were *Haynaldianum*, *Javanico-superbiens*, *Boxalli*, *vernixium*, *cardinale*,

geminiferum, *hirsutissimum*, *niteus*, and *Lawrenceanum*, while the sweetly-scented *Vanda Amesiana* must not be forgotten; Palms in profusion, Heaths, &c., were all doing well.

MESSRS. J. LAING & SONS.

This firm has in flower just at the present time in the Orchid-house at the Stanstead Park Nurseries, Forest Hill, S.E., a few very attractive forms of *Cattleya Trianae*, one of which approaches *C. Schroderae* very closely both in form and colour. There are others with richly-coloured lips, and among them a form which is nearly allied to the variety named *marginata*, and which appeared in this nursery. The lip of the present plant is not so large, however; and a small piece, carrying one flower only, of a white variety, seems to be a good form, the only colour being in the lip, where a slight tinge of blush shows up the base and the pale yellow of the throat. Other subjects in flower included *Oncidium barbatum*—a fine piece; *Cypripedium Boxalli*, *Phalænopsis Schilleriana*, prettily spotted; the small-bulb *Celogyne cristata*, which is developing into the ordinary form; *Dendrobiums Wardianum* and *nobile*, a primrose yellow-flowered form of *Odontoglossum crispum*, which is very charming; and a handsome form of *Oncidium cuculatum*, with a very richly-coloured lip.

POTTING SOILS.

THE preparation of the soil for plants grown in pots does not receive always the proper amount of preparation before being made use of. Owing to too much exposure, it is either frozen, or it is sodden with snow and rain in the winter, and is consequently colder than it should be. Where there is plenty of shed accommodation, potting material can be stored for this season of the year, and thus kept in a better condition for use. When the soil is dryish, it is in better condition for plants to grow well in it than when it is too moist. The potting cannot be done nearly so satisfactory, especially firm potting, when soil is moist. When potting soil cannot be brought under cover some time before being used, it ought to be protected, either by a sharply-sloping roof of sods or thatched hurdles, or tarred felt.

For particular purposes, loam and peat should be picked over by hand, if wireworm, earthworms, or grubs of the daddy-longlegs, mole-crickets, or cockchafer larvae are suspected of being in it. When peat is not cut in too thick pieces, there is none of the inert soil on the lower side; but if there should be any, it should be cut away and stored by itself for common uses, and the roots and rhizomes of Ferns, and the strong roots of Heaths should be thrown out.

In the case of 1 ton of peat, it will often be possible to sort it in such a way as to suit the requirements of Heaths, Azaleas, Orchids, stove plants, and Ferns, all fairly well. That which is hardest and most full of fine fibre will best suit the two first-named, whilst the more spongy part will do well for the others. When Azaleas are potted into the latter kind of peat, the growth will often be too luxuriant, and not so productive of bloom. I account for this by the larger quantity of water which is held in suspension by the soil. The peat best suited to Azaleas, New Holland plants, and Heaths, should be put aside until potting-time arrives, and the rest will do for stove plants. The best of this should be saved for the *Ixoras* and the *Dipladenias*. Decayed leaf-soil is a useful substance for potting plants of quick growth, and for such purposes it answers better than peat; in fact, I would rather use it than peat for many things when the latter is not of good quality. Leaf-soil is said to be of the best quality when made from the leaves of either the Oak or the Beech, but all kinds of tree leaves are good if fermented, turned over once or twice yearly for two years, and then sifted, throwing aside undecayed portions for another year or two. Heaps of leaf-mould should be labelled with the year they were collected, and only the

older soils made use of. Burnt rubbish of all kinds may be turned to good account for potting, and for use on the open ground. When loam is close and retentive, or clayey, then the value of burnt refuse as a substance to mix with it is very manifest. Soot is a useful substance, but it needs care and discrimination in its use. Dracenas thrive when a moderate quantity is added to the soil, and *Pancratiums* and *Eucharis* may have small quantities mixed with the soil, or it may be used as a top-dressing. Care is needed to see that it is pure soot, and not such as is taken from flues where coke has been burnt, as that contains sulphur in dangerous quantities.

Coarse bone-meal and crushed $\frac{1}{2}$ -inch bones are valuable to plants of strong and somewhat rapid growth, which require some added assistance when they have to remain in the same pots for a considerable period of time. It is of marked value to *Palma Vines* in pots, *Crotons*, *Camelias*, &c. Fertilising moss I have used with very good effects upon *Dipladenias*, and it may also be used in potting *Ixoras* and *Allamandas* with beneficial results. Horse droppings fairly well dried and rubbed to pieces are good as an incentive to growth in the case of plants which grow rapidly. These, or the soil from a Mushroom-bed gone out of bearing, form good additions to soil which is close, suiting such plants as *Fuchsias*. Fowls' dung forms a good dressing placed on the drainage for *Mignonette* in pots, and like plants where help is needed, and when it is not expedient at all times to repot. It is a strong stimulant, and not safe to use as a top-dressing upon the soil, except in a finely-sifted state, and in very small quantities; but at the bottom of the pot it cannot do any harm. Cow dung I have used, but I do not advise its use for pot-plants, as it leads to pastiness in the soil, and then souring.

Old mortar rubbish is a fine addition to nearly all potting soils where loam preponderates, as it keeps them open, and supplies a food that all plants require in greater or less degree. Charcoal is useful chiefly for hard-wooded plants which endure for many years, and it is of most value when the peat is not of the best. I have always been cautious in the use of "artificial" manures for mixing with soil, believing it better to apply them when the roots have permeated every part of the soil. Sand has to be used in greater or lesser quantities in most potting soils, assisting to keep them in a porous state; and where the plants are large, or frequent waterings are needed, coarse sand is preferable to fine. Unless the potting shed be connected with the plant-houses, and heated to a comfortable temperature, the potting at this season of the year is preferably done in the houses. Wherever it be performed, the various soils should be warmed to the same temperature as the plants to be shifted. I do not care to chop soil to pieces; it may be more expeditious, but the soil cannot receive that close examination which is needed, therefore pulling it is the better mode. The finer portions of the soil when it accumulates will prove to be useful for seed-pots, and pricking off seedlings. *J. Hudson.*

INSECTICIDES.

THE following notes by Dr. J. C. Neal, the entomologist to the State Agricultural College, Florida, U.S.A., will be found of interest:—

Nothing has been done in practical entomology that has shown better results than the use of emulsions containing kerosene or insoluble poison held in suspension, and their application to infected plants in a fine spray by various atomisers and spray pumps. With one of these machines, an insecticide can be brought into contact with the insect, and its feeding ground thoroughly impregnated with poison. It is needful that the spray be very fine, and that it be applied with force to reach every infected part, or the hiding-places of insects. For cases like infected buildings, as chicken-houses, that are usually very difficult to keep clear of mites and tick-fleas, the spray of carbolised whitewash, tobacco, kerosene, oil of Tansy, &c., is easily applied.

I append a few formulas that have been tried and found to be valuable:—

I.—SOLUTIONS.

1. Tobacco, 1 lb.; boiling water, 3 gallons; strain when cool. Very effective when used as a spray against flea-beetles, lice, aphides (plant-lice), and ticks.

2. Quassia-chips, 1 lb.; boiling water, 3 gallons. This very bitter solution is good for prevention rather than cure. Apply as a spray to Rose bushes, and to kill plant-lice.

3. Pyrethrum; 1 oz. of the "Buhach" powder added to 2 gallons of cold water for Cabbage, Beets, Tobacco, or any plant used for food, as this is not poisonous.

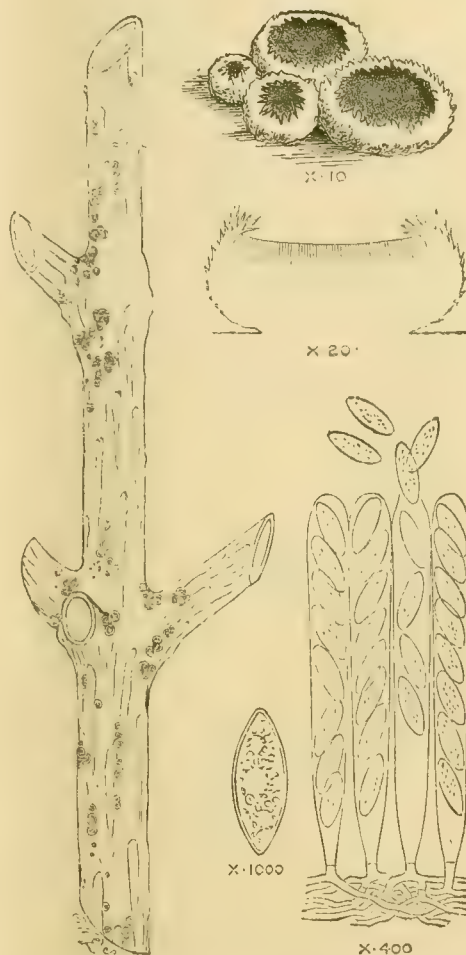


FIG. 99.—THE LARCH DISEASE, CAUSED BY PEZIZA CALYCINA (WILLKOMMII). AFFECTED TWIG; CLUSTER CUPS MAGN. 10 DIAM.; SECTION OF CUP, MAGN. 20 DIAM.; SPORE CAPSULE, OR ASCI, MAGN. 400; SEPARATE SPORIDIUM, MAGN. 1000 DIAM. (P. 265.)

4. London Purple, Paris Green; actively poisonous. Use 1 lb. of the poison to 200 gallons of water or other solutions. Dissolve a little flour paste in the water to make it sticky. Stir frequently. Applied to trees, it is a sure cure for all insect plagues.

5. Bordeaux Mixture.—This, while primarily a fungicide, has some good qualities as an insecticide. It is prepared thus:—1 lb. sulphate of copper, dissolve in 1 gallon of hot water in one vessel; in another, 1 lb. rock lime is slaked in $1\frac{1}{2}$ gallon cold water, and, when cool, pour into the copper solution and strain; add 2 gallons of water, and it is ready for use. (Cook.)

6. To this, add London Purple, 1 lb. to 200 gallons of the Bordeaux Mixture. This sprayed over non-bearing Grape vines or Tomato vines not in bloom, &c., will prevent rot and insect life as well,

7. Soap.—1 lb. resin soap to 1 gallon hot water. This, used as a spray, is often a valuable remedy for the attacks of small and soft insects; in fact, it can be used to advantage for soft scales, when they are few. It should be often used to get the best effect.

8. Water in which tar has been placed acquires some value as an insecticide.

II. EMULSIONS.

1. Stronger Emulsion of Kerosene.—4 lb. soap, dissolve in 1 gallon hot (boiling) water; remove from the fire, and add 2 gallons kerosene while hot. Churn with a spray-pump violently till the oil is emulsified; add 27 gallons cold water for use.

2. Weaker emulsion (Cook).—1 lb. soap, dissolve in 2 gallons hot water as before, but add only $\frac{1}{2}$ gallon kerosene, and dilute till 8 gallons solution are made. Adding $\frac{1}{2}$ pint spirits turpentine to No. 1, increased its stability (Tracy). Allowing even 40 gallons of water to be added to 1 gallon of the emulsion, and sprayed on Tomato worms, it was very effective, and did not injure the plant in the least.

3. Emulsion 1.—Adding 2 oz. of balsam of Fir with the kerosene makes an emulsion that adheres better to the surface of the leaves, and is slightly superior to No. 1 for the armoured scales.

4. Using emulsion 2, only substituting the same quantity crude carbolic acid for kerosene, is especially valuable for Oak and Pear insects.

5. The same formula, using oil of Tansy or Sassafras 1 oz. in place of the $\frac{1}{2}$ gallon kerosene, is efficacious for roaches, mites, ticks, bed-bugs, and pests.

III. ARSENICAL, RESINOUS, AND OTHER COMPOUNDS FOR SPRAYING.

1. To kerosene emulsion No. 1 add 1 oz. London Purple, and mix well. Highly recommended.

2. Resin compound.—Caustic soda, 1 lb.; resin, 8 lb.; to make 32 gallons compound. Dissolve the soda in 1 gallon boiling water; take out half; add the resin slowly to the remainder and boil, stirring rapidly; when dissolved, add slowly the part taken out. Dilute till it will pass readily through a thin cloth, which should be always done. Dilute before using, to 32 gallons. This alone is very valuable against most scales, but the addition of 2 oz. London Purple makes assurance doubly sure, against even the dreaded *Icerya*.

3. White arsenic, $\frac{1}{2}$ lb.; sal soda, $\frac{1}{2}$ lb.; water $\frac{1}{2}$ gallon; boil till a solution is made, then dilute to a gallon. One quart of this to 50 gallons resin compound—use on Peach, Pear, and Plum, either after fruit is gathered or just as bloom has fallen.

IV. POWDERS.

1. While slaking 1 peck fresh lime, add 1 quart of kerosene, sift out lumps; apply lightly to Cucumbers, Melons, and Tomatoes, for beetles and squash-bugs.

2. 50 lb. land plaster, mix 1 pint crude carbolic acid; sprinkle over leaves and Vines for aphides and beetles.

3. Pyrethrum.—This, the powdered flowers of the Pyrethrum, when fresh, is especially valuable if sprinkled on infected leaves, or in boxes, drawers, &c. House flies and mosquitos are easily subdued by closing up the room tightly and slowly burning in it a spoonful of the powder. It is slightly narcotic, but not at all dangerous to human life. For infected Cabbage, Lettuce, Celery, and the like, or Tobacco, it is the best insecticide we have, involving no danger if eaten.

4. Tobacco.—This insidious narcotic is valuable in the destruction of plant-lice, mites, &c. Applied either as a powder or by its fumes it often is quite beneficial.

Bisulphide of carbon, like chloroform, is highly volatile, but its vapour, unlike that of chloroform, is very explosive. Bins and corn cribs can be easily rid of ants, weevil, rats, mice, beetles, &c., if the room be made air-tight, and occasionally filled from the top with the vapour of bisulphide of carbon.

This is the only way in which our farmers ever will keep Corn, Peas, &c., from insect attacks.

CONTINENTAL NOVELTIES.

BEGONIA VERNON.

A new free-flowering variety, figured in the *Revue Horticole*, and described as a seedling from *B. semperflorens rosea*. Our contemporary describes it as one of the finest acquisitions to horticulture for several years. The green foliage is flushed with coppery-red; the flowers are deep scarlet, borne in erect, much-branched panicles. It is to be sent out by MM. Vilmorin Andrieux & Co.

DAHLIA GRACILIS PERLE POITEVINE.

A so-called double form of *D. gracilis*, very distinct from any form of *D. variabilis*.

BEGONIA BAUMANNI, n.s. *Lemoine Cat.*, 1891.

A large-growing tuberous species from Northern Bolivia. The colour of the flowers is bright rose, with a delicate perfume; the leaves broad, fleshy, deep green. Recommended as a bedding-out plant, for the borders of lakes, and for culture in living rooms, and window gardens. See *Revue Horticole*, August 1, 1886, p. 473; *Le Jardin*, December 5, 1890.

BEGONIA SEMPERFLORENS SIEBERIANA,

recommended for its free-flowering qualities, and the delicate rose colour of the flowers. See the *Garden*, October 25, 1890, and *Le Jardin*, December 20, 1890, p. 285.

FLORISTS' FLOWERS.

THE CHINESE PRIMROSE.

SOME few species of *Primula* show a tendency in the seedlings to vary greatly in colour and form, whilst others may be grown for many years without changes occurring at all, or to a very limited extent. The most variable of them all in its flower and foliage is undoubtedly *Primula sinensis*. As a cultivated plant in this country it does not date back further than the year 1820. One cannot say for how many years before that time it had been grown in Chinese gardens, but probably it had never been cultivated by the Chinese with a view to improving its form or habit. It was figured in the year 1821 in *Botanical Register*, t. 539, under the name of *Primula prænitens*, from a plant which flowered in a Mr. Palmer's garden, Bromley, Kent. It was supposed to be the only plant in England at the time, and had been brought by Captain Rawes from a garden at Canton, "Where it probably found its way from some far more northern quarter of the Chinese Empire" [really from the mountains of central China]. The corolla was of a dull salmon-red colour, jagged at the edges, a deep notch in the centre of each segment. The plant was again figured in 1825 in the *Botanical Magazine*, t. 2564; the variety scarcely differs from the earlier one, but its cultivation had spread considerably, and a large collection of plants were grown that year in the gardens of the Horticultural Society at Chiswick. It was supposed to be a shy seedling plant at first, but Mr. Palmer, of Bromley, assisted impregnation by blowing into the flowers, and always obtained plenty of seeds. This may be a hint to those who are anxious to save seeds from choice varieties, and find it difficult to do so. The very splendid single varieties, so rich and varied in colour, and of such exquisite form, are much more difficult to seed than the early introduction of seventy years since. The early plants were treated as perennials, and it was stated that they flowered all the year round, but the best in the spring. The time of flowering is certainly dependent to a considerable extent upon the methods of culture pursued, plants being propagated freely from seeds and cuttings. Almost every gardener and amateur gardener raises Chinese Primroses from seeds, but very few obtain such results as one may see every year in the nurseries of the leading florists and seedsmen who make a speciality of these plants. The reason of this is not

far to seek. The trade grower has a glasshouse or houses set apart for the special culture of the plants.

The plants are grown, usually, not far from the roof in span-roofed houses, and ample ventilation is provided to induce a compact and healthy growth. Much even under these conditions will depend on the plants being provided with a good compost in which to grow, and careful watering. It should always be the aim of the cultivator to obtain first-class seed, but we must remember that this is but one means to an end, and bad culture is more often to blame for inferior quality in the blooms and habit of the plant. The period during which seeds may be sown is from May to July, a season when, owing to the air being usually very dry, the soil in which the seeds are sown is liable also to become dry, rendering the vegetation very uncertain. In order to make sure of every good seed vegetating, the sowing should be made in moderately moist soil, and the seed pot or pan placed where they will not be exposed to direct sunshine. The seeds must be very lightly covered with fine soil, and some moss put gently over it. The results are always the best when no water is afforded the soil until the young plants appear. The seeds will vegetate very freely in a hot-bed frame with a gentle bottom heat. A compost consisting of good yellow loam with a third part of leaf mould, as much well-decayed manure, and some sharp white sand will grow these *Primulas* well; but like all other species of *Primula*, they require abundance of fresh air, hence the success attending their culture in cold frames in the summer months, and low, span-roofed heated houses in the winter. Moreover, they should not be over-potted, as this causes too much flabby foliage, which would overlap the flowers.

When a really fine seedling is obtained, it is well to continue to further improve the strain by saving seeds from it. I use a small fine pencil to fertilise the flowers, but stock may be increased by taking cuttings of all plants which break into several crowns, and these may be cut off when the stems have become woody in the spring; these planted singly in small pots filled with fine sandy moist soil will soon form roots. I prefer to let the roots form before affording them water, for they, like the Hollyhock, are very liable to rot off. In a close frame, evaporation proceeds slowly; to prevent any damping or rotting above ground from this cause, the glass inside must be wiped dry once a day. The cuttings will soon show by growth recommending that roots are forming, and any that actually have roots to support them should be placed where they may gradually become inured to cooler and airier treatment. When well-established, these young plants should be potted on, and otherwise be afforded the treatment accorded to seedlings. The fine double-flowered varieties are propagated by cuttings put in at any time during the spring and summer months, and experience has taught us that the cuttings do best when the plants from which they have been taken have been kept comparatively dry at the roots for two or three weeks before they are taken off. This dryness at the roots causes a corresponding dryness in the stems and leaves, and they are not so likely to damp off. Semi-double kinds produce seeds in small numbers, and may be increased in that way or by cuttings. *J. Douglas.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

THE manner of bedding-out in vogue a few years back is changing, and instead of flowery patterns, which were like those of a gaudy carpet, there is now a desire apparent to have something more interesting. Hardy perennials have in many gardens, and in a great measure, taken the place of *Pelargoniums*, *Calceolarias*, and the like. It should, however, be said that there are gardens laid out in geometrical style, which are not quite adapted to this kind of treatment. The gardener has but little choice, and must plant as heretofore, or

but little satisfaction will be found. This being so, it is necessary to decide forthwith on what shall be done, as it is high time to be working up and preparing the stock of plants. If the beds are to be filled on the old lines, plants for the centres of beds should be chosen, and these may consist of such as have a distinct character, and will stand well above the general level, so as to break up the uniformity; but although contrast is desirable, there should be harmony in the mixture, and this most of the ornamental foliaged plants will give. Many of these may be raised from seed sown at once, the seedlings pushed on in a suitable temperature, so as to get them of a proper size when the time comes for turning them out. Among the plants referred to, the following may be mentioned as some of the most desirable:—*Cannas* of different kinds, *C. nigricans*, and other dark-leaved sorts being very useful; *Chameeucas diacantha* and *casabonæ*, *Ricinus cambodiensis*, *R. Gibsoni*, and others; *Solanums marginatum*, *robustum*, and *Warscewiczii*; *Zea variegata*, Brazilian Beet, *Melanthus major*, *Centaurea candidissima*, *Cineraria maritima*, *Eucalyptus globulus*, *Ferdinanda eminens*, *F. curassavica*, and *Acacia lophantha*.

HERBACEOUS BORDERS.—The difficulty in arranging and planting these, so as to produce a pleasing effect, is much less than in the flower parterres, as there is now a great choice of material. As a place to grow these plants, none equals a border fronting an evergreen shrubbery, as the shrubs form a fine setting and good shelter to the humbler flowering plants. In front of them we may have *Arundo donax* and *A. conspicua*, clumps of Bamboo standing a little back, then the towering *Delphiniums*, the several varieties of *Helianthus*, the stately *Tritomas*, the beautiful *Pæonies*, herbaceous *Phloxes*, *Pyrethrums*, the *Anemone japonica alba*, with many minor subjects of less stately growth.

HERBACEOUS PHLOXES.—Really fine flower-heads can only be obtained by taking up the roots and dividing them, selecting the outside portions for replanting. This is better done annually, and the soil in which they are planted should be deeply dug and well manured.

DELPHINIUMS.—A somewhat similar course of preparation as for *Phloxes* is necessary for these, but instead of disturbing them annually, they are better left alone, as for years they gradually gain strength and size, becoming in time magnificent clumps. Although full late for sowing seeds, there is yet time to raise plants that will flower this season, but the seed must be sown in gentle heat, and the plants pricked off into boxes as soon as large enough to handle, and be grown on in a warm pit or frame for some time afterwards.

HELIANTHUS AND HARPALIUMS, &c.—These, like the majority of herbaceous plants, are gross feeders, and require deep good ground into which they can drive their roots down and ramify freely; otherwise, when not so favoured, they flag and suffer during dry weather, and bear but a poor crop of flowers. One of the best among the *Sunflowers* is *Harpalum rigidum*, which should be in every garden border. *Anemone japonica* is very impatient of being interfered with, and should be disturbed as little as possible, the soil and situation which suits it best being that which is deep and moist; and being a late bloomer, shelter is necessary, or it gets damaged and often spoiled by the wind.

IRISES.—These may, with justice, be designated the Orchids of the outdoor garden, so unique are they in their form and colouring; and they ought, therefore, to be very largely grown. *Iris germanica* will do almost anywhere in the borders, where it can have a fairly open position, while the English and Spanish only succeed really well in a nice loose, open soil, they being bulbous-rooted, and the Japanese, or *I. Kämpferi*, only grow and flower freely where they can find plenty of moisture below. It is a good time now to start with any of these *Irises*, and many of the non-bulbous sorts may be treated as half aquatics, and in no place do they look more at home than by the side of ponds or water-courses, where, with the lovely *Spiræa palmata*, *S. astilboides*, *S. rosea*, *S. japonica*, and other plants of that class; they form a distinct feature in any place, and make a magnificent show. *J. Sheppard, Woolverstone Park, Ipswich.*

THE HARDY FRUIT GARDEN.

STRAWBERRY BEDS.—These should have a thorough clean up and a heavy mulching of farmyard manure. Unfortunately, some varieties, Sir C. Napier

amongst them, have suffered much from frost, and in consequence I expect the bloom will be weak. Vicomtesse H. du Thury, Noble, Oxonian, Waterloo, and several others, however, have stood well, the foliage not being injured in the least. The Dutch hoe should be run through the rows, and the beds raked lightly before applying the mulch. If the soil is of a very heavy nature, and subject to cracking on the surface, it may be pricked up with a fork, but light soils are better when not disturbed except by the hoe and rake. In mulching them, pack plenty of the material close up to the plants. Go over all autumn-planted beds, and tread the soil firmly about the plants, mulching these beds likewise with some mild kind of manure; only poor land will require rich mulchings. Young plants of Strawberries standing in nurse beds should be planted out 20 by 24 inches apart on a plot of deeply trenched and thoroughly manured land, planting them firmly. Put a large label to mark each variety, and make notes of the names and position of each variety, in case of the loss of the labels. Those who make a practice of planting their forced plants, should now get the land dug for them, so that it may settle before planting time arrives. *H. Markham, Moor north Castle, Maidstone.*

THE KITCHEN GARDEN.

DIGGING, AND THE REMAINS OF LATE CROPS.—Let all arrears of digging, trenching, &c., be brought speedily to a finish before the cropping and seed-sowing season begins. Replant Box on other edgings where needed, and any worn-out or dirty walks may be turned over, and re-gravelled. Examine Globe Artichokes, and partially remove the protecting materials, also decayed stems and leaves.

CELERY.—That which is still in the trenches should now be lifted, to prevent its early running to seed; and the sound heads tied up and put in an upright position in a cool shed or shaded position, either in cocoa-nut fibre or leaf-mould. Leeks may be treated in a similar manner, if desired, or they may be laid-in on a border facing north.

SEAKALE.—Where the supply is obtained from lifted roots, any that may be still in the ground may be taken up before growth begins, and laid-in in a cool spot, and where it will be retarded as much as possible. Roots for late supplies to be blanched in the open should also have the crowns covered before growth recommences, otherwise, no after-treatment will secure the necessary whiteness.

For new plantations, choose a piece of ground which was trenched and well manured in the autumn, and which has full exposure. Previous to planting, give the surface a dressing of soot and salt if the soil be light, and tread it evenly. If the thongs of the roots were selected at lifting time, and made into sets of 6 inches in length, cut straight across at the top and a little slanting at the bottom, and kept in boxes in an upright position, and covered with leaf-mould or sand, they will now be nicely calloused and fit for planting. These sets should be put in with a dibber, 15 inches apart in the rows, and 20 inches between the rows, the top of the set being 1 inch beneath the surface. The holes may be filled up with fine soil and wood-ashes mixed together—this is when the roots are to be forced in another place. For forcing on the ground, sets should be planted in clumps of four or six, each clump a yard distant from its neighbour, two lines of clumps, at 2½ feet between the lines, making one bed. Seakale requires good drainage, and will be greatly assisted in summer by mulchings of half-rotten dung, and the application of manure-water.

CABBAGE, BRUSSELS SPROUTS, LETTUCE, PARSLEY, &c.—Plants of the above, sown in heat, will require to be pricked out in boxes, or upon a mild hotbed, at 3 inches from plant to plant. The earliest-sown Celery may be pricked out on to a gentle hotbed at 4 inches apart, or a sufficient number for a row of the strongest plants may be potted singly into 60's, filled with loamy soil and manure, the pots being put near the glass in a temperature of 60°, every care being taken to secure sturdiness. When the pots become filled with roots, shift into 32's, keeping them in the same temperature for a few days will be advisable; afterwards they may be placed in a cold frame.

POTATOS, &c., of some early variety may be planted on a sheltered border, and some put in at the foot of a south wall. Plant 6 inches deep, and closer together than is usual when planted later. If autumn sown Onions are likely to be scarce, any bulbs in the Onion-loft that may be starting to grow may be

planted, they will yield tops for kitchen use, when the stock of old bulbs is exhausted.

Onions in store should have the unsound bulbs removed, the rest be tied up in bunches, and hung in an airy shed. All kinds of seed Potatoes should now be spread out in the light, out of danger from frost.

Radishes on hotbeds should be thinned to 1 or 2 inches apart, for if these become crowded together, not half of them will form fine roots. A sowing of Parsley should now be made in shallow drills, 1 foot apart, on well-tilled soil. *C. J. Waite, Glenhurst, Essex.*

FRUITS UNDER GLASS.

VINES IN POTS.—The berries on the earliest Vines will now be set, and thinning them may soon commence, too many bunches not being left, especially if the Vines are growing in pots or other restricted space. These Vines may now be afforded liquid manure freely, and the top roots be encouraged by placing pieces of rough turf round the rims of the pots, and some finer soil inside this wall; also a dressing of Thomson's or other fertiliser. The night temperature should be about 70° in mild, and a few degrees lower in frosty weather, with 80° to 85°, or even higher, with sun-heat, and a moist atmosphere; giving air when the higher temperature named is reached, but carefully avoiding cold draughts. Shut up the pit or house early in the afternoon. The propagation of Vines from "eyes" for next year's canes should be undertaken forthwith, by putting the eyes, cut to 2 inches in length, into small squares of turf, and placing these in a mild bottom-heat, and close to the glass. Last year's canes not used for fruiting should be cut back, and when a few inches of new growth have been made, they should be shifted, and kept close to the light, in a temperature of 55° to 60° at the start; indeed, those who do not possess good accommodation for the early propagation of Vines from eyes or buds, will find the latter plan the better one, ripened canes being easily secured from the "cut-backs."

THE EARLY PERMANENT VINES.—These will require treatment similar to the pot-Vines, and the Vines being now in flower, the air may be kept somewhat drier, and the rods shaken several times daily, until it is seen that the flowers have set. In the case of Vines that are bad setters, pollen from the Black Hamburgh vines may be made use of in their fertilisation. The thinning should be performed when the berries are less in size than Sweet Pea seed, and superfluous bunches removed. Maintain a genial atmosphere in theinery, ventilating when the day temperature rises to 75°, maintaining the night temperature at 55° to 60°. The borders should be watered when they are found to require it, with water having a warmth of 80°, and manure-water of like warmth may be afforded as growth increases. In many gardens, vineries are also plant houses, and a diligent watch is required at this season, for should mealy-bug appear, soluble paraffin emulsion must be employed to keep it in check, going over the Vines every day for a time. [See p. 269, "Insecticides." Ed.]

SUCCESSION VINERIES.—The vines in these will be advancing, and syringing overhead must be discontinued, moisture being supplied by damping floors, walls, &c. Muscats and Black Alicante, and other kinds of grapes requiring a long season to ripen in, should be started. Late Black Hamburgh vines should be fully exposed, to keep growth in check, no difficulty being experienced in properly finishing this grape in the autumn, if it be started at the latest period. All vineries should be put in readiness for a start. Canes propagated last year, and which were cut back some few weeks past, having made several inches of growth, may now be planted, if the border be in proper condition for receiving them. The plants should have the roots carefully spread out, having previously watered the plants. After firmly planting the Vines, mulch the border over the roots with warm manure if the border be not heated. Outside borders should be planted with ripened canes, no portion of the canes being exposed, and covering the roots with warm litter. *G. Wythes, Lion House, Brentford.*

PLANTS UNDER GLASS.

THE STOVE.—Plants of *Ixoras*, propagated early in the season, will now be ready for potting, and these should be encouraged to make free growth by plunging them in bottom-heat of 75° to 80°. Keep a sharp outlook on large *Ixoras* which may

have mealy-bug upon them, having them well cleaned before the trusses of blooms are formed. Cuttings with a heel of old wood may be taken from plants of *Euphorbia Jacquinæflora* which were cut back, and have made growths of some 3 inches in length, and put into well-drained pots, and filled with sandy, peaty soil, inserting the cuttings firmly. Place them under hand-glasses in a brisk bottom-heat. Plants of *Gardenia floribunda* and *radicans* showing blooms should be watered occasionally with liquid-manure, thus strengthening and increasing the size of the coming flowers. Plants of *Allamandas*, *Dipladenias*, and *Clerodendron Balfourianum*, making growths must have the young shoots kept clear of the roof-glass.

Plants of *Poinsettias* which have done flowering should be dried off, and stored away in an intermediate-house—not in one of a lower temperature, as there would be the danger of the roots perishing from cold.

PROPAGATION.—Cuttings of the following species of plants may be struck as soon as obtainable, growing them on quickly, and not allowing them to become pot-bound till they have had their final shift. *Eranthemum pulchellum*, *E. Andersonii*, *Justicia speciosa*, *J. carnea*, *J. splendens*, *Pentas carnea* and *P. rosen*, *Scutellaria Mocinianiana*, *Plumbago rosea* and *P. coccinea superba*.

SHADINGS, ETC.—Get all shading fixed at an early date, in readiness for the bright days of March. With increasing warmth, the temperature of the stove may now be kept at 65° to 70° by night, with a rise by day, with sun-heat, of 10° to 15°, affording air to the stoves, especially when the outside temperature is low. A good deal of care and attention is called for in regulating the amount given in accordance with the varying phases of the day. Close early in the afternoon, damping down thoroughly all surfaces if much air has been given. Growing plants may generally, be syringed gently overhead with tepid water in the afternoon if the weather has been bright, more or less, as may be deemed necessary. *R. Milner, Penrice Castle, Swansea.*

THE ORCHID HOUSES.

EAST INDIA HOUSE.—The *Phalaenopsis* will at this critical time be in bloom, if not at their best. It is not wise to leave the flower-spikes upon the plants for a lengthened period, as it often leads to the loss of the plants, and is unnecessary, as they last for a long time cut off and placed in water. *Phalaenopsis* are very free-flowering, and usually send up more flower-spikes than the plant will carry without injury to itself, and some sort of thinning out is desirable as soon as the branches upon the spike show themselves. *P. Schilleriana*, *P. Stuartiana*, and *P. leucorrhoda* are species which have a large number of branches, and soon exhibit the effects of an over-crop of flowers by not starting to grow when the proper season arrives. I have had plants which have started to make roots to my entire satisfaction, and I have looked forward to a good leaf-growth, but there came none, the plants pushing forth no leaves until in the last week of July, and even in August, and I have always been enabled to trace this loss of vigour to over-flowering. Such weakened plants have remained comparatively healthy, but they were not allowed to flower the following season, with the result that the following year they have grown away vigorously in due season.

Phalaenopsis, when once the flowering is past, may be rebasketed, if that be found necessary. I used a few years since, to consider the month of May the best time for this, and still find that it is the best time for plants in good condition at the roots; but if not quite healthy, no time should be lost now in removing all decaying and sour materials in contact with the roots. In rebasketing, the materials required are sphagnum moss, clean crocks, and coarse silver-sand. It is good practice to elevate the plants somewhat above the sides of the basket, the roots soon finding their way down into the materials. By doing the work in this manner, the foliage will be raised above the potting materials, and the lower leaves which rest on the sphagnum will be saved from decay by the air that will play around them. A temperature of 60° at night will be sufficiently high, and the moisture in the air should be kept at a minimum.

SHADINGS.—I would recommend those who have not already done so to examine all rollers, blinds, and shadings, so that when the time comes for employing shade, they may be placed in position without delay. *G. Catt, Parkfield, Worcester.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Advertisements should not be sent to the Editor, but to the Publisher.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, MAR. 5.—Linnean Society, at 8 P.M.

SALES.

MONDAY, MAR. 2. } Bulbs and Carnations, at Protheroe & Morris' Rooms.

Lilies, at Protheroe & Morris' Rooms.

Greenhouse and Stove Plants at South Hampstead, by Protheroe & Morris.

TUESDAY, MAR. 3. } Clearance Sale of Nursery Stock at the Nurseries, Leamington, by Protheroe & Morris (two days).

Border Plants, Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.

WEDNESDAY, MAR. 4. } Lilies, at Protheroe & Morris' Rooms.

Nursery Stock at Paignton, by Protheroe & Morris (four days).

Established Orchids, at the Orchid Nurseries, East Dulwich, by Protheroe & Morris.

THURSDAY, MAR. 5. } Orchids and Lilies, at Stevens' Rooms.

Nursery Stock from Sample, at Protheroe & Morris' Rooms.

FRIDAY, MAR. 6. } Nursery Stock, at Leytonstone, by Protheroe & Morris.

SATURDAY, MAR. 7. } Orchids, at Protheroe & Morris' Rooms.

Border Plants, Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—41°.

Has horticulture progressed?

THE Jubilee of the *Gardeners' Chronicle*, and the comments made upon it, have brought us numerous letters and congratulations from both hemispheres. The writers must not think us as anything but deeply grateful or appreciative if we refrain from publishing the compliments they have been pleased to pay us, especially those which are of a personal character, especially as we feel that the compliments bestowed upon us would be more fitly paid to our contributors. There are, however, some letters containing matters relating to the progress of horticulture which are of public interest. The following extracts are taken from a communication of a veteran nurseryman in the North, who is not desirous of having his name mentioned. It is only necessary to say that whilst we concur with many of his statements, we differ from others, and think that if there has been loss in some particulars, there has been gain in others. In particular, the taste for horticulture and the means of gratifying it have vastly increased, even if the culture of certain things is not what it was; but that is very much a matter of fashion, and another turn of the wheel would bring in the "hard-wooded stuff" again, just as it has done the single Dahlias. If the number of large establishments has declined, the increase in the number of minor ones and of growers for market has been enormous, so that the general "output" in all departments is beyond comparison larger than it was. The artisan can now enjoy what formerly was the exclusive possession of the man of wealth, and this has been brought about largely by that system of

advertising which our correspondent laments. Honest advertising, free from exaggeration and misrepresentation, is very valuable to producer and consumer alike, and, indeed, is an absolute necessity of the times. Misleading advertisements, even when they are not strictly dishonest, are rightly enough styled "ruinous" in their tendency. In the long run, they injure the journals that insert them, however innocently; they do harm to the purchaser, and they inflict damage on the vendor. An advertisement that is genuine, on the other hand, does good all round. Subjoined are some extracts from the letter we have referred to:—

"Has the present generation kept pace with the past? I think not. No doubt there are hundreds of talented gardeners now, but there has not been anything of late years to excel the grand examples of cultural skill produced in the '30's and '40's. Where do we now see such evidences of skill as were produced from the gardens of Mrs. LAURENCE of Ealing Park, RUCKER of Wandsworth, HUNT and BARNES of Bromley, GREEN of Cheam, BRUCE of Collier's Wood, CURTIS of Clapham, COLE of Dartford, and others? The Pine-apples grown about 1840 by MILLS of Gunnersbury have never been beaten, except, perhaps, by ATLEE of South Lambeth. These latter weighed 15 lb. each, and were presented by Mr. BEAUFAY to the Duke of WELINGTON, who sent the gardener a present of ten guineas. My son grew a Queen Pine 9 lb. 5½ oz. in weight some thirty years since, and gained a prize for it in Regent Street; and a Blood Pine of 6 lb. in weight, with the same success. Then there were the grand Peaches shown at the Horticultural Society's Room in Regent Street, April 7, 1843, which have never been surpassed. Grapes, indeed, are more extensively grown now, but I do not think more successfully.

"Advertising to the nurserymen, are there many who could compete with what was done fifty years ago? Think of the ROLLISONS of Tooting, PINCE of Exeter, PAWLEY of Bromley, FRASER of Lea Bridge, FAIRBARN of Clapham. The latter exhibitor showed a plant of *Erica Cavendishii* with nearly 20,000 blossoms on it. The flowers were counted as they withered, and were removed. The pot made for this plant held four barrowloads of peat. The *Pimeleas*, *Eriostemon*, *Aphelexis*, *Ixoras*, *Leschenaultias*, *Polygalas*, *Genetyllis*, *Kalosanthes*, *Gnidias*, and plants of that class. Where are they now? JOHN GREEN, of Cheam, showed two enormous Balsams at Vauxhall Gardens in 1839. The side branches were as thick as a man's wrist; they were 6 feet high, covered with double flowers. Each plant had taken a hogshod of water to grow them. The same day the Cockscombs shown by Mr. COCK, of Chiswick, were the admiration of all beholders. I have never seen any plants to equal these since.

"As regards florists' flowers, think of the wonderful exhibitions fifty years ago at Cremorne, Vauxhall, the Horns Tavern at Kennington, the Crown and Anchor in the Strand, and the Surrey Zoological Gardens, by such men as WIDNALL of Cambridge, BROWN of Slough, GIRLING of Stowmarket, GAINES of Battersea, DICKSON of Acre Lane, Brixton; CHANDLER of Vauxhall, who showed collections of 100 varieties of Dahlia; HOPWOOD of Twickenham, TURNER of Slough, or NORMAN of Woolwich. The florists of to-day are showing the single Dahlias that my grandfather grew before I was born! I am afraid the true interest of horticulture are not so flourishing as they were. There is more theory and less practice; in other words, more noise now than work. Consider the grand nursery establishments that have failed during the last fifty years, not leaving a wreck behind. I am inclined to think the horticultural press being the medium for ruinous advertising has had very much to do with it. I may mention that I was at the first dinner of the Gardeners' Benevolent held at the Crown and Anchor in the Strand, in 1843. Of the

fifty who sat down only four are left, Mr. LEE, Mr. CUTLER [whose death is announced in our present issue], Major BOLTON, and myself."

CATTELEYA REX.—We have now the opportunity, through the courtesy of M. LUCIEN LINDEN (who placed means at our disposal for the purpose), of giving an illustration (fig. 61) of this noble Cattleya. It was described in our columns on December 13, 1890, p. 634, by Mr. O'BRIEN, and a coloured figure worthily forms the first plate of the English edition of the *Lindenia*. It was first detected by M. LINDEN, in the course of his travels, and thirty years later was found by WALLIS, who described it as the most beautiful of Cattleyas, but did not succeed in introducing it to Europe. Twenty years after, it was again found by one of the collectors for M. LINDEN, in one of the least accessible mountain districts of South America. Our cut will show the general appearance of the flower, the segments of which are white, while the lip, which is slightly fringed like that of *C. Mossiae*, has a claret-coloured or rosy-purple blotch in front, margined by a narrow white belt, the throat being streaked with golden rays, alternating with purplish bands, somewhat as in *C. Dowiana*. Six flowers on one inflorescence were noted, and there is little reason to doubt that, under cultivation, this Orchid will develop in beauty, and take rank among the very finest in the genus.

"**KEW BULLETIN.**"—The February number is devoted to the consideration of the Ipoh or Upas poison, the produce of *Antiaris toxicaria*, and concerning which so much has been written. The poisonous effect is stated to be due to the presence of *Antiarin*, a green resinous substance produced in the tree as growing in Java. Specimens of the so-called poison were sent to Kew from the Malay coast, and were subjected to examination and report by Prof. SIDNEY RINGER, on two occasions, with entirely negative results. The leaves sent with the poison were clearly those of *Antiaris toxicaria*. It would appear, then, either that the tree is not always, and under all circumstances, dangerous, or that its juice is mixed with some other substance, such as arsenic, to which the fatal effects are in reality due; and there is some evidence that this is the case. It is disconcerting to have one's notions about the Upas tree disturbed! Cutch or Catechu is also the subject of a note in this number of the *Bulletin*. This is the resinous extract of *Acacia Catechu*, much used in medicine as an astringent, and in manufactures as a tanning material. The mode of preparation is detailed as practised in the North-west Provinces of India and in Burma. The article on the production of Cane sugar is interesting, as showing the importance of studying the physiology, or internal working of the plant, for the purpose of ascertaining under what circumstances the sugar is formed, what conditions are most favourable to its production, and how the amount may be increased under cultivation. To this subject we shall probably recur. The timber of the Yomba country in West Africa is also reported on, and from what is stated it appears that there exist a large number and variety of timber trees easily accessible by the great waterways which extend through the colony of Lagos. The "mahogany" of this region is the produce of *Khaya senegalensis*, the "Rose-wood" is yielded by *Pterocarpus erinaceus* and the Odoom or Iroko of Yomba, in which a trade is springing up, is furnished, as has been ascertained at Kew, by *Chlorophora excelsa*, a tree of the Nettle family, *Urticaceae*. This latter timber, it is stated, can withstand the effects of weather and of white ants, and is, therefore, largely used in house construction. It is also suitable for furniture, as it is very ornamental when polished. Other articles refer to the Phylloxera, and to the newly-established botanical station at Lagos, which, through the enlightened policy of Sir ALFRED MOLONEY, is likely to be of great service to the colony. The station is under the direction of Mr. HENRY MILLEN,

who was sent from Kew on the resignation of Mr. JAMES McNAIR. As an appendix is published, a list of seeds collected in the Royal Gardens in 1889?1890, and which are available for exchange and otherwise in small quantities, but which are not sold to the general public.

Committee had been adopted by the Annual General Meeting of Members. Arrangements were made for transferring the account of the Society from the Union Bank to the London and County Bank at Ealing. The Secretary made a report as to the Special Prize Fund, showing that the sum of £85 15s. had been

1891 allowed of a sum of £433 being offered in prizes at the three forthcoming exhibitions; and they recommended that the sum of £85 be offered as prizes at the exhibition of early Chrysanthemums in September, £298 at the great show in November, and £50 at the early winter show, the second week in December,

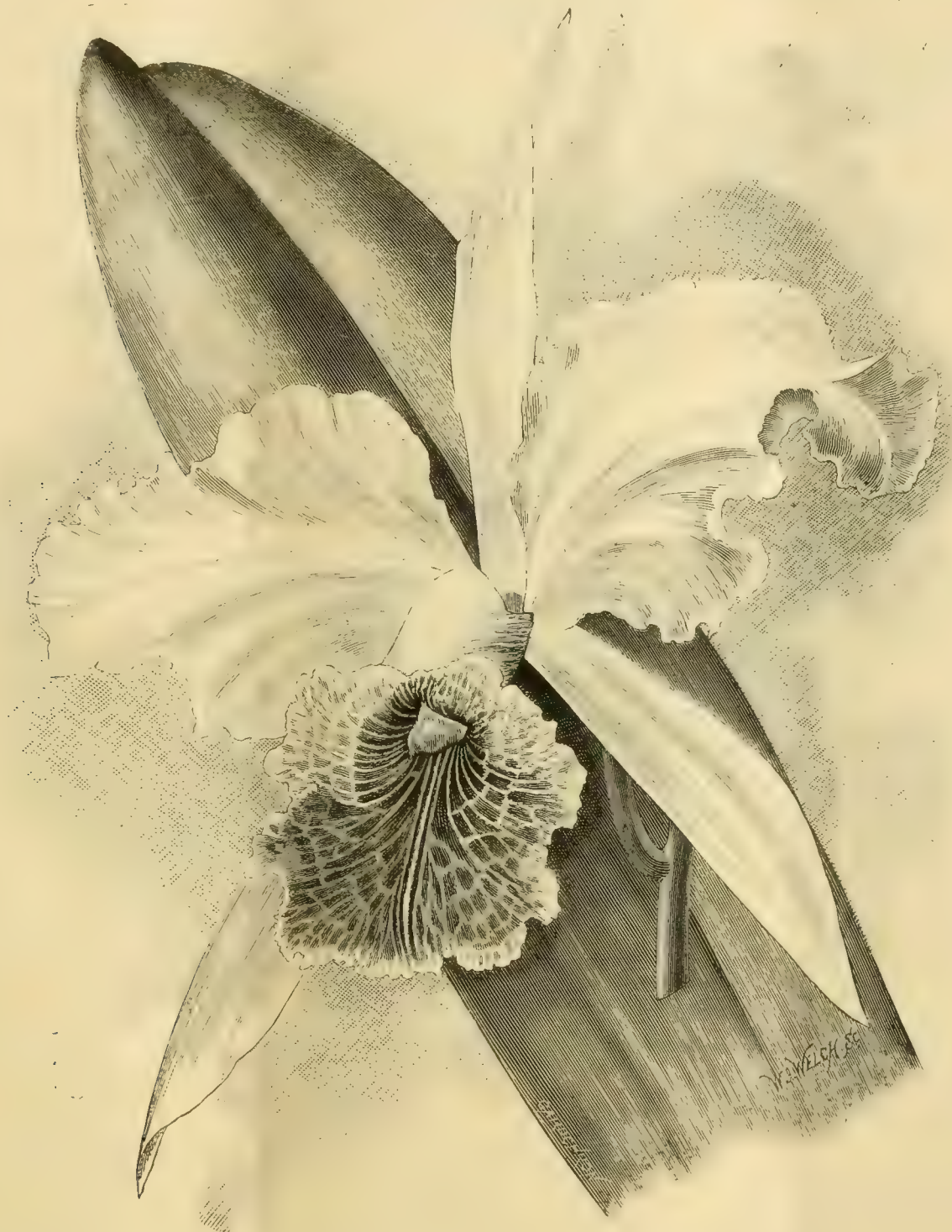


FIG. 61.—CATTLEYA REX : SEGMENTS WHITE, LIP GOLDEN YELLOW, BLOTCHED AND STREAKED WITH ROSEY-PURPLE. (SEE P. 272.)

NATIONAL CHRYSANTHEMUM SOCIETY.—A meeting of the Committee of the above Society took place at Anderton's Hotel, Fleet Street, on Monday evening last. Mr. R. BALLANTINE presiding. The Secretary reported that the revised rules recommended by a Revision Sub-committee and the General

offered in cash as special prizes, in addition to several medals, including two special medals offered by the *Gardeners' Magazine*, and contributions to the Fund of £12 9s. 6d., making a total of £98 4s. 6d. The schedule sub-committee brought up a report setting forth that an estimate of the income of the Society for

which takes the place of the usual mid-winter show. In the forthcoming schedule of the Society will be found many additions and improvements in regard to things to be shown, and methods of showing them. The revised schedule and the lists of the judges nominated were unanimously adopted. Messrs.

G. Stevens, R. Owen, J. Maidlin, and T. Bevan were re-elected on the Floral Committee; and Mr. Briscoe-Ironside, in the place of Mr. R. Dean, appointed Secretary. A Catalogue-revision Committee was elected, consisting of Messrs. C. Harmar Payne, G. Gordon, E. C. Jaikes, H. Briscoe-Ironside, and H. Shoemith. Two new members were elected, and four societies were admitted to affiliation. The proceedings closed with the usual vote of thanks to the committee.

BRUSSELS BOTANIC GARDENS.—*Chamaedorea desinoncoides* is one of the many interesting plants to be found here, a specimen of it having a trailing stem some 20 feet in length, and as thick only as an ordinary walking stick; towards the point it stands erect another 12 feet or so, the tip being crowned with graceful arching foliage. Walking through those dreary colonnades, one is tempted to ask why such a lot of money as must have been spent on them was used for the purpose of making places in which even the Oranges, Myrtles, Acacias, &c., which inhabit them can hardly exist. Have the uses of the gardens been perverted from those originally intended? A line in the rhyming advertisement of one of the Brussels toy-bazaars seems to say so:—"Mon enfant, va jouer au Jardin Botanique." Babies and botany never go well together. The thing has been tried in several instances, and the juveniles always succeed in bowling science over.

THE MIDLAND CARNATION AND PICOTEE SOCIETY.—So successful has been the canvas for subscriptions to the prize-fund of this newly-formed Society, that it now exceeds £100. The schedule of prizes is now ready to be issued.

CORNELL UNIVERSITY AGRICULTURAL STATION.—The December *Bulletin* contains, in addition to the various matters of concern to agriculturists, notices of the Hollyhock rust, which can be kept in check by two table-spoonfuls of permanganate of potash dissolved in a quart of water, applied with a sponge. The forcing of Beans, and herbaceous grafting receive attention. Professor BAILEY even succeeded in grafting Iresine upon Coleus! Tomatos were grafted on Potatos, the plants bearing Potatos beneath, Tomatos above. This experiment has been successfully tried in this country also. "Peppers"—i.e., Capsicums—intergraft with Tomatos and Egg-plants. Various experiments of this kind were carried out; while in the crossing of Cucurbits, no fewer than 1000 new varieties have been obtained.

EASTBOURNE HORTICULTURAL SOCIETY.—We ascertain from the *Eastbourne Gazette* of February 18, that this Society, under the able chairmanship of Mr. W. SHARP, is gradually strengthening its position. Last year about £90 was paid in prizes, and there is, notwithstanding, a substantial balance in hand. It is pleasant to find that the monthly meetings are well attended, and that questions of interest to horticulturists are carefully discussed. The able lecture given by Mr. J. WELCH last week did not fail to gain appreciation; but, as Mr. A. J. HOWARD pointed out, it is necessary that the educational work of the Institution should be not only maintained, but extended and made more public.

SHOW FIXTURES.—The Chelmsford and Essex Horticultural Society's Exhibitions for the current year are as follows:—The Summer Show on June 11 and 12, and the Chrysanthemum Show on November 12.

HORTICULTURAL EDUCATION IN HOLLAND.—From the *Illustration Horticole* we learn that the Dutch Government is deliberating upon the proposal to establish a horticultural section of the Agricultural Institute at Wageningen. In Holland, it appears, there are more than 175,000 workmen dependent upon horticulture, who receive in the aggregate forty-six millions of florins per annum. In the environs of Haarlem there are fifty firms who export Hyacinths to the aggregate value of five

millions of florins. The Minister is reported to have said, that an industry which succeeds so well without official assistance, requires no school. We fear the Minister, like most of his class, considers money and money-making as the first considerations, instead of being, as they should be, only means to an end.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY.—It is given to but few Societies to show such a satisfactory financial position as the foregoing. Three exhibitions were held in 1890, and there is a balance in hand of £96 2s. 5d., and, in addition, a reserve fund of £257 7s. 3d. Happy Norwich! The spring show takes place on April 23, the Rose Show on July 2, and the Chrysanthemum Show on November 19. This appears to be a very popular exhibition. The takings at the doors in November last were over £150.

BIRMINGHAM GARDENERS' ASSOCIATION.—A large attendance of members, on Monday evening, the 23rd inst., heard with great pleasure Mr. J. LAMBERT, gardener to Col. WINGFIELD, Onslow Hall, Shrewsbury, read a very instructive paper on "Vegetables, their Varieties, and Cultivation," with details of cultivation for a general supply to the house, as well as for exhibition purposes, and a list of varieties grown at Onslow Hall for both purposes, was read. Mr. LAMBERT is a well-known highly successful exhibitor, especially at the Shrewsbury Great Show in August, when vegetables in the highest state of cultivation and in enormous quantities are always seen. He is also to the front as an exhibitor of Chrysanthemums, gaining the 1st prize of £20 last November at Birmingham, and leading honours at other great exhibitions.

JUGLANS VILMORINIANA.—A supposed hybrid between the European Walnut and the American Black Walnut, growing at Verriers, where it was planted by the grandfather of M. MAURICE DE VILMORIN, who contributes an interesting note concerning the tree to a recent number of *Garden and Forest*. The characters of the tree are intermediate between those of the two species named.

HYACINTH SOAP.—From the *Illustration Horticole* we learn that a soapmaker of Haarlem has devised a new process by means of which the perfume of the Hyacinth may be imparted to soap.

PROFESSOR MAXIMOWICZ.—It is with great concern that we hear of the death of Dr. MAXIMOWICZ, of St. Petersburg, an occasional correspondent of this Journal, and one to whom we were indebted for information on the Flora of Japan and Amur Land. He died on the 16th inst., from an affection of the lungs consequent on influenza.

MR. MORRIS.—We received a telegram on Wednesday evening last announcing the arrival at Plymouth of Mr. MORRIS, the Assistant Director of Kew Gardens, who some few months ago was entrusted with an important botanical mission to the West Indies, which has been successfully conducted.

NATIONAL CO-OPERATIVE ASSOCIATION.—The schedule of prizes for the sixth great co-operative festival, to be held at the Crystal Palace, Saturday, August 15, next, is now published. The festival of last year greatly exceeded its predecessors, the number of entries being 4546, and visitors 34,675. The present schedule includes all the liberal prizes offered last year, and some new ones. A very necessary division of the country into districts has been adopted, and to which separate prizes will be allotted, so that unfairness will be spared the exhibitors who may reside in widely separated districts. Garden and farm produce, and honey, constitute the chief exhibits. Mr. E. O. GREENING, 3, Agar Street, Strand, W.C., is the Secretary.

"BIOGRAPHICAL INDEX OF BOTANISTS AND HORTICULTURISTS."—We have given from time to time extracts from a list published monthly in the *Journal of Botany*. It is proposed to reprint the list

if a sufficient number of subscribers can be obtained. The book will be so useful to all who refer to the works of botanical and horticultural authors, that we heartily wish that a large number of subscribers will be forthcoming. Subscribers should send their names to WEST, NEWMAN & Co, Hatton Garden. The cost would be a few shillings.

THE SURVEYORS' INSTITUTION.—The next meeting will be held on Monday, March 2, when the adjourned discussion on the paper read by Mr. A. A. HUDSON (Associate), at the last meeting, entitled "Recent Legislation as to Buildings and Streets in London," will be resumed. The chair to be taken at 8 o'clock.

LINNEAN SOCIETY.—At the evening meeting appointed for March 5 next at 8 P.M., the following papers will be read:—1, "A Morphological and Systematic Account of the Facaceous Genus, *Turbinaria*," by Miss E. BARTON; 2, "On New Species of *Caulerpa*, with Observations on the Position of the Genus," by GEORGE MURRAY, F.L.S.

CARDIFF HORTICULTURAL SOCIETY.—At the show which this Society intends to hold on August 12 and 13, a considerable amount of money will be awarded in prizes. The class for Plants and cut flowers, an open one, will secure £125; amateurs' and gentlemen's gardeners, about £60; competitors of this status, exhibiting fruits, about £60; and vegetable (open), and cottagers together, a similar sum.

SCHOOL GARDENS.—We read in a Wolverhampton newspaper of the commencement of a school garden at the Portobello Board School in that town, and that the head master, Mr. J. S. ASHLEY, had devised a scheme by which the elder scholars might acquire a taste for gardening and a love of flowers, at the same time greatly improving the precincts of the school. With sympathetic consideration, Mr. JOSIAH TILDESLEY, J.P., C.C., has instructed his gardener to give all possible assistance in the setting of the ground, and in giving the necessary instruction to the children. Prizes will be offered for the best kept plots, and the children will get every encouragement from the hands of their school teachers.

PEACH-YELLOWS.—This is a disease characterised by the death of the young shoots, and the shrivelling of the leaves, which assume a yellow colour. It is a frightful scourge in the United States, and we have just received specimens from the Cape of Good Hope. Hitherto, no fungus nor insect has been associated with its production, but it may possibly be due to bacteria. Attempts have been made to counteract it by means of various fertilisers, but to no purpose. We read of whole States being devastated of their Peach trees. In this country the disease is not known, unless, indeed, what we have termed the silver-leaf disease, has some relation to it; but of this we have no evidence.

THE DEATH RATE AMONG HORTICULTURISTS.—The extraordinarily high rate of mortality among prominent horticulturists which characterised the year 1890, and left so many regretful memories, seems destined to continue in the present year also. A week or so ago we had occasion to record the death of Mr. DOMINY; this week it is our sad duty to chronicle the death of Mr. E. R. CUTLER, the well-known Secretary of the Gardeners' Royal Benevolent Institution, and that of Mr. CASEY, for many years in the employ of Messrs. HUGH LOW & Co. Both these gentlemen died suddenly, the one in the prime of life, or scarcely beyond it; the other in his seventy-third year, though, so far as energy was concerned, he had not outlived the prime of life. Fuller notice of these gentlemen will be found in another column.

THE ARTIFICIAL MANURES, &C. (ADULTERATION) BILL, which was introduced into the House of Commons and read a first time in November, but which has just been issued in a revised form, has for its object the better prevention of frauds in the

manufacture and sale of artificial manures and other preparations for agricultural purposes. This it proposes to attain by making it compulsory, in all sales in quantities of not less than one hundredweight of artificial manure or feeding stuffs, for the seller to deliver to the purchaser a guaranteed analysis of the article sold, and by making misrepresentation in this certificate punishable by summary process. In order to facilitate the carrying out of the law, the Bill provides for the appointment by every County Council of "one or more persons possessing competent knowledge, skill and experience as analysts of artificial manures and feeding stuffs within such county," from whom purchasers will be entitled to obtain an analysis on payment of a fee of 5s. All appointments of these analysts would be subject to

pots, glazing, insecticides, wirework, spraying apparatus, manures, and sundries in general.

SALE-ROOM GOSSIP.—On Friday, February 20, at Messrs. PROTHEROE & MORRIS' Great Central Rooms, Cheapside, the importation of true *Laelia grandis* went well at fair and rather low prices, considering the values put on those already in cultivation. The same day, also, was offered a noble plant of the rare *Cypripedium Wallisii*, with two spikes each of three flowers. It may be likened to a very large, light-coloured *C. caudatum*, the plant having broad green leaves. On Tuesday, February 24, a flowering Orchid sale was held at the same Rooms, and a very varied and beautiful lot of plants were noted in bloom. Two specially noteworthy plants

PHALÆNOPSIS CULTURE.—M. Moll, in a recent number of the *Journal des Orchidées*, recommends a lean-to house, or a very low narrow, span-roofed house, where the plants can be kept very close, in a temperature of 20° to 25° C. (68° F. to 77° F.), very close to the glass, in a damp atmosphere, with the least amount of air, and the greatest amount of light possible. A resting-period of six to nine weeks should be accorded, during which very little water should be given. Re-basketting should be done when growth recommences, taking care not to employ too large a basket. Water is gradually increased as the plants grow, and precaution should be taken to expose the roots as much as possible to the air, to which end the sphagnum should be cut away, so as not to obstruct the roots.



THE LATE EDWARD ROGER CUTLER, DIED FEBRUARY 24: SECRETARY TO THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

the approval of the Board of Agriculture, which may require to be supplied with satisfactory proof of competence; but the only other limitation is that no person shall be appointed as analyst who is engaged directly or indirectly in the trade or manufacture of the substances he may be called upon to examine. The Board of Agriculture would also be empowered to authorise a County Council for a specified time to appoint inspectors to obtain and deal with samples of manures and food-stuffs offered for sale in a manner corresponding to the provisions of the Sale of Food and Drugs Act.

THE CRYSTAL PALACE HORTICULTURAL EXHIBITION, which opens on Tuesday next, and does not close till Saturday, March 21, will no doubt prove to be an interesting display, comprising numerous examples of buildings, heating appliances,

were, a good specimen of the light form of *Cattleya exoniensis*, but the vendor's idea of its value was not responded to by the buyers, and consequently it was not sold; the other, a fine hybrid *Cypripedium Lawrenceanum* × *Hookeræ* realised 20 guineas. Varieties of *Coelogyne cristata* were in great force, and commanded good prices; and the *Dendrobies*, *Lycastes*, *Cattleyas*, and other Orchids of the season were well represented. Wednesday, February 25, at PROTHEROE & MORRIS', saw the sale of a very varied and useful lot of bulbs, herbaceous plants, *Camellias*, *Azaleas*, *Lilies*, &c., all going briskly at prices which varied with the quality. Thursday, February 19, at Mr. J. C. STEVENS, there were sold some grand masses of *Dendrobium Dalhousianum*, *D. Jamesianum*, *Oncidium splendidum*, and other imports; at the same Rooms, a plant of the rare and pretty *Oncidium Brunleesianum* was also offered.

THE BULB GARDEN.

SEASONABLE NOTES: HIPPEASTRUMS.

My bulbs promise well for flower this year. They ripened early and well, and have had nearly four months' rest, during which time no water was afforded them. When the bulbs of *Hippeastrum* show signs of starting before the usual time, the cause of it may usually be traced to bad ripening, and this is brought about by the necessary shading afforded the plants whilst in flower—when they are also growing; when growth is completed in the early autumn, the ventilators should be put wide open night and day, and the bulbs exposed to full sunlight. The leaves are apt to be preyed upon by thrips and red-spider, two parasites which thrive the best in a

close warm atmosphere, and to dislodge them frequent syringing cannot be given because it is hurtful, the leaves conducting the water into the neck of the bulb, causing decay, which may not become apparent before the winter. It would be almost amusing, if it were not so very annoying, to watch the effects upon the insects of tobacco-fumigation for the destruction of black thrips. The lively insects, as soon as the house fills, drop down into the bed in which the bulb-pots are plunged, and hide in the materials—tan, cocoa-fibre, &c.

The house may be made quite full of smoke, but the next day the thrips will be as lively as ever. The best way to get rid of red-spider and thrips is to wash the leaves by hand, using a mixture of tobacco-water, and soft-soap, and rain-water. I have often done this, and found it to be the best way of all. There are some who say, "If you keep your plants in good health, in a healthy atmosphere, insects will not touch them." Those who reason in this way cannot have seen the air thick with thrips, clinging in numbers to one's skin. How, I ask, is it possible to keep plants clean under these conditions in July and August? When the time comes to throw open the ventilators and doors of the house, then in full sunlight they can be coped with. My bulbs were repotted in January, and plunged in the tan-bed, and with the house temperature standing at 45° to 50° at night. Under these conditions, the bulbs were slow to start into growth, and scarcely any growth was perceivable until February came in. The flower-scapes are now freely showing, but the bulbs have not yet had any water afforded them, and twice only up to February 21 has the surface of the beds been moistened, when care was taken not to wet the bulbs. I found, on turning out some of the plants, that the soil was moderately moist except for the first half-an-inch from the top. The temperature has now been raised to 55° at night, and the bottom-heat stands at about 85°. This is a growing temperature, and as the sun, in the absence of fog, has considerable effect in the daytime, we get from 75° to 80°, and with a moist atmosphere growth is strong and also rapid. Seeds of *Hippeastrums* ripen in July and August, and they may be sown forthwith. They soon vegetate, and should be pricked out before crowding, or much interlacing of roots takes place, using a fine soil of moderate richness, about a dozen being put into a 48-pot. Such plants are ready to be replanted in January, three in the same size of pot. If they are plunged in a nice bottom-heat, and a temperature of 50° to 55°, at first the plants start freely into growth, and at this time the same kind of treatment is required for them as for the older bulbs. The importance in *Hippeastrum* culture of careful watering, even though young seedlings are not so liable to be injured as older bulbs, and some strains are more hardy than others. Seedlings of the *H. Leopoldi* and *H. pardinum* types are amongst the more delicate constitutioned sorts. John Heal in the former, and Chelsoni in the latter, are excellent illustrations of this; and these two varieties are shy to produce seeds, so that they are not likely to become very common for some years. *J. Douglas*.

NURSERY NOTES.

PRIMULAS AT MESSRS. J. CARTER & CO.'S.

At their Forest Hill Nurseries, this firm has a fine display of Primulas, made up from a collection of some 6000 or 7000 plants, arranged in three houses. The chief feature to be observed is an improved habit, and greater sturdiness, which have been thrown into the strain by crossing back into the Queen type, which is possessed of thick, fleshy foliage and large flowers. The varieties which this firm has had in previous years are now seen improved, as in the Holborn Blue. Elaine, which is pure white, has large flowers, and carries a good number to the truss, where it has been crossed with the

Queen type, and lateness is also induced. A beautiful carmine is seen in a variety not by any means appropriately named Vermilion. Why are false colour titles given in this way? It would be far preferable to give a fancy name, not committing the error of false description. In Holborn Magenta we get another rich dark colour. The variety named Ruby has Fern-like leaves, and flowers of a bright tint of rosy-crimson, the flower being relieved by a few small white specks, which tend to show up the general colour. Holborn Queen is a good free-flowering market white; and in the Holborn Carmine is a red companion to it, the colour being a pleasing carmine-rose of good depth. Prince of Wales is a double salmon flower, of moderate size; the tint is a pleasing one. Double Venus is white, with small specks, and streaks of red. Carmine Empress, double carmine. Double purple is a lilac-purple, distinct in colour. Other plants in the nurseries, as *Cinerarias* and *Calceolarias*, were looking strong and healthy.

TREES AND SHRUBS.

CISTUSES.

ALTHOUGH a comparatively large genus, containing a great number of really handsome garden plants, *Cistuses* do not by any means receive the attention they deserve. In the old days, as anyone may see by looking over Sweet's *Cistineæ*, this genus formed a very important group, and so great was the demand for them, that considerably more varieties were in cultivation at that time than at any time since. Our first impressions of the great beauty of this family were received in a private garden at Worcester. A very rich collection was here grown in huge pots against a south wall, many of the specimens being 4 and 5 feet high, and as many through. At the time of our visit the plants were the picture of health, many of the specimens being literally covered with flowers. The usual objection, however, to a collection of this kind is, that they were all grown in pots, and wintered under glass; but our experience of many years tells us that *Cistuses*, as a rule, are perfectly hardy, and it is only very occasionally that the severity of the weather at all interferes with them. It is usually our largest specimens that are lost, and we seem to have a knack of entirely ignoring the fact that the *Cistus* is a short-lived plant, and in time will become scraggy and die out, however mild the weather may have been. A great deal seems to depend on the position chosen for them. Their greatest enemy is damp or stagnant moisture, in any form; and if, instead of coddling them behind hurdles, bushes, &c., they are planted on the driest and most exposed spots in the garden, the frost of an ordinary winter will not disturb them. They seem to want a thorough roasting during summer; and we have been told that towards autumn, in their native habitats, bushes of *Cistuses* look like bundles of dried brushwood—ready, however, to cover the mountain sides the following summer with their showy varied-coloured flowers. The number of species in gardens at the present time probably does not exceed a dozen, but to these may be added many varieties and hybrids. In hardly two gardens are they named alike, owing, doubtless, to the readiness with which they cross and re-cross one with another, and in the following notes we can only deal with plants we have had in cultivation. They may be readily increased by cuttings, which root freely under bell-glasses in the open air, or by seed, which ripens freely in ordinary summers.

C. albidus is an erect-growing, shrubby species, and one of the hardiest and most desirable of the genus. Where it does well, it often attains 4 to 5 feet in height, producing during the summer months abundance of bright lilac-purple or pale rose-coloured flowers. The leaves are connate at the base, oblong or elliptic, pointed, distinctly three-nerved at base, and densely covered with white stellulate hairs. Native of Spain, &c. Sweet's *Cistineæ*, tab. 31.

C. incanus, Sw. *Cist.*, tab. 44, also belongs here, as well as *C. canescens*, Sw. *Cist.*, tab. 45. It prefers a calcareous soil, in which it retains the characteristic whiteness of its leaves.

C. Clusii.—This plant, so far as we are aware, is not in cultivation, and we only mention it to point out that the plant known under this name in gardens is a narrow-leaved form of *C. monspeliensis*. *C. Clusii* belongs to Willkomm and Lange's group, *Halimoides*, with opposite connate, clasping, acute, linear 3-nerved leaves, and with the margins rolled back. Flowers 2 to 2½ inches in diameter, white, with a yellow spot at base. It is described as 3-sepalous, but the calyx varies with three and five sepals. Tournefort first found this species between Châ d'Ac and Payaloo, on the seashore, in 1719, and it has not, we believe, been found again, although noted by both Boissier and Nyman.

C. crispus, a perfectly hardy species, and one of the showiest of the purple-flowered kinds. Its flowers are produced with the greatest freedom and abundance, distinct from all the others, and making a most useful plant for grouping on rockeries, and in similar situations. Its nearest ally is perhaps *C. villosus*, from which it is readily distinguished by its red-purple flowers with very short stalks, and long, very narrow, hairy sepals; leaves opposite, sessile, linear, lanceolate, pointed, three-nerved, reticulately veined beneath, and covered on both sides with numerous short hairs. Flowers crowded, three to seven on each stem. *C. crispus* is the only species found in isolated patches in Spain, chiefly in the neighbourhood of Algarve. Sweet's *Cist.*, tab. 22. *D. D.*

(To be continued.)

HOME CORRESPONDENCE.

CLIMATE AND PLANT LIFE.—According to my experience, which, no doubt, accords with that of others, plant life is a tolerably sure index of the severity or mildness of climate. In the autumn of last year, whilst *en route* to the Hebrides, I halted for a few hours at the Station Hotel, Strome Ferry, well conducted by the proprietor, Mr. Ross. Walking in his very pleasant garden, filled with flowers, I noticed some remarkably fine *Fuchsias*, of considerable height, and in full bloom. They were of a kind which would not have stood any winter here, in the open air, except, perhaps, in some parts of Devon or Cornwall. Mr. Ross informed me that these *Fuchsias* needed no protection in winter, for frost and snow were almost unknown. On my return to London I sent him some *Eucalyptus globulus*, as also *Myrtles*, besides others of a more delicate kind. In a note dated February 9, he wrote:—"All the plants have thriven wonderfully, we have had neither frost nor snow. The front garden is looking as well as in summer. The Primroses, Tulips, Crocuses, and Rhododendrons have been in bloom ever since December—and we expect to-morrow (February 10), to plant Potatoes and sow Peas." *Eucalyptus globulus* being one of the most delicate of the whole family, I purposely sent it instead of *E. coccifera*, which to my certain knowledge is one of the hardiest, and the results are quite satisfactory. I venture to think the climate of Strome Ferry in winter would prove very beneficial to those whose lungs are affected, or whose digestion needs repair—and whose money prohibit a more expensive trip being taken to Egypt or Australia. *John Colbrook*.

STIRLING CASTLE PEACH.—I am glad to know the origin of this most excellent Peach, and thank Mr. Carmichael for giving us its history; but he is under quite a wrong impression as to my having any doubt about its being a seedling, as I know it is quite distinct from Royal George or any other, and it is one of the hardiest and best either indoors or out. The remarks I made about it, and my opinion of the variety were respecting its "newness," as Mr. Divers mentioned it as a "new kind," and I stated that I purchased a tree of it of the late Mr. Thomas Osborne as long ago as twenty-five years, and I made mention that this same tree is in good health on the wall at the present time. I always find it a very regular and free cropper, a fact which I attribute to the smallness of its flowers, and the closeness of the

anthers to the stigmas, which they and the petals seem to protect, and when the pollen is ripe, it cannot be lost or fail to perform its office, as it is almost in touch with the stigmas. This, I think, accounts for its free setting, and also shows why it is that the big blossomed kinds of both Peaches and Nectarines that mostly have widely expanded anthers and long pistils, with stigmas standing far out, are more shy. Whether this theory is right or wrong I know not, but it seems to me worth thinking about and having the opinion of others, especially botanists, who are perhaps better able to judge and draw correct conclusions about such matters, which, if they are not of interest to the general public, are really so to gardeners and pomologists. *J. Sheppard.*

THE SACRED LILY OF CHINA.—I enclose blooms of a double form of this *Narcissus* from a plant now in bloom at Messrs. Thomson's nurseries, Birmingham, the only plant they have in flower, and obtained as the true variety. Recently, Messrs. Pope & Sons, exhibited a well-grown plant of a single variety, growing in water, which they also obtained as the true variety, and it bore a very close resemblance to the old Grand Primo Polyanthus *Narcissus*. The plant of the double variety, of which I enclose blooms, is a distinct and valuable form, which deserves general cultivation; but will you please say what it is, and which is the true sacred Lily? *W. D.* [One of our bulbs last year produced both single and double flowers on the same bulb. The *Narcissus* is a form of *Tazetta*. See *Gardeners' Chronicle*, 1889, vol. v., p. 668. Ed.]

WEATHER PROPHECIES.—Mr. Ewbank will find much information on weather forecasting in Abercromby's *Weather*. It is there shown that all the important weather changes experienced are due to the persistent shifting and readjustment of areas of high and low barometrical pressure, known as anticyclones and cyclones. When the former prevail in winter there is frost and cold, or in summer, heat and drought. When low pressure areas are continually arriving from the Atlantic, then we have wet and warmth, both summer and winter. The tendency to recurrence at certain seasons of the year of particular types has given rise to various wise saws and sayings, as, for instance,—

"February fill the dyke,
March dry it up again."

Another February proverb runs:—

"If Candlemas Day be mild and gay,
Go, saddle your horses, and buy them hay;
But if Candlemas Day be stormy and black,
It carries the winter away on its back."

Only, in some cases, these turn out to be utterly wrong, and cannot, therefore, be relied upon. The present month is a striking example of a February without a full dyke. There has, as yet, been no law discovered that enables us to safely predict the weather we are to have three months hence. All such so-called prophecies are simply guesses, and must be reckoned as such:—

"But scarce I praise their venturous part,
Who tamper with such dangerous art."

John Lovel.

DAFFODIL BULBS FROSTED.—With much regret, I send bulbs of *Narcissus pseudo-Narcissus* killed by the frost. It is the first time I have known it happen in a gardening experience of forty years, and I do not recollect to have seen it recorded in England before. In the winter of 1854 many bulbs of *N. tazetta* were killed in my garden at Eton, being reduced to just the same soft pulpy consistency as the bulbs I now send. These belong to a very fine variety, and were collected for me in the Basses Pyrenees. I had grown them in the same beds for four years, dividing and replanting them. They were mostly self-citron in colour, and I believed them crossed between *N. pseudo-Narcissus* var. *major* and var. *pallidus*, both of which occurs in the neighbourhood. I have before suspected that *Daffodils* of a self-citron colour are less hardy than others. Whole rows have gone, to the number of several thousand bulbs, only one here and there escaping. The soil is stiff loam, but drained, and well worked. I attribute the loss to the great length of the frost, which penetrated the soil to the depth of a foot, and to the absence of snow, of which we had little. Many varieties of short-crowned *Daffodils* in the same border and the same soil, are making strong growths, and show no gaps. Also, in the same border are *Iris xiphium* and *Iris reticu-*

lata, the latter just coming into flower, and the other healthy and well; but for these the soil was artificially lightened. The moral I deduce from this loss is—1st, that when frost has continued for more than a week, choice kinds of *N. pseudo-Narcissus* should have some litter thrown over them; and 2nd, that *N. poeticus* and its hybrids are hardier, and will thrive in a stiffer soil than *N. pseudo-Narcissus*. *C. Wolley Dod, Edge Hall, Malpas, Feb. 21.* [As the vital parts appear to be uninjured, they may recover, if not this season then next year. Ed.]

ACTION OF GALVANISED WIRE ON PEACHES AND NECTARINES.—I see that attention has again been drawn to the supposed action of galvanised wire on the wood of Peaches and Nectarines, and it seems to be thought by some that it causes injury thereto, but why it should do so in one place, and not in another, I cannot understand, unless conditions are very different to what they are here. All our trees are trained to wired walls, and we have over 200 yards' run; and I cannot, after looking over the whole most carefully, find a single shoot that is affected in the least, and this has been our experience all through, after having the wires a long time in use. There must, therefore, I think, be other causes to bring about the mischief to the bark than that of contact with the iron; and, as wiring is so much better for the walls than nailing, and breaking



THE LATE JOHN DOMINY.
Died February 12.

their surface in that way, I hope others will give their experience regarding it, for nails and shreds are an abomination that ought to be abolished, but they cannot be dispensed with unless it is safe to have wire instead. *J. Sheppard, Woolverstone Park.*

PRIMULAS FOR CUT BLOOM.—I was pleased to read "E. M.'s" note in your issue of February 14, p. 212, in favour of these plants for cut flowers, for no doubt they might be utilised much more than they are for general decoration, and with care they will last a fair time; but for general usefulness, the semi-double of the *P. sinensis* type are much to be preferred, for they last longer, and the pips do not fall so quickly as those of the single varieties, while they possess all the good qualities of singles in being of easy culture, and are readily raised from seeds, and are also very floriferous. The following are three of the best:—*Snowflake*, pure white, good full centre, of sturdy growth, similar to the single form; *P. alba magnifica*, and it comes true from seed; *P. Maiden's Blush*, a semi-double form of the well-known *P. Princess of Wales*, flowers large, of great substance, and of a delicate blush colour, a very free, and a sturdy and compact grower. *P. Firefly*, a pleasing purplish carmine, very double, and very effective when mixed with others; but it is not quite

such a free grower, and is more given to damping-off. There are several other shades of these semi-doubles, but the three here noted are much the best, and *Snowflake* should find a place in all gardens. *J. A. K.*

THE NATIONAL CARNATION SCHEDULE.—Are the plants from which the flowers will be cut for Mr. Martin Smith's prizes allowed to be grown in pots? I am led to ask this question because I see nothing in the schedule to prevent it, and the date is probably too early for many districts, if they are to be cut from the open ground. The schedule gives the following special conditions, to be signed by each exhibitor:—"I certify that all blooms shown by me for the prizes offered by Mr. Martin Smith have been cut from plants which have been wintered without protection in the open ground, and that they are staged without dressing, and exactly as they were cut from the plants." I can see nothing in this to prevent exhibitors taking up their plants in spring and growing them on under glass, but this seems contrary to what Mr. Smith says in his paper on Carnations in the November part of the *Journal of the Royal Horticultural Society*. *W. H. Divers, Ketton, Stamford.*

FURTHER SYNONYMY OF THE CHRYSANTHEMUM.—To the very full synonymy of the Chinese *Chrysanthemums* I gave in the *Gardeners' Chronicle*, third series, vol. vi., p. 586, I have now to add another generic synonym which I met with accidentally a few days ago. Owing, apparently, to the inconstancy of the presence of chaff-like scales between the flowers on the receptacle, and the presence or absence of a pappus on the achenes, there has been great diversity of opinion among authors as to the limits of the genera *Chrysanthemum*, *Pyrethrum*, *Matricaria*, and others. Cassini and De Candolle long ago decided that the Chinese *Chrysanthemums* belonged to the genus *Pyrethrum*, as distinguished from *Chrysanthemum* proper, to which they referred the Corn Marigold, the Canary Islands "Marguerites," and other allied plants. In a comparatively recent work, Maximowicz refers the Chinese *Chrysanthemums* to *Pyrethrum*, which he remodels; but whatever generic name this or that botanist may give to the cultivated Chinese *Chrysanthemums*, *Chrysanthemums* they will remain to the end in gardens, and I only record an additional synonym to complete the list. In Bentham and Hookers' *Genera Plantarum*, I may mention, *Pyrethrum* is combined with *Chrysanthemum*. De Candolle referred the Chinese *Chrysanthemums* to a special section of *Pyrethrum*, giving it the name, *Dendranthema*; and the additional synonym I have to record is this, raised to the rank of an independent genus, by Ch. Des Moulins, in the *Actes de l'Académie des Sciences, Belles-lettres, et Arts de Bordeaux*, August, 1858, where he adopts this plural form, *Dendranthema*, and calls the Chinese species, *Dendranthema indica* and *D. sinensis*, associating with them the common *Pyrethrum*, *Parthenium*, and *Anthemis apiifolia*, figured in the *Botanical Register*, vii., plate 527. *W. Botting Hemsley.*

FROST AND HARDY ERICAS.—I send branches of *Erica codonodes* to show you what damage was done by the frost this winter. The plant is 6 feet high, and it grows in a dry spot on the top of a rockery by the side of, but well above, a pool. The most severe frost that we had was 23°, on the night of Friday, November 28. Another plant of this species, growing nearer to the water, and in a much moister position, has not suffered in the least, and is now unfolding its flowers. It is about 3 feet high, and was planted a year ago. Is it a common occurrence for the bark of this Heath to be stripped in the same manner as the specimens sent? *E. Molyneux, Swanmore Park, Bishop's Waltham.* [Some of the shoots were stripped of their bark, and are virtually dead. Ed.]

BURNT EARTH.—I have pursued the practice of burning rubbish, of which often clay and heavy soil, common to this locality, form part, for many years; always, I believe, with advantage to the crops of vegetables, but especially to Potatoes, the potash of which from the wood we largely employ, being abundantly produced, being the most suitable dressing for that tuber. The quantity of refuse in a garden of ten acres that is accumulated annually is very considerable, and if any portion of this decaying vegetable matter is dug into the ground in a half-rotten condition and returned to it, it encourages the breeding of grubs and slugs; cremated, this source of trouble is prevented. I believe it is to the systematic application of burnt earth to the kitchen

garden, the staple of which is modified clay, that I owe a comparative immunity from the above-named garden pests. It is a rule with us to restore to the ground everything, though in another shape, that is taken from it by successive crops. From long practice my men have become expert in the method of burning, and the preparation of the heaps of charred matters. It is a slow process, and requires constant watching, so that it may gradually smoulder and make ash and charcoal, and not be dissipated, or so fiercely burnt as to leave a residuum of red earth only. I can well understand that the practice of burning earth cannot be followed with equally good results in every locality. The subsoil at Belvoir is lower lias clay, strongly calcareous, and in parts more or less ferruginous; burning liberates these fertilising minerals, and thus with the mechanical action of the burnt earth the soil is rendered porous and enriched. Induced by the success of my practice, the late Mr. Pearson tried the effect of charring some of the heavy soil of his Chilwell nursery, which is on the new red sandstone formation, and in parts characterised by sulphate of lime and iron; but he was disappointed with the result, and did not continue the experiment. Alpines in the dry periods that often occur in this district of low rainfall, suffer from lack of moisture. I am chary in the use of burnt earth in borders where I grow *Gentiana verna*, *Saxifraga oppositifolia*, and Alpine *Primulas*, finding from experience that drought is fatal to them, and that porosity of soil intensifies it. *W. Ingram, Belvoir.*

"NICOTINE FUMIGATOR."—This valuable fumigator cannot fail to be extensively used when it becomes generally known, not only for its cheapness, but for the effectual way in which it does its work, without doing the least injury to the tenderest flower or foliage; this alone being a great saving of labour to many gardeners who may have certain tender plants in a house requiring to be fumigated, which, with the old material, would have to be removed. The material is easily lit, and then requires no further attention, but will smoulder away. It has proved a most effectual check to thrips, black, green, and white aphids, superseding tobacco-paper for every purpose. I have used it on stove and greenhouse plants, also *Chrysanthemums* in bloom, without the slightest injury being observed in any of these. I found that three packets was a sufficient quantity for a house of 9600 cubic feet. *J. Vert, Audley End Gardens.*

THE LAST OF THE NURSERY OF THE LATE LUCOMBE & PINCE.—An event came off last week which will have some interest for those who knew the above business concern in its prime—the final clearance sale and closing of the once great Exeter nursery. There never was such a commercial undertaking elsewhere, and I very much doubt whether the collection of trees and other plants contained in Kew gardens at that time was so varied, or so extensive as that which was cultivated there, in years gone by. The more I think about it, the more I am convinced that my old master, Mr. Pince, was a genius. I never saw two places that were more akin to one another, than Kew and the Exeter Nursery. Of course, we had no library or museum, &c., but we had a rock garden, a pinetum, an Italian garden, and about 2 acres of glass, and at one time about 100 acres of rich land; and all this in a genial climate. It is strange that the grand old Lucombe Oak should have perished with the breaking up of the concern. *W. Napper.*

SCOTLAND.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

The monthly meeting of the members of this Association was held in the Music Hall Buildings, Aberdeen, on Saturday evening, the 21st inst. There was a large attendance, and Mr. D. M. Smith, President, occupied the chair. Mr. D. Edwards, Bedford Road, read a paper on "The best Varieties of Ferns for House Decoration."

Mr. Simpson, Union Wynd, Aberdeen, then contributed a paper on "The Construction of Green-houses."

An interesting discussion on both papers was then engaged in, and at its close Mr. Edwards and Mr. Simpson were each heartily thanked for his contribution.

Obituary.

EDWARD ROGER CUTLER.—It is but a few short weeks ago that we had occasion to comment on the election for the fiftieth time of Mr. E. R. Cutler, as Secretary to the Royal Gardeners' Benevolent Institution. Now it is our task to record his sudden death, at his house at Wimbledon, on the 24th inst., in his seventy-second year. Mr. Cutler was a man of such marked individuality, and so well-known to hundreds of horticulturists personally, and by repute to thousands, that it is not necessary to say much concerning his career. Were we to do so, we should have to write the history of the Gardeners' Royal Benevolent Institution almost from its beginning.

In 1843, Cutler was a clerk in the office of the Westminster Fire Office, but devoted his leisure from that time forward to the affairs of the "Gardeners' Benevolent." When he assumed the office, the duties were light; there were but four pensioners; its annual income was about £120, and £200 were invested in consols.

At the beginning of last year there were 154 pensioners, the income was nearly £7000, the sum invested £23,000, and in addition to this, the amount of the pensions for both men and women was raised a few years previously.

Every reader knows that this splendid record was almost exclusively due to the persistence and zeal of the Secretary. In the cause of the Institution he would spare no labour, he never knew what reserve or hesitancy meant, and he would never take a refusal. Indeed, such was his insistence, that few, if any, could or did refuse his applications. He was so bound up in the Institution that he seemed to think of nothing else; nevertheless, he won the esteem of his fellows, not only by his devotion to the interests of the Society, but also for his genial sociable qualities. He was not a horticulturist, but so much mixed up with the profession that he will be greatly missed from the ranks. As for the Institution, it is impossible adequately to measure the loss it has sustained. Such, however, was the method and order in the management of its affairs that Cutler had for many years practised, and so high are the business capacities of the Committee and the Treasurer, that although we may never look on such a Secretary again, the beneficent work of the Society will sustain no check, and the interests of the pensioners will be as well cared for as before. The funeral takes place on Saturday, at Woking; the funeral train leaves the Necropolis Station, Westminster Bridge Road, at 11.30 A.M.

JOHN DOMINY.—We are now able to lay before our readers a portrait of one of the leaders in horticultural practice whose death, on the 12th inst., it was our sad duty to chronicle. As a practical man he was the means of opening out new vistas in botanical science, and of starting new views and new aspects of old phenomena, the significance of which was probably beyond his ken. The results he obtained are of the greatest value to practical horticulture, but it is interesting to record that it was a country doctor, and, as such, one who possessed some acquaintance with botany, who first suggested to Dominy the desirability of experimenting on the hybridisation of Orchids, and who explained to him the nature of the column of Orchids, and the means to be taken to ensure fertilisation in these plants. It was science then that gave the impetus, and practice which has repaid the debt by the brilliancy of her results. Doctors in those days were taught a smattering of botany, and those who had a fancy for it, greatly advanced it, as witness the names of almost all the great botanists—and the little ones too—of past generations. This is altered now, and botany, as such, forms no part in the curriculum of the medical student. Those who come after us will be better able to decide the question than we, whether the abolition of botany as a subject of medical education has been a wise step or no. We cannot discuss it here, but the circumstances attend-

ing the production of the first artificial hybrid Orchid known, naturally bring the matter to mind. Nor can we find space to dilate upon the new views of so-called species, and of their ancestry and genealogy, and all the myriad questions connected with fertilisation and heredity to which the successful experiments of Dominy are calculated to give rise. In 1853, Dominy raised *Calanthe Dominii* ×, as the first of his successes (see *Botanical Magazine*, t. 5042), and for this he received a Medal from the Exeter and Devon Horticultural Society. *Cattleya exoniensis* ×, *Calanthe Veitchii* ×, *Cypripedium Harrisianum* ×, *Cattleya Dominii* ×, and many others followed, which carried the name and fame of Dominy far and wide, but concerning which he himself, in the spirit of a true experimenter, caring more for truth and the success of his experiment than for himself, said but little. These successes were carried out at Exeter in the nursery of Messrs. Veitch.

In 1864, Dominy accompanied the late Mr. James Veitch to London, to the Royal Exotic Nursery, Chelsea, and there many of our readers must have seen and profited by the wide knowledge which he was always willing to communicate orally, but which he could never be induced to commit to paper. Dominy had to exercise patience as well as skill, for some of his hybrids did not flower for twenty years after their production; but if some were long in coming to perfection, others were always developing, particularly as Dominy did not confine his operations to Orchids, but tried his hand on *Nepenthes*, *Fuchsia*, and other plants. Many of these are mentioned in Mr. Harry Veitch's classical paper read at the Orchid Conference at South Kensington in 1885; but if we may suggest to the Editors of the *Journal* of the Royal Horticultural Society, it would be an acceptable thing if they published a complete list of the hybrids raised by this successful pioneer. Dominy was a straight-forward, kind-hearted man. He ruled his subordinates by persuasion and thoughtful kindness, rather than by arbitrary dictation. The casual visitor to the nursery had opportunities of observing this, and since his death various testimonies of the same fact have reached us. Dominy was, as we have said, a modest man, by no means given to boast of his successes. Fortunately, for him, he served employers who knew his worth, and treated him accordingly. Moreover, the Royal Horticultural Society rose to the level of its duties when it gave him a Gold Flora Medal in recognition of his services to horticulture; whilst, a few years later, his friends presented him, through Sir Trevor Lawrence, with a gold watch, and a purse of 200 guineas. Mr. Dominy retired from the Chelsea Nurseries in 1880, but retained his interest in his old pursuits, being a constant attendant at the Floral and Orchid Committees. His life work was so intimately bound up to the great firm of Veitch, first at Exeter, and then at Chelsea, that a mere mention of his earlier career is all that is requisite. He was born in Devonshire in 1816, apprenticed in a private garden, whence he proceeded to the establishment of Messrs. Lucombe, Pince & Co., where he remained only a short time, before he entered the service of Messrs. Veitch at Exeter. From thence he proceeded to Redruth as head gardener to J. P. Magor, Esq., a position he held for five years, returning to Messrs. Veitch in 1846, and remaining with them till 1880, as we have already narrated. He was buried at Exeter on the 17th inst.

FRANCIS CASEY.—This gentleman, who was specially well-known among Orchid growers, we regret to announce died very suddenly on Thursday the 19th inst., at the Great Eastern Railway Co's Station, Liverpool Street. The deceased had been out in the neighbourhood of Windsor, on business, was returning home, and had hurried to catch the 8.55 P.M. train from Liverpool Street; he was just entering the carriage, when he fell backwards, and on the arrival of the company's medical officer, was found to be dead. At the adjourned inquest, which was held on the 24th inst., a verdict of death from

heart disease was returned. The funeral, which took place on Thursday, at Kensal Green Cemetery, was attended by a number of his friends. Francis Casey, who was born in the south of Ireland, was in his 56th year; he was engaged for a short time at the nurseries of Mr. Henderson, in the Wellington Road, W.; from there he proceeded to Messrs. Hugh Low & Co., of Upper Clapton, where he filled the offices of salesman and manager with credit to the firm and to himself; gaining the esteem of all with whom he came in contact, for a period of over thirty years. Mr. Casey was a well-known figure at all the leading horticultural exhibitions, and it will be remembered, that he as well as Mr. Cutler and Mr. Dominy, was present at the last meeting of the Royal Horticultural Society, on the 10th inst. He leaves a widow and three children, for whom much sympathy will be felt.

EARL BEAUCHAMP.—By the sudden death of this nobleman, on February 19, horticulture loses a true patron. During his ownership he remodelled the old gardens at Madresfield, and erected modern and substantial glass-houses. He also rebuilt nearly the whole of the mansion, and redecorated a large portion. He also got together a splendid collection of Conifers and deciduous trees.

THOMAS POWELL.—We regret to learn from the *Chester Courant*, February 18, of the death of Mr. Thomas Powell, at Oxtou, in his 78th year, a gardener well-known in the Hundred of Wirral and Cheshire generally. As gardener he had been in the employ of W. Bird, Esq., Spital, J. B. Spence, Esq., J. Kitchen, Esq., and other Liverpool gentlemen.

THE WEATHER.—Not only have the environs of London, but the country generally, been bathed in fog, but unusually low temperatures have prevailed; thus we learn that, in the neighbourhood of Croydon, there have been within the last few nights, readings indicating as much as 15° of frost.

THE WEATHER.

By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.			BRIGHT SUN.	
	Above (+) or below (—) the Mean for the week ending Feb. 21.	ACCUMULATED.					No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.	More (+) or less (—) than Mean for Week.				
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.			
1	5 +	39	15	+ 31	— 20	10	— 37	9.3	30	16
2	4 +	23	35	+ 16	+ 7	6	— 19	1.8	18	27
3	1 —	9	33	+ 15	+ 42	4	— 15	1.0	34	24
4	3 —	4	47	— 10	+ 99	4	— 21	1.8	29	29
5	3 —	10	52	— 4	+ 58	5	— 16	1.9	41	30
6	2 —	13	41	— 28	+ 114	5	— 19	2.6	47	30
7	2 +	24	16	+ 12	— 17	10	— 28	4.7	29	23
8	1 +	17	34	+ 7	+ 34	6	— 17	2.2	50	26
9	0 aver.	18	30	— 31	+ 87	8	— 18	3.6	56	35
10	2 +	34	17	+ 13	+ 7	6	— 25	2.2	46	29
11	1 +	37	14	+ 3	+ 26	7	— 27	2.7	48	32
12	1 —	29	11	— 27	+ 48	6	— 20	2.3	76	44

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.; *Principal Grazing, &c., Districts*—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending February 21, is furnished from the Meteorological Office:—

"The weather during this week was very dry and quiet over the whole Kingdom. In Ireland and Scotland it was generally fair and mild, but over England cold and unusually foggy. In many places, however, the fog cleared during the daytime, and in such regions a large amount of sunshine has consequently been experienced.

"The temperature has been rather above the mean in Ireland and the west of Scotland, and as much as 4° or 5° above in the N. and E. of Scotland. In most of the English districts it has varied from 1° to 3° below the normal. The highest of the maxima, which were recorded on the 15th in England, and on the 19th at most of the Irish and Scotch stations, ranged from 52° in 'Scotland, E.'; 56° in 'Scotland, N.'; and 60° in 'England, S.W.' and 'Ireland, S.'; to 54° in the 'Channel Islands.' Towards the end of the week the daily maxima at many of the English stations were no higher than 35°.

"The lowest of the minima were recorded during the latter half of the week, and ranged from 22° in the north and east of Scotland and the east of England, and 23°, or the 'Midland Counties'; to 29° in the 'Channel Islands.'

"The rainfall has been almost absent from our Islands.

"The bright sunshine shows a considerable increase in nearly all parts of the Kingdom, and has exceeded the mean very generally. The percentage of the possible duration ranged from 76 in the 'Channel Islands' to 56 in 'England, S.W.'; 50 in 'England, N.W.'; and to 29 in 'Scotland, W.' In some districts the local variation in the amount have been very large."

MARKETS.

COVENT GARDEN, February 26.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. Ed.]

Business quiet, with little alteration. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.		RICES.	
	s. d. s. d.		s. d. s. d.
Apples, 4-sieve ...	3 6-6 0	Lemons, per case ...	15 0-20 0
— Nova Scotia, brl. 100 lb.	0 25-0 50	Oranges, ...	—
Cobs, Kent, 100 lb.	45 0-50 0	Pine-apples, St. Michael, each ...	2 0 8 0
Grapes, lb.	1 6-3 6		

VEGETABLES.—AVERAGE RETAIL PRICES.		s. d. s. d.	
	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each ...	0 4-0 6	Lettuces, per dozen ...	3 0-—
Beans, French, lb. ...	2 6-3 0	Mushrooms, punnet 2 ...	—
Beet, red, per dozen ...	2 0-3 0	Mustard and Cress, punnet ...	0 4-—
Brussels Sprouts, lb. ...	0 6-—	Parsley, per bunch ...	0 4-—
Carrots, per bunch ...	0 6-—	Seakale, per basket ...	2 0-3 0
Cauliflowers, each ...	0 9-1 0	Shallots, per lb. ...	0 6-—
Celery, per bundle ...	2 4-3 6	Spinach, per bushel ...	7 0-—
Cucumbers, each ...	0 9-1 6	Tomatoes, per lb. ...	0 9-1 3
Endive, per dozen ...	4 0-—	Turnips, per bunch ...	0 6-—
Herbs, per bunch ...	0 4-—		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.		s. d. s. d.	
	s. d. s. d.		s. d. s. d.
Anemone (Fr.), 12 bun. 4 ...	0 6-0 0	Narcissus (yellow), 12 bun. ...	4 0-8 0
Azalea, 12 sprays ...	0 6-1 0	— (double), 12 bun. 2 ...	0 4-0 0
Bouvardias, per bun. 1 ...	0 1-0 6	— Poeticus (Pheasant Eye) 12 bun ...	9 0-12 0
Callaethiopica, 12 bl. 2 ...	0 4-0 0	Mimosa (French) 12 bun. ...	12 0-15 0
Camellias, white, 12 blooms ...	2 0-4 0	— (French) basket 4 ...	0 6-0 0
— cold., 12 blms. 0 ...	9-1 6	Myosotis, 12 bun. ...	4 0-6 0
Carnations, 12 blms. 1 ...	0-3 0	Pelargonium, scarlet, 12 spr. ...	0 9-1 0
Christmas Roses, 12 blooms ...	0 4-0 6	Poinsettias, 12 blms. 1 ...	0 4-0 0
Chrysanth., 12 bun. 4 ...	0 6-0 0	Primroses (French) 12 bun. ...	1 0-2 0
Cyclamens, per doz. 0 ...	3 0 6	Primulas, double, 12 sprays ...	0 6-1 0
Daffodils, various, 12 blooms ...	1 0-2 0	— single, 12 sprays ...	0 4-0 9
— (Foreign), 12 bun. 4 ...	0 8-0 0	Roses, Tea, per doz. 1 ...	0 4-0 0
Eucharis, per dozen 3 ...	0 5-0 0	— coloured, dozen ...	3 0-6 0
Gardenias, each ...	0 6-1 0	— yellow (Maréchiels), each ...	0 6-0 9
Heliotropes, 12 spr. 0 ...	6-1 0	— red, per dozen ...	6 0-12 0
Hyacinths, Rom., 12 bunches ...	1 0-2 0	— ditto, per dozen 1 ...	0 3-0 0
Hyacinth, various, 12 spikes ...	3 0-6 0	Snowdrops doz. bun. 1 ...	0 3-0 0
Lily of the Valley, 12 sprays ...	0 6-1 0	Tuberose, 12 blms. ...	1 0-2 0
Maiden Hair Fern, 12 bunches ...	4 0-9 0	Tulips, various, 12 bl. 1 ...	0 2-0 0
Marguerites, 12 bun. 3 ...	0 6-0 0	Violets, 12 bun. ...	1 6-3 0
Narcissus (paper white), 12 sprays 0 ...	9-1 6	— Parme, Fr., bun. 2 ...	6-3 6
— French, 12 bun. 3 ...	0 6-0 0	— dark, Fr., bun ...	1 6-2 6

ORCHID-BLOOM in variety.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz. 6 ...	0-18 0	Ficus elastica, each 1 ...	6-7 0
Aspidistra, doz. ...	18 0-42 0	Foliage plants, various, each ...	2 0-10 0
— spec. plants, each 7 ...	6-10 6	Genista, per dozen ...	10 0-18 0
Azalea, per dozen ...	24 0-42 0	Hyacinths, per doz. 6 ...	0-9 0
Bouvardias, p. doz. 9 ...	0-18 0	Lily of the Valley, per dozen pots ...	9 0-18 0
Cineraria, per dozen 8 ...	0-10 0	Marguerites, doz. 6 ...	0-12 0
Cyclamens, dozen ...	9 0-18 0	Mignonette, per doz. 6 ...	0-9 0
Cyperus, per dozen ...	4 0 12 0	Myrtle, per doz. pots 6 ...	0-12 0
Dielytra, per dozen 9 ...	0 15 0	Palm in variety, each ...	2 8-21 0
Dracaena terminalis, per dozen ...	30 0-60 0	Poinsettias, dozen ...	9 0-15 0
— viridis, per doz. 12 ...	0 24 0	Primula sinensis, doz. 4 ...	0-6 0
Euonymus, in var., per dozen ...	6 0 18 0	Spiraea, per dozen ...	9 0-12 0
Ericas, various, doz. 8 ...	0-18 0	Solanums, per doz. ...	9 0-15 0
Evergreens, in var., per dozen ...	6 0-24 0	Tulips, per doz. pots 6 ...	0-9 0
Ferns, in var., doz. 4 ...	0-18 0		

Roots in variety for bedding, in boxes, from 1s. to 3s.

OLD POTATOES.—The late rise is being maintained, and the tendency is still to rise.

NEW POTATOES.—Prices remain about the same as last report, with a tendency to advance in price of Rounds. *J. B. Thomas.*

SEEDS.

LONDON: February 15.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that transactions in farm seeds have this week been greatly interfered with by the dark foggy weather. For Clovers and Trefoils there is a steady demand at full prices. Samples of red, both of home and foreign growth, offer less freely. Spring Tares meet an improved sale at the low prices current. Former terms are realised for imported and perennial Ryegrasses. Blue Peas and Haricot Beans are in good request, at firm rates. Linseed is improving. Some choice new Scarlet Runner Beans are now obtainable, at tempting figures.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending February 21, and for the corresponding period last year:—1891:—Wheat, 32s. 3d.; Barley, 27s. 9d.; Oats, 18s. 1890:—Wheat, 29s. 9d.; Barley, 31s. 2d.; Oats, 18s. 6d. Difference:—Wheat, +2s. 6d.; Barley, -3s. 5d.; Oats, -0s. 6d.

FRUIT AND VEGETABLES.

SPITALFIELDS: February 25.—Scarce supply of greenstuffs; demand fairly good. Fair supplies of Potatoes; demand moderate. Fruit trade fair. Cabbages, 5s. to 7s. per tally; Savoys, 5s. to 10s. doz.; Cauliflowers, 2s. to 3s. 6d. per dozen; Kohlrabi, 2s. 6d. to 3s. 6d. per sack; Thousand head, 2s. 6d. to 3s. 9d. per sack; Brussels Sprouts, 1s. 9d. to 2s. 9d. per half-sieve; Sprouting Broccoli, 4s. to 5s. per sack; doz., 2s. 9d. to 3s. 6d. per sieve; Greens, 4s. to 6s. per dozen bunches; Turnips, 3s. to 4s. doz.; Carrots, 3s. 6d. to 4s. doz.; Parsley, 2s. 6d. to 3s. 6d. doz.; Curry Kale, 2s. 6d. to 3s. 6d. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Celery, 6d. to 1s. 4d. per bundle; Horseradish, 1s. to 1s. 4d. doz.; Parsnips, 1s. 3d. to 1s. 9d. per score; Beetroot, 4d. to 6d. per dozen; Leeks, 3s. to 3s. 6d. doz.; Cabbage Lettuce, 1s. 6d. to 2s. doz.; Endive, 1s. 6d. to 2s. doz.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; English Onions, 7s. to 8s. per cwt.; Spanish Onions, 7s. 6d. to 10s. per case; Dutch do., 4s. to 4s. 6d. per bag of 110 lb.; Belgian do., 5s. to 7s. doz.; English Apples, 5s. to 10s. per bushel; American do., 16s. to 26s. per barrel; forced Rhubarb, 1s. 6d. to 2s. per dozen bundles; Carrots, 25s. to 50s. per ton.

STRAFORD: February 24.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the undermentioned prices:—Cabbages, 2s. 6d. to 4s. 6d. per tally; Savoys, 4s. to 8s. per tally; Greens, 1s. 3d. to 2s. 6d. per sieve; Cauliflowers, 1s. 6d. to 3s. per dozen; doz. 6s. to 12s. per tally; turnips, 2s. to 3s. 6d. per dozen bunches; doz. 45s. to 6 s. per ton; Carrots, household, 40s. to 50s. doz.; do., cattle feeding, 30s. to 35s. doz.; Parsnips, 1s. to 2s. per score; Mangels, 19s. to 22s. per ton; Swedes, 18s. to 26s. doz.; Onions, English, 110s. to 180s. per ton; do., Dutch, 4s. to 6s. 6d. per bag; do., Bordeaux, 7s. to 7s. 6d. per case; Apples, English, 2s. 6d. to 11s. per bushel; Celery, 8s. to 12s. per dozen rolls; Cress, hot and cold, 2s. per dozen baskets; Watercress, 7d. per dozen.

NOTICES TO CORRESPONDENTS.

ANTS: *Anxious.* Yes, the insects will devour the pollen, and in that way prevent a set, but it is seldom that they do so. Find out their abode and drown them out, or strew carbolic acid round about it. You might entice them away from the blooms by putting saucers containing treacle about the Peach-house.

BOOKS: H. M. E. Milner's *Landscape Gardening* (Simpkin, Marshall & Co.); Kemp's *How to Lay Out a Garden*—out of print, but obtainable at second-hand book-shops; J. C. Loudon's *Encyclopædia of Gardening*—out of print likewise.—FERNS: P. H. B. *Select Ferns* (Williams) published and sold by the author, Paradise Nursery, Holloway, London, N.; *Ferns, British and Foreign* (John Smith, late Curator, Kew), published by R. Hardwicke, London; *Ferns of British India* (Col. Beddow), Thacker & Co., London.

FUCHSIAS: *C. E.* Loam half, leaf-mould a quarter, manure, sand, and charcoal together, a quarter—this compost for the plants before they come into their blooming pots, afterwards the loam may be increased a quarter, and the other ingredients reduced by so much. Almost any kind of liquid-manure will do, if it be not of too great a strength. Sheep or deer droppings and soot put into a bag, one-eighth of the total bulk to consist of the soot, is an excellent fertiliser. It should be put into a cistern or large tub. Soot-water alone is beneficial, greatly improving the colour of the foliage. Manures should not be much employed before the plants get into their blooming pots; but these vary so much in size, according to requirements, that we must leave that part of the matter to you.

FUNGUS: *W. Marshall.* The most cosmopolitan Fungus known, *Fomes lucidus*, found all the world over. The Chinese attribute to it some wonderful properties, but it is practically useless.

FURZE: *Furze.* Wild plants do not transplant well, their roots not being close at home. Get plants from a nursery. The quantity of seed for sowing 204 square yards is about 1 lb.

GAS LIME: *A Subscriber.* See our issue for Feb. 7, p. 182.

MANURE PIT AND YEWS: *A. B.* The soakage from the pit is injurious to them. Few coniferous plants like manure, except it be of the mildest kind.

NAMES OF FRUITS: *W. O.* Apple Tower of Glamis. — *W. D.* The Apple is Mannington's Pearmain.

NAMES OF PLANTS: *J. W.* *Camellia pæoniiflora* coccinea. — *R. B.* 1, *Picea polita*; 3, *Abies Douglasi*; 4, *Cerasus Lauro-cerasus*, variety *colchica*; others next week. — *H. M.* 1, *Picea Smithiana*, alias *Morinda*; 2, *Abies Douglasi*; 3, *Abies Pinsapo*; 4, next week; 5, *Pinus muricata*; 6, *Pinus excelsa*. — *F. S. M.* *Odontoglossum odoratum* var. — *W. S. A.* 1, *Cyrtomium falcatum* (crippled frond); 2, *Asplenium lucidum*; 3, *Goniophlebium appendiculatum*; 4, *Doodia blechnoides*; 5, 6, and 7, *Davallia canariensis* forms. — *I. U.* *Dendrobium primulinum*. — *J. S.* 1, *Begonia heracleifolia*; 2, *Smilax aspera*; 3, *Asplenium lucidum*; 4, a form of *A. canariense*; 5, *Stenotaphrum americanum variegatum*. — *C. E. S.* Probably the Lebanon, but please see our columns next week.

NEW PLANT: *A. H. L.* Having parted with the new plant without insisting on any conditions being observed, you have given away whatever rights you may have had in the propagation and sale of the plant. It becomes now, a matter of honourable dealing, on the part of the holder of the plant. The plant having been awarded a first-class certificate by some society is immaterial.

PEA GUARDS: *J. J. S.* Look in our advertisement columns, or enquire of any of the larger workers in wire. We cannot recommend traders.

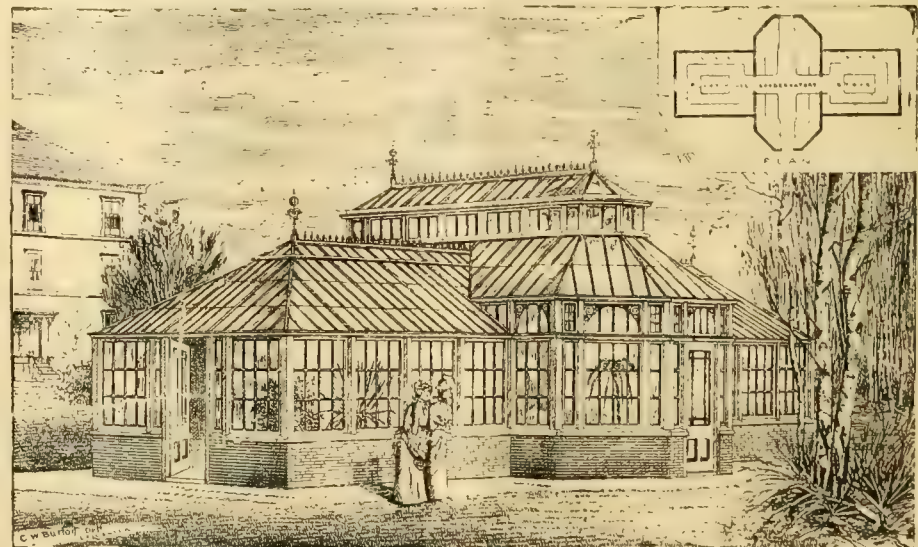
SKINS OF ANIMALS AS A MANURE: *J. B.* The skin, if untanned, consists of nitrogenous matter, which, when it decomposes, as occurs readily, produces ammonia and nitrates, and these have a useful effect on vegetation. A tanned skin would decay likewise, but slowly, and could not be called an active assimilable manure.

SOME FLOWERING TREES AND SHRUBS TO SUCCEED LILACS: *Nurseryman.* *Cercis siliquastrum*, *Colutea arborescens*, *Paulownia imperialis*, *Koelreuteria paniculata*, *Bignonia syriaca*, common and Portugal Quinces, *Viburnum opulus* (Gueldres Rose), *V. lantana*, *V. macrophylla*, common *Acacia*, *Pavias* in variety. Small-growing shrubs might include *Spiræas* in great variety, *Berberis vulgaris*, *B. dulcis*, *B. Fortunei*, *B. stenophylla*, *B. (Mahonia) aquifolia*, *Genista præcox*, *G. juncifolia*, *G. filipes*, *Weigelas* in variety, *Deutzia scabra*, *Calycanthus floridus*, *Esculus macrostachya*, *Euonymus europæus* and varieties, *Azara* in variety, and many others both deciduous and evergreen.

CATALOGUE RECEIVED.

BARR & SON, 12 and 13, King Street, Covent Garden, London—Hardy Herbaceous Perennials.

COMMUNICATIONS RECEIVED.—*H. H. D'O.*—*C. de B.*, *Lierre*. *H. M.*—*Dr. Kranzlin*, *Berlin*.—*V. Lemoine*, *Nancy*.—*G. S. W.*.—*W. W.*—*C. W. D.*.—*E. O. G.*—*J. C.*.—*N. S.*.—*W. B. H.*.—*J. D.*.—*T. Beach*.—*F. A. C.*.—*W. W.*.—*H. Divers*.—*J. B.*.—*G. T.*.—*E. J. A.*.—*W. W. C.*.—*J. D.*.—*H. H.*.—*D. T. F.*.—*W. Smythe*.—*W. A. C.*.—*C. B. P.*.—*W. B. H.*.—*W. D.*.—*H. M.*.—*Expert*.—*H. W. W.*.—*A. P.*.—*X. O. T.*.—*E. F.*.—*A. B.*.—*J. J. W.*.—*C. A. M. C.*.—*New York Correspondent*.—*A. D.*.—*W. A.*.—*R. D.*.—*W. B.*.—*O. Thomas*, nothing to hand under your initials.



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For VINES.
THE MANURE OF THE FUTURE.
For TOMATOS.

Eight-page Circular of First-class Testimonials, free on application.

The Gardens, Cheveley Park, Newmarket, November 9, 1890.

SIR,—I have great pleasure in adding my testimony to the value of your Silicate Manure—the late Grapes, where it was used, have coloured splendidly, and very little shanking, and a decided increase in the size of berry. I believe it to be all you say of it. I have a house that shanks very much, and shall try its effects upon that next year, all well, when I hope to be able to give you an order for the same—I am, yours faithfully,
(Signed) W. COX, Gardener to the Duke of Rutland.

The Gardens, Longford Castle.

I consider your Patent Silicate Manure very beneficial when used as a top-dressing to Vines and Peach trees in bearing, and that results will amply repay the cost of Manure.
(Signed) H. W. WARD, Gardener to Earl Radnor.

The Gardens, Haverland Hall, Norwich, November 9, 1890.

GENTLEMEN,—As I did not receive any advice of manure forwarded to me last spring, I did not know what particular advantages were claimed for it, nor whence it came. Indeed I would not receive it for a considerable time, deeming that there had been an error on the part of some one. However, as the Railway Co. insisted that there was no mistake, I received it, and tried it upon various things—Vines, Tomatos, and Fuchsias, showing the most satisfactory results.
Yours faithfully,

(Signed) J. UDAL, Gardener to Lord de Ramsay.

AGENTS WANTED.

PRICES in Sacks, free on Rail:—

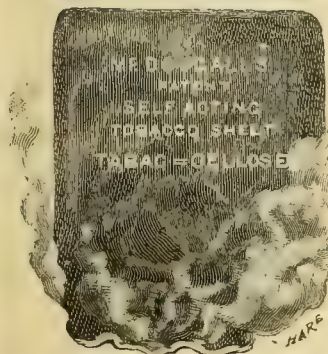
10s. per cwt.; £2 ¼ ton; £3 15s. ½ ton; £7 a ton.

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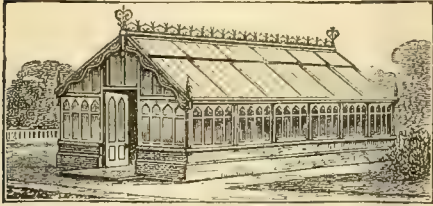
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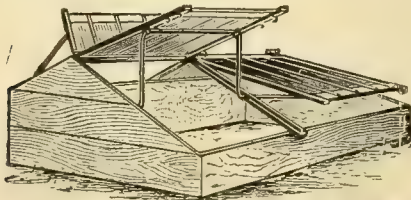
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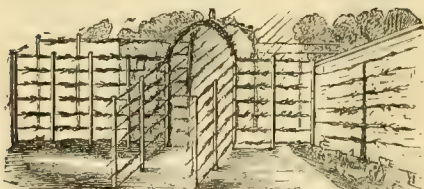
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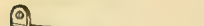


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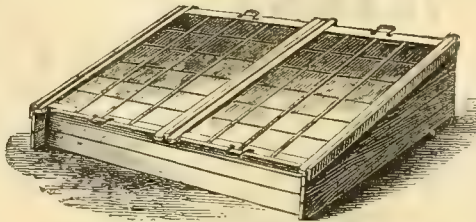
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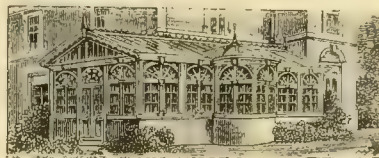
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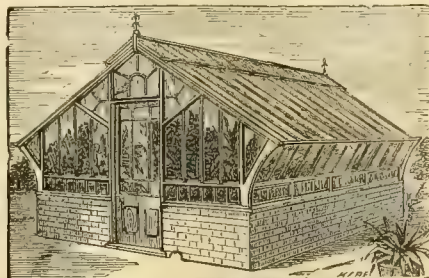
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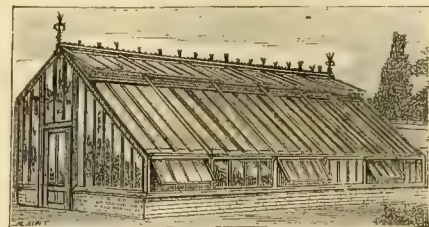
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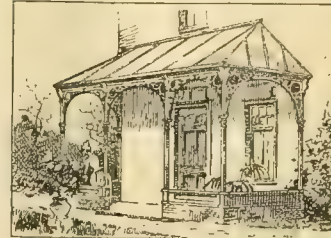
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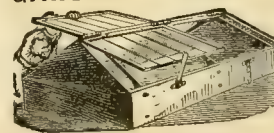
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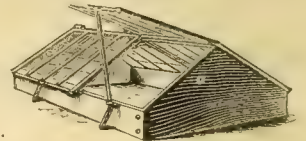


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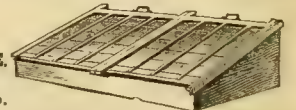


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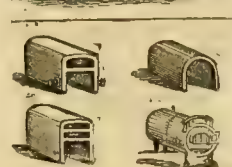
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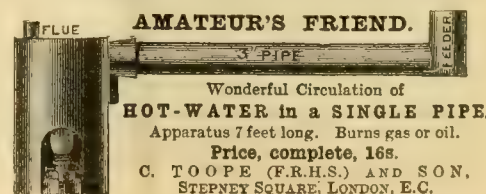
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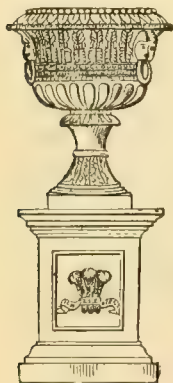
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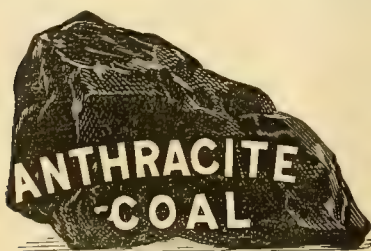
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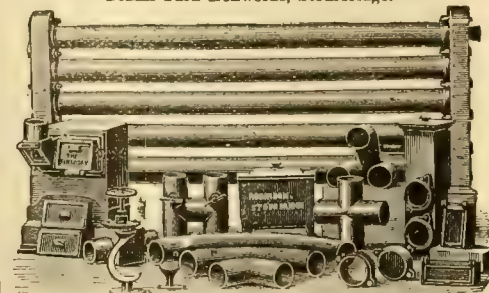
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GARDENING APPOINTMENTS.

ARTHUR WILSON, late Foreman at Temple House Gardens, Great Marlow, as Head Gardener to H. WILLAN, Esq., J.P., Albion Lodge, Mauley Castle, Worcestershire.

Mr. WALTER PACKMAN, for six years Gardener at The Elms, Foot's Cray, Kent, as Gardener to J. CUDDON, Esq., Aspen Lodge, Harrow, Middlesex.

Mr. W. NORWOOD, until lately Gardener at Paddock House, Oswaldtwistle, Accrington, Lancashire, as Head Gardener to T. ATKIN, Esq., Holcombe Hall, Ramsbottom, Lancashire.

Mr. F. B. BURBIDGE, of the Grove Gardens, Watford, succeeds the late Mr. HAYCOCK at The Goldings, Hertford.

WANTED, a WORKING or SLEEPING

PARTNER, with £500, to join the Advertiser, a practical man, to grow Cut Bloom for Covent Garden Market. Good connection. Glass well erected in good position. Excellent opportunity for a young man requiring experience.—J. M., 1, North Terrace, London Road, Sawbridgeworth.

WANTED, AT ONCE, a WORKING

PARTNER, with small capital, and some experience, to start a Florist and Fruiterer's shop in the suburbs. Highest references required.—H. G., Dawson, coachbuilders, High Street, Leyton.

WANTED, as HEAD WORKING GAR-

DENER, a steady and reliable Man, thoroughly experienced in both Indoor and Outdoor work. Age from 30 to 40, married, without family. Wages one guinea per week; milk, vegetables, and residence in lodge; wife to attend to the gates.—Applicants to send full particulars of their qualifications, and copies of testimonials, to W. H. P., Bourton Hall, Totnes, Devonshire.

WANTED, a GARDENER, for good Garden,

with 80 feet greenhouses and 70 feet frames, all heated, well stocked, near London. To work it in PARTNER-SHIP, or with liberal contribution by owner towards expenses. First class references required.—W. H. C., 39, Foulden Road, Stoke Newington, N.

MR. H. HEPPWELL requires a good SINGLE-

HANDED GARDENER at once. Must be experienced in all the branches. Wages 20s. per week; age between 25 and 30. Good character.—Lumberton Manor, Newport Pagnel.

WANTED, a GARDENER, one who has

been accustomed to grow Chrysanthemums, and Roses; thorough knowledge of Forcing Bulbs for Market.—Apply, with full particulars, to G. 218, Eason & Sons, Limited, Dublin.

WANTED, a PROPAGATOR and

GROWER for Suburban Trade, a thorough practical and energetic Man, able to produce Cut Flowers and Plants in quantities.—State experience, reference, and wages required to M. A., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, a WORKING FOREMAN, of

considerable experience in the culture of indoor plants of all kinds, for a Botanical Garden.—One who has been in a similar establishment before preferred.—Wages, to a good man, 25s. per week; no lodgings, or other extras. Must be well recommended by present and past employers. Address, with all particulars, and copies only of testimonials, to F. W. BURBIDGE, F.L.S., 91, Haddington Road, Dublin.

WANTED, at ONCE, a respectable YOUTH,

desirous of acquiring a knowledge of the Seed and Nursery Business. Must be a good writer. Small salary to commence.—Write, stating particulars, to W. FROMOW AND SONS, Sutton Court Nursery, Chiswick.

WANTED, TWO or THREE MEN in the

Cucumber and Tomato Houses.—Apply, stating wages, to ARTHUR MATTHEWS, Nurseries, Waltham Cross.

WANTED, young MAN of good character

and address. Used to counter work.—THOMAS FROST & Co., Nurserymen, Maidstone.

WANTED, a young MAN, used to Bouvar-

dias, Ferns, and Cut Blooms. Quick at Potting, Tying, Packing, &c.—TONGUE, Nurseries, Shooters' Hill, S.E.

WANTED, FOUR or FIVE MEN, accus-

tomed to Nursery work, and who understand planting of all sorts of Seedling and other trees. Good Spadesmen. Wages, 18s. per week.—ISAAC MATTHEWS & SONS, Nurserymen, Milton, Stoke-on-Trent.

WANTED, BUDDER, and GRAFTER, and

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WANTED, UNDER GARDENER; young

Married Man; where three are kept; chiefly Outside; Mowing and Kitchen Garden work. Must be Church of England. Wages, 16s.; Cottage and Garden.—Apply, by letter only, to S. C., 9, Inverness Terrace, Hyde Park, W.

WANTED, AT ONCE, several MEN, used

to Nursery Work, and who understand Planting of all sorts of Seedling and other Trees; must be good spadesmen.—Apply, stating age and experience, to ENOCH WHITE AND SONS, Nurserymen, Bournemouth.

WANTED, TWO or THREE MEN, for the Houses.—R. BULLEN, Florist, Lewisham.

WANTED, a good CHRYSANTHEMUM

GROWER, to grow blooms for exhibition, &c.—State age, experience, and salary expected, to NURSERYMAN, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, a JOURNEYMAN for Garden

and Houses; he must be accustomed to Milk and Manage Cows. Four men kept; wages 14s. Bothy on premises: conls, gas, milk, and vegetables.—Apply by letter, HEAD GARDENER, T. Christy, F.L.S., Malverna House, Sydenham.

WANTED, a married MAN, without family

preferred, to attend to horse, and assist in the Nursery. Wife would be required to manage for three young men. Cottage and garden adjoining; bothy. Apply, with references, to T. JANNICH, Lily Nursery, Dersingham, King's Lynn.

WANTED, a respectable MAN (without

encumbrance), as Gardener, Groom, and Parish Clerk. Small country parish in East Herts.—RECTOR, 62, Oakley Square, N.W.

PAUL and SON WANT as lodge-keeper at

their High Beech Nursery, a good WORKING ROSE BUDDER, under Foreman; well up in Tea Roses. Wife during summer to take Cut Flower Sale.—The "Old" Nurseries, Chesnut, N.

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where a general collection is grown, as IMPROVER.—Apply by letter only, stating experience and wages required, WILLIAM CLEMENTS, Nurseryman and Florist, Church End, Finchley.

WANTED, an industrious young man, as

ASSISTANT SHOPMAN, who has had experience in the Seed and Bulb Trade, and with a knowledge of Nursery Stock preferred. State full particulars, age, and wages expected.—H. S., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, AT ONCE, a strong YOUTH,

quick at Potting, Tying, Watering, &c. State wages. One from Market Nursery preferred.—SMIDDY'S NURSERY, Newland, Hull.

WANTED, a respectable young MAN as a

Garden labourer, where six are kept. Wages 16s.—Mrs. KEMBALL COOK, Stanmore Park, Stanmore.

WANTED, a good CLERK and CORRE-

SPONDENT capable of Managing a Department, one who has had thorough experience in the Seed and Horticultural trade. Highest references required as to honesty and sobriety. Salary £100 to commence, and a good rise in six months if the person proves satisfactory. Reply by letter stating age, previous experience, and where last employed.—O. C., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, in a Provincial Nursery,

IMPROVER or JOURNEYMAN, chiefly Indoors, and to attend Market one day per week. Must be experienced in Potting, Tying, &c.—Apply, stating wages and references, MIDLANDS, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, a FLORIST'S ASSISTANT.—

Must be a good Salesman, Window-box Filler, Furnisher, and Canvasser.—State experience, wages, &c., to X., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

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that they have at present in their Nursery and upon their Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Victoria and Paradise Nurseries, Upper Holloway, N.

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CO. (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, Liverpool, are in a position to recommend a first-rate man as HEAD GARDENER, or GARDENER and BAILIFF; also a thoroughly competent man as HEAD GARDENER, who has a good knowledge of Orchids; unexceptional references in each case.

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beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

HEAD GARDENER.—Disengaged by giving one month's notice. Reference to Mr. Rd. Westcott, Raby Castle, Darlington, or to Mrs. Hewetson. Address, below, where advertiser has been eight years.—**ROBERT NELSON**, Hwith House, Ravenstonedale, Kirkby Stephen.

GARDENER (HEAD).—Married, no family. Situation wanted by an energetic, trustworthy Man as above. Thoroughly understands his business; specially well up in the cultivation of Orchids. Excellent references.—**D. M. R. Gardeners' Chronicle Office**, 41, Wellington Street, Strand, W.C.

GARDENER (HEAD), age 30.—**D. MCKENZIE**, gardener to Lady Siemens, Sherwood, Tunbridge Wells, wishes to recommend his Foreman, J. Walker, in the Houses, to any Lady or Gentleman requiring a practical, steady, and trustworthy Man as above. Abstainer. Six years in present situation.

GARDENER (HEAD), where two or three are kept (or good SINGLE-HANDED).—**F. W. RUSSELL**, Head Gardener to E. T. Doka, Esq., Woodgreen Park, Cheshunt, would be pleased to recommend E. Jenner, who has been here for the last two and a half years, as a thoroughly efficient and reliable man.—For particulars, please reply as above.

GARDENER (HEAD); age 29.—**CHAS. HERRIN**, Dropmore, Maidenhead, wishes to recommend his Foreman, E. Tapping, to any Lady or Gentleman requiring a thoroughly efficient and reliable Man. Highly recommended by the Lady Louisa Fortescue and the Hon. Miss Grosvenor.

GARDENER (HEAD), age 32.—**G. CURTIS**, six years Head Gardener to Hon. R. H. Dutton, seeks re-engagement. Practical experience in all branches: Forcing, Hardy Fruit Culture, and requirements of good establishment. Married. Abstainer. Excellent references.—**Timsbury Manor**, Romsey, Hampshire.

GARDENER (HEAD SPECIAL); age 28, married.—**Mr. F. ROSS**, Pendell Court Gardens, Bletchingley, will be pleased to recommend his Foreman, C. Wood, as above, to those requiring a thoroughly practical man.

GARDENER (HEAD), or good SINGLE-HANDED.—Age 36, married; thoroughly competent. Employer giving up the place. Six years' good character.—**W. BOREHAM**, 19, Milton Road, Croydon.

GARDENER (HEAD).—A Lady can highly recommend a superior and conscientious man for the routine of establishment. Most excellent Fruit, Orchid, and Exotic Plant grower. Has served her over ten years; unimpeachable testimonials, and prizes may be seen.—**M.**, 20, Pelham Terrace, New Eltham.

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GARDENER (HEAD).—Age 30, single; fifteen years' experience; three years in present situation. Good references.—**E. RUSSELL**, Moray Lodge Gardens, Campden Hill, Kensington, W.

GARDENER (HEAD).—Married, two children (youngest 11 years); twenty-five years' experience in first-class places; thirteen years in present situation. Leaving through death of employer. No single-handed place accepted. First-class characters.—**C.**, The Lodge, Loampit House, Lewisham, S.E.

GARDENER (HEAD); age 28, married.—**WILLIAM MEREDITH** seeks re-engagement as above. Can be highly recommended by Mr. George Bunyard, Pomologist, Maidstone, as a thoroughly practical Fruit Grower and general all-round man. Has had experience in first-class establishments.—10, Bower Street, Maidstone, Kent.

GARDENER (HEAD); age 35, married.—A GENTLEMAN can with confidence recommend as above. First-class all-round man.—**W. MORGAN**, 10, Camden Road, Wanstead, Essex.

GARDENER (HEAD) where two or three are kept; single.—**Mr. E. BLAND**, Fordham, Cambs, can with every confidence recommend a man as above. First-class references.

GARDENER (HEAD); age 34.—**G. BURT**, Esq., Purbeck House, Swanage, would be pleased to highly recommend his late Head Gardener, who lived with him six years, as a thorough practical Gardener.—**GARDENER**, 6, Purbeck Place, Swanage.

GARDENER (HEAD WORKING), where two or three are kept.—The Rev. H. COLISON, would be pleased to recommend his present Gardener as above. Has served me just four years. Thoroughly understands the Management of Houses, Flower and Kitchen Garden.—**F. WALKER**, East Bilney, East Dereham.

GARDENER (HEAD WORKING).—Age 31, married, one child; sixteen years' practical experience in all branches of the profession. Good references.—**GARDENER**, Brooklands, Lyndhurst, Hants.

GARDENER (HEAD WORKING), where three or four are kept. Age 28; single; thoroughly experienced in all branches. Good references. Seven years with present employer, and three years with previous employer.—**H. O.**, Mr. Maher, Yattendon Court, Newbury.

GARDENER (HEAD WORKING).—Age 41, married, no family. Thoroughly experienced in all branches. No objection to land. Eight years' good recommendation.—**J. PENFORD**, Thuxton, Andover, Hants.

GARDENER (HEAD WORKING).—Age 38. Married when suited. Over twenty years' experience in Forcing, Fruits, Flowers, Flower and Kitchen gardening. Well recommended.—**A. B.**, Gardener, Shotesham, St. Mary, Norwich.

GARDENER (HEAD WORKING), where not less than four are employed.—Age 23. Fourteen years' experience. Mr. J. FRIEND, Gardener to the Hon. P. C. Glynn, Rooksnest, Godstone, can with every confidence recommend his Foreman, W. Penton, as above.

GARDENER (HEAD WORKING).—Age 35, married; several years' practical experience in all branches of Gardening in good places in England and Scotland. Good all-round man; first-class character and references.—**J. T.**, 39, Blenheim Grove, Peckham, S.E.

GARDENER (HEAD WORKING), where three or four are kept.—The recent Bishop of WINCHESTER wishes to recommend highly his Gardener as above. Thoroughly experienced in all branches. Left through breaking up of establishment.—**W. SMITH**, Farnham Castle, Surrey.

GARDENER (HEAD WORKING), where one or two are kept, or good SINGLE-HANDED.—Age 36, no family; good references.—**G. S.**, 17, Crassland Crescent, Adler Villas, South Hackney.

GARDENER (HEAD WORKING); age 32, no family.—Mrs. ROE, Kendall Hall, Elstree, Herts, can highly recommend her Head Gardener, E. Jenkinson. Excellent character through life.

GARDENER (HEAD WORKING); age 31, married, two children.—F. KING can with confidence recommend his Foreman (F. Fitzwater) to any Lady or Gentleman requiring a thorough practical man as Gardener, Four and a half years' good character.—**F. KING**, The Gardens, Oak Dene, Holmwood, Surrey.

GARDENER (HEAD), or good SINGLE-HANDED.—Married, no family; eighteen years' good practical experience in all branches of the profession. Good testimonials from previous employers; three and a half years in present place.—**GEO. S. JONES**, Lock Lodge, Harrow Road, London, W.

GARDENER (HEAD), or SINGLE-HANDED).—Age 40, married; abstainer. Can be well recommended. Death cause of leaving last place.—**W. B.**, 23, Parade, Acton.

GARDENER (HEAD or SINGLE-HANDED).—Thorough knowledge of his business in all branches. Nine years' character from last place.—**GARDENER**, Berwood Park, Walton-on-Thames.

GARDENER (SINGLE-HANDED), or JOURNEYMAN.—Age 15. General knowledge of Inside and Out. Nine years' experience. Seven years' character from present situation.—**G. P.**, 22, West Green Road, Tottenham, N.

GARDENER (SINGLE-HANDED, or otherwise).—Age 28; fourteen years' good practical experience. Inside and Out, in all branches. Well recommended. State particulars.—**GARDENER**, Mr. Knight, Whitechurch, Oxon.

GARDENER (SINGLE-HANDED, or otherwise).—Age 30, married, one child; fifteen years' good experience. Good references for the past nine years.—**GARDENER**, 23, Westgate, Louth, Lincs.

GARDENER (SINGLE-HANDED, or UNDER).—Age 22, single; good experience in Glass, Vines, Fruit and Outdoor Gardening. Good character.—**G. HEMMINGS**, T. Bell, Waltham Cross, Herts.

GARDENER (SINGLE-HANDED or UNDER).—To attend Stock or Horse. Well up in Cucumbers, Tomatoes, and Vines. Good character.—**HAWKINS**, 60 Bridge Street, Greenwich, Kent.

GARDENER (SINGLE-HANDED, or where help is given).—A. AGER, Gardener to J. B. Harkey, Esq., Fetcham Park, Leatherhead, can strongly recommend a young man (age 26) as above. Twelve years' experience.—**H. HALL**, The Cottage, Shackelford, Godalming, Surrey.

GARDENER (good SINGLE-HANDED), or otherwise.—Age 33; good references, and experience in all branches.—**HEAD GARDENER**, Albury Park, Guildford.

GARDENER (SINGLE-HANDED).—Age 25; eight years' experience in large establishment; three years in present place. Understands Greenhouse, Flower and Kitchen gardens, Cucumbers and Tomatoes.—**T. H. H. CHAPMAN**, W. Wickham, Beckenham, Kent.

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GARDENER (SINGLE-HANDED), or otherwise.—A situation wanted by a young Man as above. Good experience; [willing and active].—**A. W.**, 7, Turnford, near Broxbourne, Herts.

GARDENER (SECOND or SINGLE-HANDED).—Age 24, married. Well experienced in Vines, Peaches, and the general routine of a Flower garden. Two years in present situation; can be highly recommended.—**J. KEEN**, 14, Vincent Street, Leamington.

GARDENER (SECOND).—Age 25. Seven years' experience Inside and Out. Three years in present situation. Good character.—**J. TERRY**, The Gardens, Paynter Grove, Totteridge, Herts.

GARDENER.—Age 43, married, one child; understands Flowers and Kitchen Garden, Vines, Melons, Cucumbers, &c. Eighteen months' good character (seven years' previous). Twenty-six years' experience.—**T. H.**, Garden Cottage, Bishop's Road, Fulham, S.W.

GARDENER (SECOND), or FOREMAN.—Age 24; well versed in Table Decorations and General Work. Three and half years in present place. Seven years' experience.—**R. D. J.**, Little Gaddesden House, Berkhamstead, Herts.

GARDENER (SECOND), in good establishment, where four or more are kept; age 27; good character.—**A. MYHILL**, The Gardens, Bowden Hill House, near Chippenham, Wilts.

GARDENER (UNDER).—Age 18; six years' experience. Strong and willing.—**W. A.**, 27, Hurst Road, Ocklynge, Eastbourne.

GARDENER (UNDER).—Age 24; Inside. Eight years' experience with Vines, Peaches, Cucumbers, Stove and Greenhouse Plants. Good character.—**H. SOWERBY**, Gordon Cottage, Middle Hill, Egham, Surrey.

GARDENER (UNDER).—Age 28; good knowledge of Gardening. No objection to Knives, Boots, or Pony. Sussex or Surrey preferred.—Please state wages.—**J. LONGYEAR**, Bosham, Chichester.

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FOREMAN, or good SINGLE-HANDED.—Age 25. Good experience in general routine, Inside and Out. Good character.—**A. ANSELL**, Birmingham Farm, Albury, near Guildford.

FOREMAN; age 36.—**C. PENNY**, late Head Gardener, Sandringham, wishes to recommend his late Foreman, Wm. Palmer, to any Lady or Gentleman wanting a thoroughly practical man in every branch of his profession.—**C. PENNY**, Belle Vue, Salt Hill, Slough.

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FOREMAN.—Age 24; ten years' experience in Orchids, Fruit, Stove, and Greenhouse Plants.—Mr. WANT, the Gardens, Clare Lawn, East Sheen, will be pleased to recommend J. Hygate as above.

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JOURNEYMAN.—Age 22; seven years' experience Inside and Out.—G. LEWIS, Little Faringdon, Lechlade, Gloucestershire.

JOURNEYMAN, in the Houses.—Age 22. Eight years' good character; two and a half years in present place.—HEAD GARDENER, Wood End, Chichester.

JOURNEYMAN, in the Houses.—Age 21; six years' experience; good character.—J. McCULLOUGH, The Gardens, Ballywalter Park, Newtownards, co. Down; or Mr. Ward.

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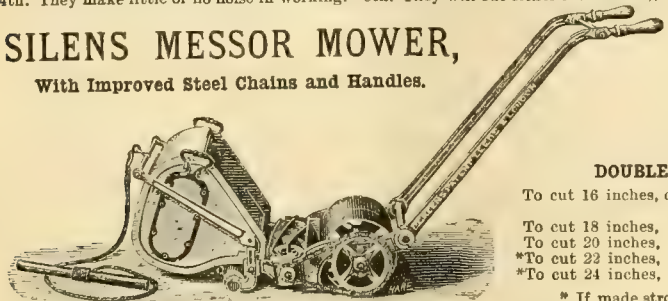
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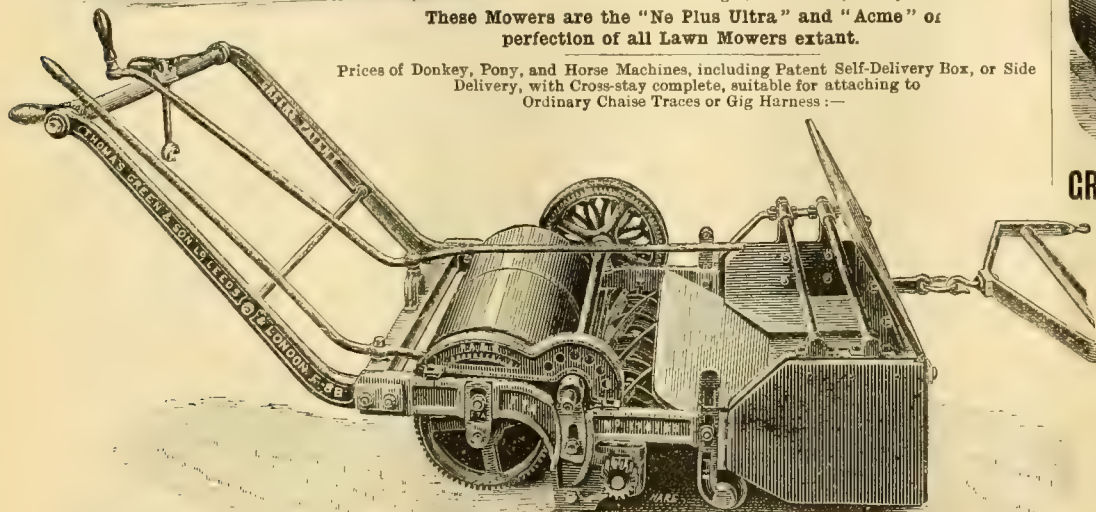
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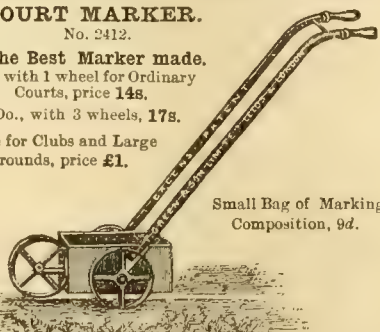
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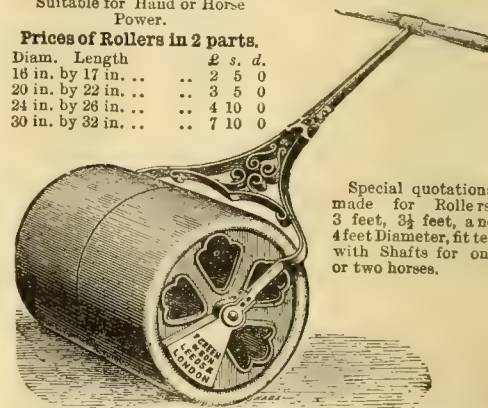
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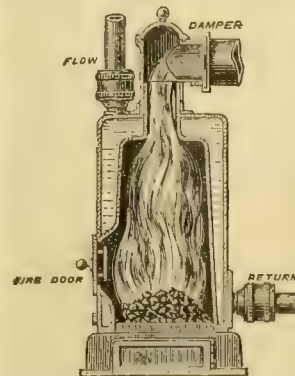
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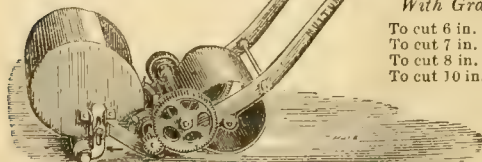


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THE GARDENERS' CHRONICLE,
Vol. VIII., Third Series, JULY to DEC., 1890.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL BOTANIC SOCIETY
Gardens, Regent's Park, W.
The FIRST EXHIBITION OF SPRING FLOWERS will take place on WEDNESDAY, MARCH 18.
Schedules of Prizes, and all information, to be obtained at the Gardens.

BATH BULB SHOW,
March 18 and 19. Entries close March 13. For Prize Schedules, &c., apply to B. R. F. PEARSON and W. JEFFERY, Secretaries, 2, Northumberland Buildings, Bath.

ROYAL BOTANIC SOCIETY of MANCHESTER.
The FIRST SPRING FLOWER SHOW of the present Season will be held in the Manchester Town Hall on TUESDAY the 17th inst. Open from 12 at noon till 9 P.M. For particulars, apply to the undersigned.
Botanic Gardens, Manchester. BRUCE FINDLAY.

CRYSTAL PALACE
EXHIBITIONS OF PLANTS, FLOWERS, FRUIT, &c.,
To be held during 1891.

SPRING EXHIBITION OF PLANTS, FLOWERS, &c.,
Saturday, March 21. Entries for this Show close on March 14.
GREAT SUMMER EXHIBITION, Saturday, May 9.
THE NATIONAL ROSE SOCIETY'S GRAND EXHIBITION of ROSES, Saturday, July 4.
THE FRUIT EXHIBITION with THE NATIONAL DAHLIA SOCIETY'S GRAND SHOW, Friday and Saturday, September 4 and 5.
GREAT AUTUMN FRUIT SHOW, October 8 to 10 inclusive.
GRAND CHRYSANTHEMUM EXHIBITION, Friday and Saturday, November 6 and 7.
Schedules of Prizes, Rules, and Regulations, post-free on application to Mr. W. G. HEAD, Superintendent, Gardens Department, Crystal Palace, S.E.

SUTTON'S FLOWERS ARE GROWN FROM SEED.

Full descriptions, with numerous Illustrations and Price List of upwards of 1500 varieties, see SUTTON'S AMATEUR'S GUIDE in HORTICULTURE for 1891. Price 1s., post free; gratis to Customers ordering goods value 20s.
SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, the Queen's Seedsmen, READING.

Sterling Garden Seeds.

DICKSON AND ROBINSON offer:—
BORECOLE, Culzean Castle Green Curled, 1s. per oz.
BRUSSELS SPROUTS, President Carnot, 6d. and 1s. per pkt.
CABBAGE, D. & R.'s All Heart, 1s. per oz.
CARROT, D. & R.'s Scarlet Perfection, 1s. per oz.
CAULIFLOWER, D. & R.'s Early Forcing, 2s. 6d. per pkt.
CUCUMBER, Lockie's Perfection, 1s. and 1s. 6d. per pkt.
MELON, D. & R.'s Templenewsam Hybrid, 1s. 6d. per pkt.
Post free. Descriptive Catalogue on application.
Seed Warehouse, 12, Old Millgate, Manchester.

RHODODENDRONS.—Largest and finest stocks, all sizes, grown in peat. RHODODENDRON PONTICUM, 10-inch bushy, 10s. per 100; 1 to 1½ feet, 22s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 40s. per 100; 3 feet, 60s. per 100; 4 to 5 feet, 120s. per 100. Hybrids, fine named, 2 to 3 feet, 70s. per 100; 3 to 4 feet, 150s. per 100. RHODODENDRONS, fine stocks, 80s. per 1000.
GARRIES MITCHELL, Nurseryman, Stranraer.

ASPARAGUS, 3-yrs. old for planting, 25s. per 1000. Cash with order. My Asparagus always makes top price at Covent Garden.
J. J. CLARK, Market Gardener, Goldstone, Brighton.

Prize Cob Filberts.

MR. COOPER, F.R.H.S. (late of Calcut Gardens), is the largest grower in the kingdom of Prize Cob Filbert Trees for Sale. Descriptive and Price LISTS on application to Mr. COOPER, Western Elms, Reading, Berks.

LOBELIA CUTTINGS, strong-rooted; best blue grown, 6s. per 100, carriage free.
JOHN H. HANDY, Florist, Manningham, Bradford.

FOR SALE, thirty ARUM LILIES in 12s, 16s, and 24s, large plants in full bloom, 2s. each.
G. HENLEY, Wretham Hall, Thetford.

FOR SALE, 10,000 MANETTI STOCKS, and 400 Pot ROSES.
G. GRAY, Froggall Nursery, Enfield Road, Southgate, N.

FOR SALE, 500 SOUVENIR DE LA MAL-MAISON, good strong plants. What offers?
R. A. SMITH, Gardener, Catton, Norwich.

HENRY SQUELCH, North Row, Covent Garden, FRUIT SALESMAN and COMMISSION AGENT. Importer of Bananas, and all kinds of Madeira and Canary Island Produce.
Bankers, London and County Bank, Henrietta Street. Warehouses and Banana House, James Street, Covent Garden, W.C.

J. W. BARNHAM Receives on Commission, J. GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
Long Market, Covent Garden, W.C.

WANTED TO EXCHANGE two Specimens, Cycas revoluta and Sansevieria carnea variegata. The above are in good health, and suitable for Winter Gardens, &c. For particulars apply to CHAS. SURMAN, Brooklands Gardens, Charnminster, Dorchester.

WANTED, TO PURCHASE, OR EXCHANGE for other plants, all SARRACENIA HYBRIDS KNOWN; also all good foliage and flowering plants, especially LAPAGERIA ALBA, L. ROSEA, and L. RUBRA SUPERBA, &c.
U. S. A., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, Regal Decorative PELARGONIUMS, small rooted, a few hundreds.—Also named Border CARNATIONS, Pride of Penshurst, Germanna, Reynold's Hole, and various small STOVE and GREENHOUSE PLANTS, and named HOLLYHOCKS. Cheap for cash.
W. PLUMMER, Gardener, Catton, Norwich.

THE CHINESE ARTICHOKE (Stachys tuberifera).—JAMES CARTER AND CO. have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An Illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers.
Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

Gentlemen.

MY DWARF ROSES are the finest Plants I have ever grown. Many kinds are bushes 3 to 6 feet high.
CHARLES NOBLE, Bagshot.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

Now ready, descriptive Catalogue of **HARDY HERBACEOUS PERENNIALS**, free on application, describing the BEST HARDY HERBACEOUS PLANTS for Borders, Rockwork, and Cuttings.
BARR & SON, 12 and 13, King Street, Covent Garden, London; and Nurseries, Long Ditton, Surrey.

ROSES.—ROSES.—ROSES.
Strong Dwarf H.P.'s, my selection, 25s. per 100, £11 per 1000. Acknowledged the finest in the trade. Reason of such low price is, that we must clear ground.
C. H. GORRINGE, Roselands Nursery, Eastbourne.

Laurels, 2 feet to 6 feet.

H. LANE AND SON have a large Stock of H. Offer, Stout and well-rooted, of CAUCASIAN, ROTUNDIFOLIA, COMMON, &c.
CATALOGUE free on application.
The Nurseries, Berkhamsted, Herts.

Standard Roses.

CHARLES TURNER can offer the above with tall stems and strong heads.
The Royal Nurseries, Slough.

SEEDS! SEEDS! SEEDS!—Select Stocks of Vegetable and Flower Seeds at Wholesale Prices. Everyone with a garden, and every market gardener, should send for a Catalogue before ordering elsewhere.—B. L. COLEMAN, Seed Merchant and Grower, Sandwich, Kent.

All finely Rooted.

DAMSONS, Standard and Feathered, cheap. CHERRIES, very fine Standards. PLUMS, Early Prolific, maidens. PEACHES and NECTARINES, well-ripened maidens. GRAPE VINES and FIGS, in pots. SEAKALE and RHUBARB, for forcing. Broad-leaved PRIVET, 4 to 7 feet for hedges.
WILL TAYLER, Osborn Nursery, Hampton, Middlesex

Seed Potatoes.

H. AND F. SHARPE'S WHOLESALE LIST OF SEED POTATOS comprises all the best varieties under cultivation. They have been grown from selected stocks expressly for seed purposes, and the quality this season is exceptionally good.
Seed Growing Establishment, Wisbech.

CHOICE FRUIT—CHOICE FRUIT.
Highest Market Prices guaranteed. Prompt cash.
HENRY RIDES, Covent Garden, W.C.

MANETTI STOCKS.—Strong, clean, and well-rooted. First-class stuff. 25s. per 1000.—A. BARTLEMAN AND SON, New Malden, Surrey.

PANSIES.—Choice varieties of Pansies for Bedding, can be supplied in large quantities. Samples always on show. Also the leading varieties of SEED POTATOS for Sale. Apply to
JOHN BATH, 32 and 34, Wellington Street, Covent Garden.

THOMSON'S IMPROVED VINE AND PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday and Saturday Next.

2000 Choice named Standard, Half-Standard, and Dwarf ROSES, from English growers; several hundred FRUIT TREES, of fine sorts; Hardy Ornamental TREES, SHRUBS, and CONIFERS, AZALEA MOLLS from Ghent, LILUM AURATUM and L. LONGIFLORUM from Japan, Home-grown LILIUMS, a grand collection of CARNATIONS, PINKS, PICOTÉES, and other BORDER PLANTS, SPIRÆA, GLADIOLI, ANEMONES, RANUNCULI, LILY OF THE VALLEY, DUTCH BULBS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, March 11 and 14, at half-past 12 precisely each day. On view morning of Sale, and Catalogues had.

Thursday Next, March 12.

SPECIAL SALE OF FINE HEALTHY ESTABLISHED ORCHIDS.

A large portion of which will be in Flower and Bud.

MR. J. C. STEVENS has received instructions from Messrs. F. Sander & Co., St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, March 12, at half-past 12 o'clock precisely, a very choice collection of well-grown ESTABLISHED ORCHIDS, a large number of which will be in Bud and Flower, and among which the following plants will be found:—

Lælia harpophylla, fine healthy plants in flower.
Cattleya citrina, fine healthy plants in flower.
Dendrobium thyrsiflorum, some grand specimens in full bloom.
" *Wardianum*, large flowering type.
Odontoglossum Alexandrie, from Sander's best importations.
Dendrobium Dearei, the pure white-flowering variety.
Oncidium Papilio majus, splendid pieces, with flower-spikes.
Sophronitis grandiflora, fine healthy plants in flower.
Odontoglossum vexillarium, good healthy plants in bud or flower.

A CHOICE COLLECTION OF RARE and VALUABLE CYPRIPEIDIUMS, including

Cypripedium Bartlettii (C. insigne Chantini x C. barbatum).
" *Volanteum*, a handsome brightly coloured species.
" *albo-purpureum* hybrid (C. Schlimii x C. Domini).
" *cardinale* hybrid (C. Sedum x C. Schlimii album).
" *WEDDICHIANUM*, THE BEST OF THE SEDENII SECTION (C. HARTWEGII x C. SCHLIMII).

CYPRIPEIDIUM POLLETTIANUM.

A lovely hybrid, raised and flowered by Messrs. Sander & Co., and awarded a FIRST-CLASS CERTIFICATE by the Royal Horticultural Society. The parentage of this hybrid is (C. *ENANTHIUM* SUPERBUM x C. *CALOPHYLLUM*); the flowers partake mostly of the character of the former parent, but is much finer both in form and colour. The dorsal sepal is an intense crimson, almost black with rose-coloured lines running throughout; the other segments are of a dark rich brown.

CYPRIPEIDIUM MAYNARDII.

Another choice hybrid which was raised in our nurseries, and flowered by us late last year. The parents are C. *PURPURATUM* x C. *SPICERIANUM*. The flower partakes largely of the characters of both species, the dorsal sepal showing C. *Spicerianum* in a marked degree, but with a much more intense crimson line running through its centre; the other segments are of a rich coppery-brown, while the lip is of a rich crimson.

CYPRIPEIDIUM WALLISII.

The "Albino" of the beautiful C. *CAUDATUM*, having precisely the same characteristics as the latter, but of a more robust habit.

CYPRIPEIDIUM RETICULATUM, very rare species.

C. *propinqua* betulinum, *melanophthalma*, *Chionocheum*, *Ashburtonae*, *Venchi*, *nitens* *superbum*, *Harrisonianum* *nigrum*, *superbiare*, *Stonei*, *Crossianum* *psittacinum*, *Curioni*, *Sanderianum*, *Albanensis*, *Rothschildianum*, *Roebelenii*, *Dautherlii*, *Chantini*, *Schomburgkianum*, *ciolare*, *longifolium*, *calophyllum*, &c., &c.

Cattleya amethystoglossa, large healthy pieces, in flower.

Calanthe Regneri, good plants, in full bloom.
DENDROBIUM NOBILE, some splendid specimens, in full bloom.

PHAIUS TUBERCULOSUS.

One of the grandest Orchids extant. We have a choice selection now flowering in our nurseries.

LÆLIA GRANDIS (TRUE).

Fine established plants, many with flower-sheaths.
Odontoglossum bandum, pretty varieties in flower.
" *navium* *majus*, in flower and bud.
Bailetonia fragrans, well grown plants, showing for flower.
LÆLIA LAWRENCIANA, rare and handsome.
Oncidium ampliatum *majus*, in spike.
Zygopetalum Mackayi *majus* *crinitum*, intermediate, and *graminifolium*.
The new *ONCIDIUM BORAIMENSIS*, handsome, and free-flowering.
Angreecum Sanderianum, fine plants, with long flower-spikes.

SACCOLABIUM HARRISONIANUM.

One of the most handsome white species known. A fine plant in flower, having three strong pair of leaves and a strong flower-spike.

BATAMANNIA BURTHI, a rare and very handsome Orchid.
VANDA SANDERIANA, three fine plants, with three large growths each.

Cattleya Gaskelliana, *LÆLIA ANCEPS WILLIAMSIANA*, *ORNITHOCYPHALUS GRANDIFLORUS*, *CATTLEYA ELBORADO SPLENDENS*, *Cattleya maxima peruviana*, *Epidendrum macrochilum* *ro-um* and *album*, *AERIDES SANDERIANA*, *Dendrobium densiflorum*, in bud; *Pilumna fragrans*, coming into flower; *Cologyne Massangeana*, good strong plants. &c., &c.

1 *LAT. CÆRIUM* SPECIES, supposed to be new.

A very distinct set of plants from Surinam; the shortness of the foliage, and the leathery texture throughout, render this importation worthy of the notice of buyers.

On view morning of Sale, and Catalogues had.

Wednesday Next.

50,000 *LILUM AURATUM* (some in cases as received), and 2,000 *L. LONGIFLORUM*, in splendid condition, from Japan, *TUBEROSES*, *AMARYLLIS*, &c.

MR. J. C. STEVENS will include the above in his Sale by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, March 11. On view, and Catalogues had.

Thursday, March 19.

SPECIAL SALE OF ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE OF ORCHIDS IN FLOWER and BUD, will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY March 19, and he will be glad if Gentlemen desirous of entering Plants for this SALE will please send Lists not later than Thursday next.

Monday Next.—Carnations and Hardy Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 9, at half-past 12 o'clock, a choice collection of CARNATIONS, PICOTÉES, PEONIES, DAHLIAS, NARCISSUS, GLADIOLI, ANEMONES, and many other beautiful varieties for outdoor planting. A magnificent collection of IRIS, including all the best in cultivation; *LILY OF THE VALLEY*, *CYPRIPEIDIUM SPECTABILE*, home-grown LILIES, consisting of *GIGANTEUM*, *BROWNII*, *HUMBOLDTI*, *HANSONI*, *KRETZERI*, *SPECIOSUM*, *PARDALINUM*, and others; *HARDY PERENNIALS*, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIES, PLANTS, and ROSES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, March 11, at half-past 12 o'clock, 10,000 fine bulbs of *LILUM AURATUM*, including some exceptionally large bulbs, *L. RUBRUM*, and *ALBUM*, 1000 *L. LONGIFLORUM*, Japanese *TREE PEONIES*, 500 *LILUM WASHINGTONIANUM*, *HUMBOLDTI*, and others, 2000 *AMERICAN PEARL TUBEROSES*, 1000 *GLADIOLUS LEMOINEI*, extra fine, 500 *STANDARD* and *DWARF ROSES*, *ROSES* in pots, English-grown LILIES, *HERBACEOUS PLANTS*, *CARNATIONS*, 50 lots of *FERNS* and *GREENHOUSE PLANTS*, *CAMELLIAS*, *AZALEAS*, and *PALMS* from Belgium, also a quantity of *HYACINTHS*, *TULIPS*, *CROCUS*, and 5000 *GLADIOLUS BRENCHLEYENSIS*, just received from Holland.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 13, IMPORTED ORCHIDS, by order of Messrs. Hugh Low & Co.

On view morning of Sale, and Catalogues had.

Friday Next.

ESTABLISHED ORCHIDS from Various Collections.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, March 13, ESTABLISHED ORCHIDS, a small Private Collection, by order of Executors, 50 *ODONTOGLOSSUM TRIUMPHANS*, in flower, and others; also 100 imported plants of *DENDROBIUM FINDLEYANUM*.

On view morning of Sale, and Catalogues had.

Tuesday, March 17.

The Rawdon Hill collection of established ORCHIDS for sale, without reserve, the whole of the plants being unusually well grown, and in splendid condition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. on TUESDAY, March 17, at half-past 12 o'clock, entirely without reserve, the above exceedingly well-grown collection of established ORCHIDS, including fine healthy plants of

<i>Cattleya Sanderiana</i>	<i>Cologyne cristata alba</i>
" <i>crispa superba</i>	" <i>Chatsworth variety</i>
" <i>Dowiana</i>	<i>Cymbidium eburneum</i>
" <i>chrysotoxa</i>	<i>Cypripedium Druryi</i>
" <i>Gaskelliana</i> , special varieties	" <i>Harrisonianum</i>
" <i>albans odorata</i>	" <i>Lecanum superbum</i> , grand form
" <i>gigas Sanderiana</i>	" <i>cananthum superbum</i>
" <i>labiata</i> (autumn-flowering)	" <i>vexillarium superbum</i>
" <i>maxima</i>	<i>Dendrobium Ainsworthii</i>
" <i>Mendeli</i>	<i>Lælia anceps Dawsoni</i>
" <i>massive delicata</i>	" <i>alba</i>
" <i>Percivelliana</i>	" <i>Hilli</i>
" <i>Lawrenceana</i>	<i>Lælia elegans prasiata</i>
" <i>Triane</i> , special fine varieties	" <i>elegans</i>
" <i>alba</i>	" <i>purpurata</i> , fine pieces
" <i>magnifica</i>	<i>Masdevallia Veitchii grandiflora</i>
" <i>Dodgsoni</i>	<i>Odontoglossum crispum</i> , many fine forms
<i>Vanda Sanderiana</i>	" <i>guttatum</i>
" <i>amensiana</i>	" <i>Halli</i>
" <i>cerulea</i>	<i>Oncidium macranthum</i> , fine pieces
" <i>tricolor</i>	<i>Angreecum sesquipedale</i>
" <i>suavis</i>	<i>Angelon Sanderiana</i>
<i>Grammatophyllum Meaurioanum</i>	<i>Aërides Sanderianum</i>
<i>Dendrobium Dearei</i>	

On view morning of Sale, and Catalogues had.

The Colbridge Hall (Murrayfield, N.B.) Collection of ESTABLISHED ORCHIDS, by order of Henry H. Norie, Esq., who is giving up their cultivation. For Sale entirely without reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above at their Rooms, on FRIDAY, March 20. Further particulars will appear.

Orchids in Flower.

SPECIAL SALE TUESDAY, March 24.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE OF ORCHIDS IN FLOWER will take place as above, for which they will be glad to receive entries as soon as possible.

Re G. Poulton, Limited.

SALE of the whole of the GLASS ERECTIONS, STOCK IN TRADE, BENEFICIAL INTEREST in the LEASE and GOODWILL in ONE LOT by TENDER.

MESSRS. PROTHEROE AND MORRIS are instructed by the Receiver to offer for SALE by TENDER in one Lot, the BENEFICIAL INTEREST in the LEASE of the Property known as the FOUNTAIN NURSERY, Angel Road, Edmonton, close to the Angel Road Station, together with the whole of the Glass Erections, comprising 26 Greenhouses and several Pits, containing about 62,000 superficial feet of Glass and Woodwork heated by about 21,000 feet of hot-water-piping mostly 4-inch, also the whole of the extensive STOCK IN TRADE, comprising amongst other items 20,000 *Polypodium aureum*, 50,000 *Ferns*, of sorts; 1180 *Calla Ethiopica*, 2000 Old Red Clove *Carnations*, 1400 pots *Lilium lancifolium*, 3200 *Kentias*, 1500 *Geraniums*, mostly old stock-plants, 89 White *Camellias*, planted out; 140 White *Azaleas* in pots, &c., together with the Goodwill of the Business.

Tenders must be delivered at the office of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C., on or before THURSDAY, March 12, at 12 o'clock. The Vendors do not bind themselves to accept the highest or any Tender.

Forms of Tender can be obtained of C. J. MARCH, Esq., Receiver (Messrs. W. B. Keen & Co.), 3, Church Court, Old Jewry, E.C.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

The Celebrated Fernside Collection of Established ORCHIDS.

PRELIMINARY NOTICE.

Without the least Reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from H. M. Pollett, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, April 7 and 8 (and not April 8 and 9, as erroneously stated in last week's advertisement), at half-past 12 o'clock precisely each day, a Portion of the celebrated FERNSIDE COLLECTION of ESTABLISHED ORCHIDS, in splendid health. First-class Certificates have been awarded by the Royal Horticultural Society to many of the plants, and the names of several will be found in the *Gardeners' Chronicle* for February 21.

Catalogues with Coloured Plates of some of the principal *Odontoglossums* will be ready for circulation early in March, and can be had of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers and Valuers, Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

FOR SALE, through a death, the BUSINESS

of MR. J. DANIELS, FISHMONGER, FLORIST, and FRUITERER, 207 and 209, Oxford Street, Manchester. The shop is splendidly fitted up with every convenience, including horses, cart, lorry, utensils, &c. Immediate possession. Apply as above.

Guernsey (Channel Islands), Havilland Vineries.

GOING CONCERN. Grounds 2 Acres, contains Residence-house, with 12 Rooms and Bath-room, hot and cold supply, &c. Gardener's Cottage, 4 Rooms, with Packing-room attached. No. 1 Hot-house, 200 by 34 feet (span); No. 2 House, 150 by 40 do. do.; No. 3 House, 138 by 35 do. do.; No. 4 House, 145 by 20 do. (lean-to).

Pumping-house, water forced with Hot-air Engine from pond on the Property, supplied by a stream. Grounds well laid-out, containing small Orchard of Apples, and good Artichoke bed. Pleasantly situated in a charming locality, 1 mile from Town and Harbour. Price £3500 (British).

Apply to B. W. DOVE, Havilland Vineries, Guernsey.

To Florists and Fruit Growers.

TO BE LET, ON LEASE, THE VINEYARD, Potters Bar, N. For many years successfully carried on by Mr. E. Bennett, who would let it on very advantageous terms, having removed to Harefield; 20 Glass Houses, 2 Dwelling Houses, Office, Stables, Sheds, and standing on 3 Acres of Land. Rent, £200.

MR. BENNETT, Harefield Grove, Uxbridge.

TO LET, within 2 miles of the Bristol

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- (1) Of a portrait to be placed in the Lindley Library, under the charge of the Trustees of that Institution.
- (2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned. The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds.

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WILLIAM WILKS (Rev.), Secretary,
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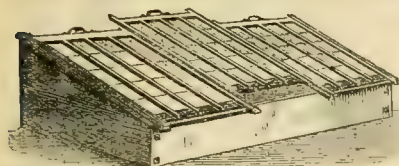
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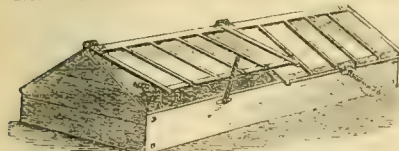
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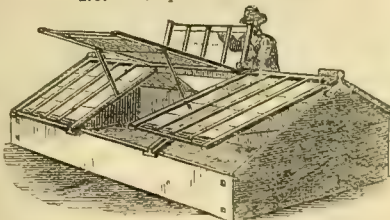
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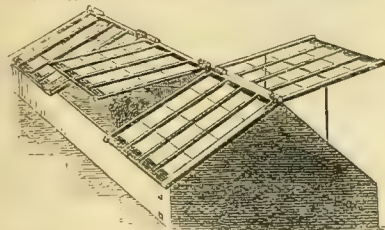
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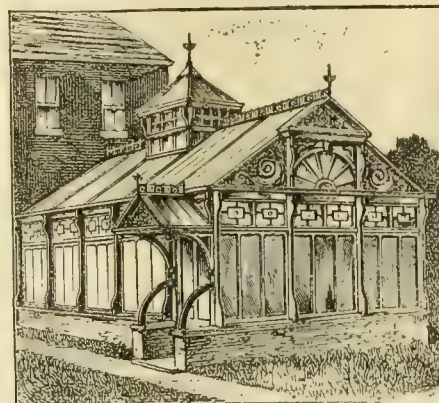
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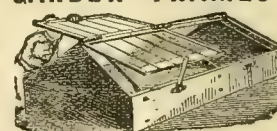
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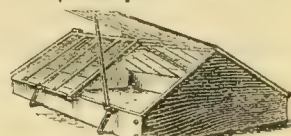


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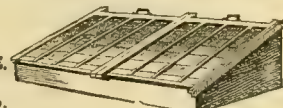
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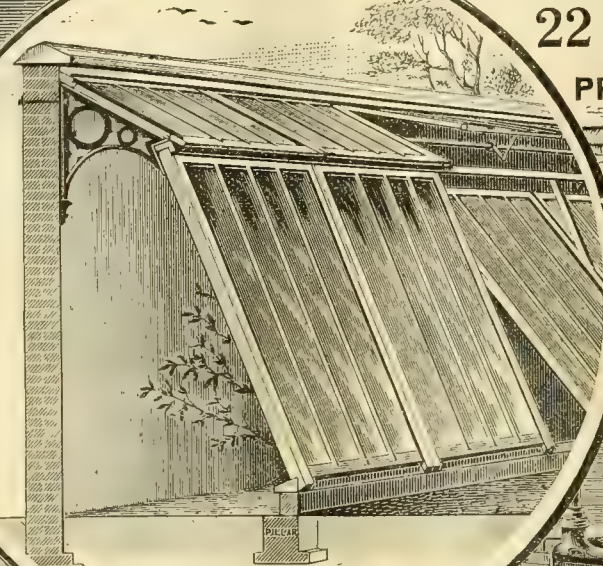
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TO THE

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FOR

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will be Published an Ink-Photo of

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IN THE GARDENS OF

J. RASHLEIGH, Esq., MENABILLY.



THE

Gardeners' Chronicle.

SATURDAY, MARCH 7, 1891.

A SUB-TROPICAL GARDEN.

IN the centre of Cairo is a public garden of about a quarter of a mile square. Before Mohamed Ali's time, it was a large sheet of water during the period of the inundation of the Nile; he cut a canal round it so as to keep the central part dry ground, and laid it out as a garden. In 1867, the Khedive Ismail made great transformations in the neighbourhood, covering the land between it and a canal from the Nile with houses and streets, and vastly improved the Esbekeyeh Gardens, as they are now called, surrounding the whole with an iron railing and large iron gates on three sides.

It is somewhat European in character, having *cafés*, an *al fresco* theatre, grottoes, and ornamental sheets of water with bridges, &c. The grounds are well laid out with serpentine walks round and between the lakes. There is an abundance of trees and shrubs of great variety, and tastefully arranged.

Of the trees, the following are the most conspicuous. The first in importance is the ever-green *Acacia Lebbeck*; this is a most useful tree—it forms avenues down all the principal streets of Cairo, and affords excellent shade. Of *Figs* there are several species, such as *F. elastica*, forming tall, handsome, and much branched trees; *F. callosa*, *F. sycomorus*, and *F. religiosa*. The largest species is *F. bengalensis*, spreading over a considerable area by means of its numerous aerial roots of all sizes. Palms, of course, are well represented; *Date trees*, *Phoenix dactylifera*, are abundant outside Cairo, forming forests along the Nile, but they are only sparingly planted in the gardens. Of other kinds there is *Cocos flexuosa*; the dwarf *Fan Palm*, *Chamerops humilis*, in several picturesque clumps; *Latania borbonica*, *Sagus farinifera*, and a splendid group of Palms with smooth trunks and a sort of bulbous base. Associated with these, indeed, standing side by side, are *Lombardy Poplars*, and an *Oak*, *Quercus pedunculata* var. *Thomasii*. From Australia come *Casuarinas* and *Gum trees*. *Eucalyptus*

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globulus and *E. amygdalina*, &c., and *Araucaria Cunninghamii*, as well as *A. excelsa*. *Tamarix articulata* is a favourite tree, while *Schinus Molle* and *Melia Azedarach*, so abundant at Malta, are present here also. *Kigelia pinnata*, with long pendulous cucumber-like fruits, *Bauhinia variegata*, having an abundance of pinky-white flowers. An occasional Papaw may be seen laden with fruit, and *Fatsia papyrifera* in full blossom. By the water's side are Weeping Willows, clumps of Bamboos, Aloes, and various other shrubs; besides tufts of *Cyperus*, &c., in the water itself.

Of other shrubs and trees are the Mango, *Mangifera indica*, *Plumieria acutifolia*, with terminal clusters of Rhododendron-like leaves; *Euphorbia nerifolia* and other fleshy species, white trumpet-like *Daturas*, Pomegranate, *Punica granatum*, Mulberry, *Morus nigra*, and *Terminalia Brownii*, with numerous winged fruits.

Several of the walks round the circumference of the garden are bordered by shrubs, forming compact hedges; these mainly consist of the "Shoe-flower," or *Hibiscus rosa sinensis*, often growing to 12 feet high; *Bignonia radicans* and *B. stans*, with red and yellow flowers respectively; various species of *Acacia*; *Poinsettias* are everywhere, growing to 10 and 12 feet high, with brilliant scarlet trusses of leaves terminating the somewhat straggling branches; *Adhatoda*, *Mimosas*, and Bananas abound; while plenty of Agaves, green and variegated, as well as Aloes, of which several are in blossom with peduncles some 30 feet high, are dotted about or in clumps. Oleanders, of course, are plentiful. Besides the fleshy-stemmed *Euphorbias*, there is *Cereus trigonus* climbing up Figs and *Casuarinas* to a height of 30 or 40 feet, and rooting on the shaded side. *Lantanas* makes low hedges as in Malta, and are associated with shrubby scarlet *Salvias* and the crimson-flowered *Iocroma tubulosum*.

Herbaceous border plants are not a feature here; they principally consist of pink and scarlet *Pelargoniums*, which mainly run to leaf and bear very poor flowers. Roses are common, but of no good sorts; while foliage plants are represented by *Cordylines*, *Caladiums*, *Tradescantia zebrina*, &c.

For turf, grass is a failure; in some small patches they sow the seed for the winter season, but in the Esbekeeyeh it is replaced by the low procumbent *Cyperus rotundus*. This has several interlopers, such as *Oxalis corniculata* which spreads and covers areas of many square feet, driving away the *Cyperus* before it. Besides this, several British weeds occur tolerably often in the turf, especially *Euphorbia peplus*, *Poa annua*, *Solanum nigrum*, *Stellaria media*, Chickweed, but always apetalous and cleistogamous; Sowthistle, and *Urtica urens*, with very few stings; several indigenous grasses also compete with the *Cyperus*.

On the whole, the arrangement of the trees and shrubs is very successful; and, to judge by the number of people sitting about on the inviting benches and seats smoking hookahs and drinking coffee, these gardens, though they cost a considerable sum, are highly appreciated by the Cairenes. *George Henslow*.

NEW OR NOTEWORTHY PLANTS.

GALANTHUS ALLENI, Baker.*

My attention was first called to the present plant in the spring of 1889 by Mr. James Allen, of Park House, Shepton Mallet, a well-known English Snow-drop-specialist, who is planned to read a paper on

* *Galanthus Alleni*, Baker.—Vernalis, bulbo globoso; foliis 2 latis planis subglaucescentibus tempore florendi scapo multo brevioribus; scapo elongato; perianthii segmentis exterioribus magis obovatis dorso convexis; interioribus unguiculis emarginatis supra medium macula viridi hippo-eripiforme præditis; antheris interdum muticis interdum apiculatis.

the genus at the drill-hall before the Royal Horticultural Society on March 10. He received the bulb in 1883 amongst a stock of the Caucasian *G. latifolius*, from Austria, from Herr Gusmus. I thought at first its affinity was greatest with *G. caucasicus*. Finding it preserved a distinct individuality, he sent it to me again in 1890. This year he has sent better and fuller material, which enables me to say that it is evidently midway between *G. latifolius* and *G. caucasicus*. It has the short, broad leaves of the former, but they are not bright green, but slightly glaucescent, and it has the large flowers of the latter, with their very convex obovate outer segments, and inner segments like those of *G. caucasicus* and *G. nivalis*, with a large horseshoe-shaped, green blotch in the upper half. Boissier separates the *Snowdrops* into two groups, one with obtuse anthers, and the other with the connective prolonged beyond the top of the cells into an apiculus, *G. latifolius* being the only species to which the former character is assigned. The present plant has sometimes the apiculus, but

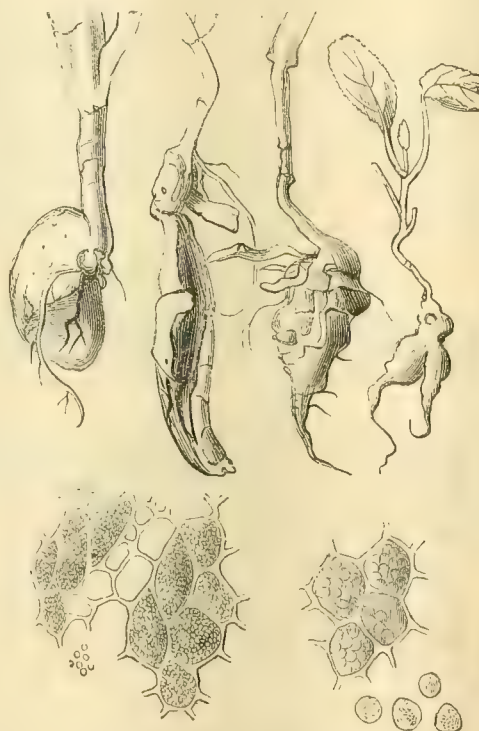


FIG. 61.—CLUB-ROOT DISEASE, WITH CELLS FROM THE DISEASED TISSUES. (SEE P. 293)

sometimes is without it. I should like to know how far the character assigned is constant in *latifolius* when it is grown in quantities. Mr. Allen regards the present plant as nearer to *latifolius* than to *caucasicus*, "But," he writes, "the foliage is of a different colour, and the whole plant is much larger. It grows very robustly, and flowers very freely. It is one of the most distinct *Snowdrops* I have, and my friends, to whom I have sent roots, speak very highly of it." I confidently expect it will be one of the most favourite *Snowdrops* of the future.

Bulb globose, $\frac{1}{2}$ inch in diameter, with a dense tuft of long slender root-fibres. Leaf-sheath cylindrical, 2 to 3 inches long. Leaves two, with a flat blade about 2 inches long and an inch broad, protruded from the sheath when the plant is in flower at the end of February; not bright green, as in *latifolius*, but dull green, and slightly glaucescent. Peduncle 6 to 7 inches long; spathe linear, above an inch long. Ovary globose, green, trisulcate, $\frac{1}{2}$ inch long and broad; outer perianth-segments obovate, very convex, $\frac{3}{4}$ inch long, $\frac{1}{2}$ inch broad; inner perianth-segments

less than half as long as the outer, emarginate, with a single horse-shoe-shaped green blotch round the sinus. Anthers $\frac{1}{2}$ inch long, sometimes muticous, sometimes distinctly apiculate; filament very short. Style overtopping the anthers. *J. G. Baker*.

GARDEN PALMS.

(Continued from p. 235.)

PHOENIX RUPICOLA is the perfection of a decorative Palm for pot cultivation; it is consequently popular in English gardens. Its leaves are more elegant than those of any other *Phoenix*, almost rivalling *Cocos Weddelliana*; it is also remarkable in having the pinnae arranged regularly along the midrib, and in their soft texture. It is ornamental from babyhood to maturity, and whilst it requires a tropical temperature for its healthy growth, it bears a considerable amount of rough usage without apparent suffering. It is a native of the Sikkim Himalaya, where it was found by Dr. Anderson, who described it in the *Linnean Journal*, in 1863, and sent seeds to Kew the same year. From these, plants were raised. Mr. Bull obtained seeds of it from India in 1876, and described and figured it in his list of new plants for 1877. It has slender, solitary stems, from 12 to 20 feet high, and 8 inches in diameter; the leaves are very flaccid, plumose, bright dark green, and about 10 feet long. In the *Illustration Horticole* for 1887, there is a figure of a variety of this species with silvery variegated leaves; I have never seen plants of it.

P. Roebelini.—This delightful little Palm is one of the most interesting introductions of recent years. Accounts of its miniature character, elegance, and history, will be found in the *Gardeners' Chronicle*, 1889, vi., pp. 457, 758. When better known, and if procurable in any quantity, this Palm is certain to find universal favour. At present it is only at Kew, and in several of the London nurseries. Beccari makes this synonymous with *P. Loureiroi*, which he reduces to a variety of *P. humilis*; he also reduces *P. pedunculata* and *P. Ouseleyana* to the same position. Admitting that these plants are variable in character, it is, however, difficult to accept this decision with regard to *P. Roebelini*; the form and texture of its leaves are more like those of *P. rupicola* than any other species known in gardens. The rest of the species and varieties of *Phoenix* in cultivation do not call for special notice, beyond recommending them all as useful, sturdy Palms, which are certainly much better adapted and more ornamental than many foliage plants now grown in conservatories in England.

The following is a list of the species cultivated at Kew. Those marked with an asterisk may be grown in a greenhouse temperature:—

- P. acaulis*, Roxb., Central India to Burmah.
- **P. canariensis*, Hort., Canary Islands.
- **P. dactylifera*, Linn., North Africa.
- P. farinifera*, Roxb., Deccan.
- **P. humilis*, Royle, India.
- **P. humilis* var. *Hanceana*, Becc., China.
- P. hybrida*, Hort.
- **P. intermedia*, hybrid between *P. dactylifera* and *P. canariensis*.
- P. leonensis*, Lodd. = *P. reclinata*.
- P. Ouseleyana*, Griff., Central India.
- P. paludosa*, Roxb., Andamans, &c.
- P. paradenia*, Hort. = ? *P. reclinata*.
- P. pedunculata*, Griff., Khasia.
- P. pusilla*, Lour., North India.
- **P. reclinata*, Jacq., South-East Africa.
- P. Roebelini*, O'Brien, Siam.
- P. rupicola*, T. Anders, Sikkim Himalaya.
- **P. spinosa*, Thonn., West Tropical Africa.
- P. spinosa* × *sylvestris*.
- P. sylvestris*, Roxb., India.
- P. "* var. *exilis*.
- P. tenuis*, Hort. = *P. canariensis*.
- P. zeylanica*, Trimen, Ceylon.
- P. zanzibarensis*, Hort. = *P. reclinata*.
- P. sp.* Andamans. *W. Watson*, Kew.

DISEASES OF PLANTS.*

(Continued from p. 265.)

Finger-and-toe.—The nearest approach which phytopathology affords to malignant disease is perhaps afforded by that remarkable affection to which the Cruciferae are liable. This disease is well known to agriculturists in this country under the names "Finger-and-toe," "Anbury," and "Clubroot" (fig. 64). It consists, as its names imply, of numerous tumours formed upon the roots of Turnips, Cabbages, Broccoli, Cauliflowers, Rape, Candytuft, Stocks, and several other allied plants. These tumours are usually very numerous, affecting not only the roots, but also bulbs of the Turnip. They increase in number and size as the plants grow, and eventually break down into soft and putrescent fetid masses. Affected plants fail to develop, and succumb to the ravages of the disease.

From the elaborate work of Woronin, we are well acquainted with the life history of the fungus, the *Plasmodiophora brassicae*, one of the *Myxomycetes*. The development and mode of attack of this parasite are so remarkable that it is worth while briefly to glance at them. The very minute spores (1.6 mk.), when placed in water, swell and burst on one side. Through the small opening thus formed the protoplasmic contents escape, and travel about with an amœboid motion, aided by a cilium-like prolongation which takes place from one or more points of their surface. The *Myxamœba* is provided with a pulsating vacuole, into which water is alternately pumped and expelled. It effects its entry into the host, not through any epidermal lesion, but through a root-hair. Having entered the tissues of the root, the *Myxamœba* attacks the protoplasm of the cells. The irritation thus caused attracts the food materials elaborated by the roots and leaves, and the implicated cell becomes enormously enlarged, and is termed a plasmodium. The plasmodium, which appears as a translucent mass of protoplasm endowed with the power of motion, passes slowly from one cell to another, attracting to itself the substances prepared for the growth of the root. As this goes on, the resultant swelling becomes more and more marked, while the vitality of the plant suffers commensurate diminution. Not only do the plasmodia grow, but they also multiply, and eventually their contents differentiate into spores; these, by the decay of the plant which ensues, find their way into the soil. Here, then, we have an instance of a disease in which not only are tumours formed containing structures not found in healthy plants, but these tumours tend to implicate the whole plant, to break down and to destroy the whole organism.

Diseases of Traumatic Origin.—When a tree or shrub receives a wound or other injury, causing a solution of the continuity of the epidermal coverings, Nature, by processes of her own, always attempts to heal over such wound. This is accomplished by the deeper or more vital parts of the bark throwing out a ridge of callus around the circumference of the wound (fig. 65); this, by growing inwards, tends to heal it over, and to provide protection once more for the central woody part of the tree which has been exposed by the injury. Often these efforts on the part of the tree to heal over its injuries are successful, but it not infrequently happens that some fungus which is quite innocuous to the tree while its bark covering is intact, manages to gain admission into the wound, and sets up parasitic disease of greater or less severity. The causes which give rise to injuries in Nature are numerous: the accidental fracture of a branch by the wind, or by an animal, frost cracks, sun cracks, blows from hail-stones, bites or scratches of small animals, and the like.

Canker.—Any of the causes mentioned is sufficient to afford a point of entrance for *Nectria distissima*—the fungus which gives rise to the canker in Apple and other trees (figs. 66 and 67). This parasite is more familiar to us upon

Apple trees than upon any other, but it is by no means confined to them, as it is found upon Oak, Elm, Ash, Beech, as well as upon some others. The mycelium of the fungus operates upon the host plant very much in the way as that of *Peziza Willkommii* does upon the Larch in the production of the Larch disease. There is a continuous battle between the parasite upon the one hand, and the host upon the other. The Apple tree tries to callus over the wound, which the mycelium of the *Nectria* strives to enlarge. If we cut a *Nectria* canker across, we shall see that in the central part the wood is dead, while round the dead wood the formation of the callus has been excessive. The presence of the canker-disease upon a tree seriously injures it; in the larger branches, the fungus may exist for a number of years without causing its death. In the smaller twigs, however, it is much more rapidly fatal, often killing the twig the first season. These *Nectria* cankers often afford suitable cavities in which the American blight insect can locate itself; when this happens, as is frequently the case, the hypertrophy of the branch is greatly increased.

Gummosis.—A similar disease, known as gummosis, occurs upon Cherries and Plums very commonly in this country. Beyerinck conducted a number of inoculative experiments, by which he satisfied himself



FIG. 65.—WOUND ON A TREE HEALING OVER.

that gummosis arose from the presence of a parasitic fungus in the tissues of the host plant. These cultures were made with a view of showing that it was the result of fungoid mycelium, not of bacteria as had been suggested. The fungus in question, *Gleospora gummiifera*, has other spore forms such as *Coryneum Beyerinckii* (fig. 68, p. 301), and a *Cladosporium*-form besides the first-named ascigerous condition. It produces no effect when inoculated into other trees, such as Apple, Pear, Maple, and Oak. The presence of the mycelium not only induces the formation of gum, but also causes much hypertrophy of the affected branches.

(To be continued.)

CULTURAL NOTES.

THE DIPLADENIA.

THOUGH, probably, one of the most showy and desirable amongst stove climbing plants, the *Dipladenia* is, nevertheless, rarely met with, and I imagine the cause of this to be due to the fact that cultivators do not always succeed with it as well as with many other plants. Apart from the remarkable beauty of their blooms, especially the now

common variety, *D. Brearleyana*, and their lengthened display, vigorous young plants may be obtained at nurseries for the average price usually charged for such subjects. Under good management, the several species commence blooming early in the summer months, and keep on until the late autumn.

It should be understood at the outset, that *Dipladenias* are evergreen twiners, and will not succeed in what are known as warm greenhouses. They are natives of the Brazils, Rio Janeiro, Trinidad, &c., the mean annual temperature of which places exceeds 70° Fahr., and the winter temperature is nearly the same. Botanical dictionaries suggest for them a winter temperature of 55° to 60°. These are assuredly not sufficient, even taking them as the minimum. The fact is, all who would succeed with *Dipladenias* for more than one season or two, must give them a winter temperature of not less than 65°, and this is a very important part of their successful cultivation. Another consideration of equal, if not even greater, importance—and both are intimately connected—is to be found in the fact that they must not be allowed to receive at any season of the year a large supply of water at the roots, because the rainfall of Brazil is moderate compared to that of other tropical countries.

In view of this, thoroughly good drainage, which is not always given sufficient attention to, is of the utmost importance. In furtherance of this, very fibrous turfy peat, and a liberal supply of silver-sand should form the compost. Indeed, if the peat contain much fine matter, a little of it should be removed. On the contrary, all the fibre should remain in the soil, and the whole should be well mixed.

Growers, from whatever cause it is difficult to explain, are prone to shift these plants into exceptionally large pots, compared to the amount of leaf-growth. The practice is, no doubt, considered liberal, but still it has the tendency of causing too much moisture to encompass the roots—a state of things specially dangerous during the winter.

Because an evergreen, it must not be allowed at any time to become dry, and when slight waterings only are afforded in winter, the ball of soil containing but few roots becomes sour. A very important aid to good growth in the spring months is a slight amount of bottom-heat; and although this may not be possible in the form of a bed of tan, leaves, or stable-litter, the plants may, nevertheless, be placed over or near to the hot-water pipes.

I have found small nibs of charcoal mixed in the soil very advantageous, especially for somewhat large plants, the root-base of which demanded rather large pots. As regards watering, fairly liberal supplies may be given when strong shoots are forming, and very limited supplies are preferable at mid-winter to the risk of giving too much at that season. Where plants stand in borders, such borders should be elevated and somewhat confined, and precisely similar conditions of drainage and soil should be followed as when the plants are grown in pots. The slight amount of pruning that may be necessary should be done about the first week in February. *William Earley.*

PANCRA TIUM CARIBÆUM.

ALTHOUGH this fine old stove plant was introduced from the West Indies three-quarters of a century before *P. fragrans*, it does not appear to be so well known as that species, which it very much resembles in the form of its flowers and in its delicious fragrance; the leaves, however, differ from it in being narrower, and of greater length, resembling those of the ordinary type of *Amaryllis*. The subject of this note is of easy culture, and may be quickly increased by offsets. A compost of two parts fibry loam and one of peat, with a little dried cow-dung or horse-droppings, a sprinkling of soot, and some sharp sand added, is one in which the plants grow and flower with great vigour. As long as it is desirable to increase the stock, the plants should be repotted every year, and the offsets removed, and put

* A course of lectures delivered before the Royal College of Surgeons by Professor Flourence, M.D., in February, 1891.

singly into small pots; if left longer than one year before being detached, the roots become so much entangled with those of the parent bulb as to render removal impossible without losing many of them. When several bulbs are placed in a large pot, the biggest should be selected, and be potted deep enough to cover one-third of the bulb with soil, as these large plants will not require repotting for two or three years, and by that time it will be found that vigorous root-action will have forced the base of the bulb up to and level with the surface of the soil—hence the reason for deep potting. All offsets when they appear on these plants should be removed with a knife, and thus allow the main bulbs to attain their fullest development. *H. D.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM WATTIANUM.

An extremely rare and interesting species, unlike any other *Odontoglossum* in its peculiar shape and colour. The sepals and petals are transversely barred with chocolate-crimson; the sepals broader than the petals, with a yellow-brown colour, the tips clear yellow; and the lip is white, with a large wavy blotch of bright claret. The base is blotched with a bluish-violet hue; it has a long slender column, and a very prominent crest. It is very rare in its native habitat; a few plants only came home, and these were found at long distances apart, growing in the forks of small Oak trees, at a lower elevation than *O. crispum*, hence it is found that the requirements of the plant are better met by growing it in the same temperature as *Odontoglossum Phalaenopsis* and *veitchianum*. *Reichenbachia*, 2nd ser. t. 9.

CYPRIPEDIUM LATHAMIANUM INVERSUM X.

C. Lathamianum X was raised by Mr. Latham of the Botanic Gardens, Birmingham, out of *C. Spicerianum*, by *C. villosum*, but the plant here called *inversum* is the result of the inverted cross out of *villosum* by *Spicerianum*. It is a finer thing than the original cross, as the dorsal sepal in particular has more conspicuous and longer lines or dots of colour. It is figured from the garden of the raiser, C. L. Ingram, Esq., of Godalming, in *Reichenbachia*, ser. 2, t. 10.

PAPHIA RUGOSA.

Of this Mr. Sander writes:—"This pretty, free-flowering species blossoms during the summer months; the flowers are about the size of those of *P. cristata*, and are borne on pendulous scapes, which are usually two-flowered, though occasionally as many as four are borne on the same raceme. The sepals and petals are yellowish-white, marked with chocolate-purple spots. The labellum is of a reddish-plum colour, ornamented with a white fringe. It is a native of New Granada, where it grows on trees in the shade. It succeeds best in small pans hung near the roof of the stove and walls, in a humid atmosphere. *Reichenbachia*, ser. 2, t. 11.

ZYGOPETALUM XANTHINUM (ALIAS CITRINUM.).

This dwarf-growing epiphytal Orchid produces ascending one-flowered scapes, from the base of the oval tetragonal pseudobulbs. The flowers are yellow, with spreading sepals and petals produced in the summer months, and lasting a long time in perfection. It is a native of Brazil, and should be grown in a cool house in summer, and in a warm house in winter. It thrives best in small pans near the glass, and requires abundance of water when making new growths. The illustration in *Reichenbachia* (1891), tab. 11, is from a plant in the collection at Eisgrub, Mähren, Austria.

DENDROBIUM MELANODISCUS X.

A hybrid raised by Sir Trevor Lawrence from *Ainsworthii* X, out of *Findlayanum*. *D. Ainsworthii* X itself is a cross between noble and heterocarpum, so that the present plant is a complex of three species. The pseudobulbs are intermediate

between those of *Findlayanum* and of *Ainsworthii* X. The flower is about 2½ inches across, with oblong obtuse whitish sepals, rosy-purple at the tips and sides. The petals are much broader, white, with rosy-purple tips, and slightly wavy

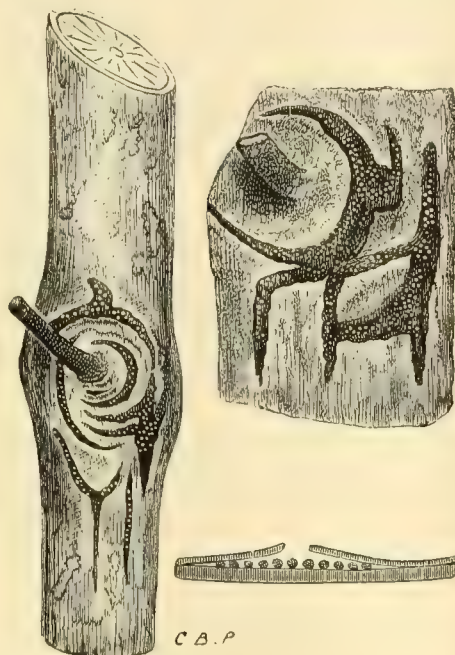


FIG. 65.—CANKER IN APPLES: SHOWING THE CRACKS IN THE BARK OCCUPIED BY THE FUNGUS. (SEE P. 299.)

margins. The suborbicular lip is creamy-white, with a large dark red blotch, surrounded by a conspicuous yellow zone on the pubescent disc, while there is a small pale rose-purple stain on the front edge. Sir Trevor Lawrence, we are told, effected the inverse cross by *Findlayanum* out of *Ainsworthii* X, the resulting hybrid being the *Dendro-*

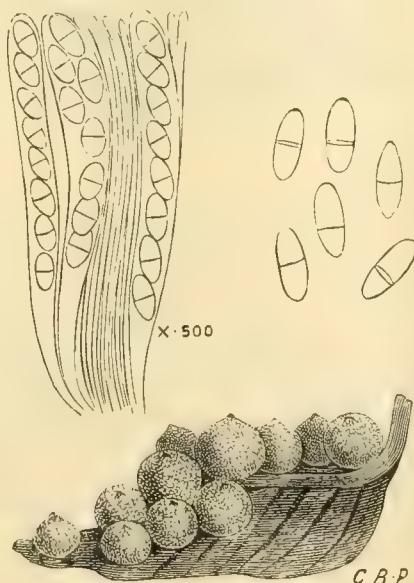


FIG. 67.—NECITRIA DISTISIMA: FUNGUS CAUSING CANKER: BENEATH ARE SEEN THE PINK SPORE-CAPSULES; ABOVE THE "ASCI" CONTAINING THE SPORES, MAG. 500 DIAM. (SEE P. 299.)

biolum chrysodiscus X of *Reichenbach*, but it bears so little resemblance to *D. melanodiscus* X that no one without evidence of the fact would suspect that they were derived from the same two parents. In each case the characters of the pollen parent predominate largely in the offspring, so that *D. melano-*

discus X bears a strong resemblance to *D. Ainsworthii* X, whilst *D. chrysodiscus* X more nearly approaches *D. Findlayanum*. Another curious character is that of four plants all from the same seed-pod, no two are alike. Secondary hybrids are notoriously variable, and in this case we have a very good example of this curious and interesting fact. (Rolfé, in *Reichenbachia*, 1891, tab. 12, where a beautiful figure of the plant may be seen.)

CYPRIPEDIUM MORGANIE AND OTHERS AT "THE DELL."

In the collection of Baron Schroder, The Dell, Egham, there is a magnificent specimen of this fine hybrid, which has formed a large mass, with seven spikes and twenty-five flowers. The leaves are of a deep green tint, about 1 foot in length, and faintly marked. The flower is intermediate between the parents, evidently some good form of *C. Stonei* and *C. Veitchii*. It is well figured in the *Orchid Album*, plate 313. A characteristic of this plant, and most other seedling Orchids, is its vigorous constitution, for no plant of *C. Stonei* or *C. superbiens* (*Veitchii*) would ever grow into such a huge specimen as this one.

C. Lathamianum X was also in flower, and, like its parents, *C. Spicerianum* and *C. villosum*, the flowers continue for a long time in good condition. I did not think this was a first-class *Cypridium* when it was first exhibited before the Orchid Committee of the Royal Horticultural Society, but when next season the identical plant was exhibited by Mr. Ballantine, it was hailed at once as being an acquisition of great merit. The upper sepal is pure white, with a greenish tinge at the base, and a conspicuous dark purple line in the middle; the lip or pouch is like that of *C. villosum*. The plant I saw illustrates what may be done by good cultivation. This hybrid is one which no collection should lack.

C. Harrisianum superbum X was found in many strong specimens, and finely in flower. It is as superior to the ordinary form as sunshine to moonshine. This is the true plant that was figured in Veitch's *Manual of Orchidaceous Plants* (*Cypridium*), p. 87. The flowers are larger than those of the ordinary form, and much darker in colour, and have a glossy exterior. It appeared in the first batch of seedlings raised at Chelsea by the late Mr. Dominy in 1864, and is not a cross obtained from a superior form as might be supposed, but was the result of crossing *C. villosum* with *C. barbatum*.

The variety of *C. Leanum superbum* X, also in flower, is a magnificent thing, showing the propriety of the course of selecting the best varieties of a species as the seed bearers when crossing them. It was raised at Chelsea by Mr. Seden from *C. insigne Maulei* crossed with *C. Spicerianum*. The late Mr. Spyers crossed the ordinary form of *C. insigne* in the Burford Lodge collection, obtaining an inferior variety named *C. Leanum*. *J. D.*

CATTELEYA WAROCQUEANA ALBA.

When reporting on the new *Cattleya Warocqueana* the collector stated that there were among the specimens found some which had flowers of the purest white; and the verification of this statement has just been afforded by the flowering of a white variety of surpassing beauty in the collection of M. G. Warocqué, at Mariemont, near Charleroi.

ORCHIDS AT CLARE LAWN, EAST SHEEN.

The beauties of the *Phalaenopsis*-house in the gardens of F. Wigan, Esq., and especially the large size and bright colour of the flowers on the splendid plants of *Phalaenopsis Schilleriana*, go far to prove that even this class of Orchids, which so many fail to grow successfully where fogs such as we get in the neighbourhood of London are unknown, may be kept in excellent health even in the suburbs of the metropolis. With regard to the London fogs, Mr. W. H. Young, who has the charge of the Orchids at Clare Lawn, states that the present winter has been an unusually bad one for them, and the expanded flowers and largest buds on several occasions have been cut off. The smaller buds always remain, and

are uninjured by the fog, and it is of these that the present fine show consists. Mr. Young, too, like most clever growers of Orchids, asserts that the fogs do not injure the plants to any appreciable extent, and that the injury experienced, which some attribute to the fogs, arises from other causes, among others an excessive heat, a too dry atmosphere, and lack of sunlight, the fogs contributing to the last-named cause to some extent. Certainly the plants in Mr. Young's charge prove the correctness of his statement very conclusively. The *Phalenopsis* are chiefly suspended over the side staging, the space underneath being occupied chiefly with a tufa rockery which is planted with Ferns and foliage plants of neat growth; and here is a good provision made for a supply of rain-water in the open tanks constructed in the floor of the house, an arrangement which rarely fails to create a healthy atmosphere in the house, and its consequent good effect on the inmates. The show of flowers

spikes, including *V. Batemaniana*, *Maxillaria porphyrostele*, *Odontoglossum Edwardii* and other *Odontoglossums* were in bloom; and the little-known *Cymbidium tigrinum* was showing flower spikes profusely.

BURNT EARTH.

As the subject of burnt earth is commanding a good deal of attention from gardeners at the present time, and we think properly so, a few words upon the scientific side of the question may not be out of place.

The improvement of sterile soils by burning is a very old practice, and was known to the Romans. The theory of its operations has occasioned much discussion, both among scientific men, horticulturists, and farmers.

It is quite evident, however, that the action of

temporary disadvantage. It must always be understood that the ashes of burnt earth are best when they are blackest—that is, when produced by slow combustion.

The burnt substance, when mixed with other soil, makes it work more easily, renders it more friable and less tenacious, and tends to make strong, thin, sterile clay-soils less compact, and more productive. The vegetable matter which was burnt is quickly converted into an enriching ingredient, which in some classes of soil may lie dormant for ages. Whenever there is an excess of inert vegetable matter, the destruction of it by fire is most beneficial; the ashes being mixed with the soil produce vigorous and healthy plants on ground which before was unproductive; burning, therefore, destroys the inert vegetable matter of a soil, and converts it into a valuable manure.

In well and satisfactorily burnt earth, it is estimated that about one-sixth of its weight should be destroyed, the other five-sixths being brought into more vigorous action, and resulting in positive good. On the other hand, coarse sands, or rich garden soil, whose texture is already sufficiently loose, and the organic nitrogen sufficiently soluble, the process of burning must be detrimental. *J. J. Willis, Harpenden.*

AMERICAN NOTES.

PHILADELPHIA.—The Horticultural hall, erected during the centennial of 1876, is really an immense conservatory, covering a little more than 1½ acre, and is situated in Fairmount Park, Philadelphia, Pa. It is the finest building of its kind in the States.

The hall proper is divided into five sections, the centre, 80 feet high, is furnished with Palms, Bamboos, *Araucarias*, and other tall-growing plants; the four corners are respectively set aside for Ferns, greenhouse, and New Zealand plants, foliage and Aroid plants, and Orchids.

Among the well-grown specimens in the main conservatory, conspicuous are a beautiful Wax Palm, *Ceroxylon niveum*, a lofty *Cycas plumosus*, a *Phoenix dactylifera*, an immense specimen of the Traveller's Tree, *Ravenna madagascariensis*; a grand pair of plants of *Seaforthia elegans* in fruit, and a *Coffea arabica*, 30 feet high, and bearing seed; *Araucaria Cookei*, *A. glauca*, *A. Rulei*—a noble plant, and others. A plant of *Monstera deliciosa*, mounting a dead Palm-stem, some 60 feet high, appears to be thoroughly at home, as is a fine group of *Bambusa striata*.

Planted out amongst the above are large specimens of *Anthurium crystallinum*, *Strelitzia regina*, *Alocasias*, well-coloured *Crotons*, *Dracenas*, which stand out in bold relief from a thick undergrowth of Ferns, *Selaginellas*, *Fittonias*, &c.

Ferns are well represented here, especially Tree Ferns, *Cibotium Scheedei* with its beautiful spreading fronds, being very conspicuous; and fine specimens of *Cyathea medullaris*, *C. Smithii*, and *C. dealbata*, also an *Alsophilla australis*, with five heads of fronds, and perfect specimens of *Dicksonia antarctica*, and *D. squarrosa*. Among the filmy Ferns is a piece of *Todea superba*, 5 feet in diameter, the finest specimen of this Fern in America. Todeas are difficult to cultivate here on account of the heat of the summer months. *Trichomanes radicans* is well grown here, also *Davallia Mooreana*, *Polypodium heracalium*, *Lygodium dichotomum*, a lovely climbing Fern, and grand pieces of *Adiantum Farleyense*. I also noted a fine pan of *Cephalotus foliolaris* and *Dionaea Muscipula*, the former rarely seen here.

An interesting *Cycas revoluta*, with a brass-plate attached with the following inscription, attracts much attention:—

"1776.
Cycas Revoluta,
Owned by Philip Morris of Philadelphia before
and during the revolutionary war.
Presented by
Jacob Hoffer, of Cincinnati, O., 1876."



FIG. 63.—*CORYNEUM BEYERINCKII*: FUNGUS CAUSING GUMMOSIS IN CHERRIES, ETC. (SEE P. 299.)

consists mainly of the fragrant rose-coloured *Phalenopsis Schilleriana*, *P. amabilis*, *P. Stuartiana*, and one plant of the rare *P. Boxalli*; the house also contains some rare *Aërides*, *Cypripediums*, and *Angræcums*, and several spikes are now appearing on a fine plant of *A. Ellisii*.

Another fine display of Orchid bloom is made in the pretty rockery-house, where it is always the rule to arrange the plants among the Ferns planted therein. Here were found varieties of *Lælia anceps* remarkably bright and well-flowered. Some plants of fine varieties of *Lycaste Skinneri* and *Calanthe Turneri*; a handsome rose-coloured form of *C. Reguieri*; also varieties of *Cattleya Trianae*, *C. Walkeriana*, and suspended overhead were some good plants of *Dendrobiums* and scarlet *Sophranitis*.

The general collection at Clare Lawn shows steady improvement in all respects; the *Lælias* and *Cattleyas* especially being now remarkably vigorous, and showing well for bloom. The *Cœlogyne cristata* are well flowered; *Vandas* were sending up

burning a soil is not a merely mechanical one of opening the texture, but is decidedly chemical.

The burning process does not answer on all clay soils, but it does answer on most of them, especially on the Oxford clay, which crosses England in a wide band; it answers also in Essex, Cambridgeshire, Bedfordshire, and in Worcestershire.

The operation renders the soil less compact, less tenacious, and retentive of moisture; and when properly performed, it converts a substance that was stiff, damp, and consequently cold, into one powdery, dry, and warm, and much more suitable as a bed for vegetable life. A plant to grow up strongly and freely, must have not only good and abundant food, but a suitable and healthy abode it must be well fed and well bedded.

The great objection usually made to burning soils is, that it destroys vegetable and animal matter, or the manure in the soil; but in cases in which the texture of its earthy ingredients is permanently improved, there is more than a compensation for the

Among the *Nepenthes*, *N. Northiana*, *N. Mastersiana* × *N. Morganæ* ×, &c., are many well-grown plants. The foliage plants, also the Orchids, were looking exceedingly well, but of the latter but few were in flower. Among the former, I noted a grand piece of *Verschaffeltia splendida*. It was here that *Crotons* were first introduced for bedding, and some 15 000 are grown for this purpose in the summer, and the effect is very fine, as the plants colour beautifully, and never burr; I mentioned in a former letter the usual treatment followed. The following varieties are grown:—*C. Victoræ*, *Disraeli*, *Earl Derby*, *Interruptus*, and *Challenger*.

Eranthemum metallicum is used largely here also for bedding, but French *Cannas* are fast coming to the fore. The parks and gardens of Philadelphia are under the superintendence of Charles H. Miller, to whom great credit is due. Thomas Mingey has charge of the horticultural section. *Our New York Correspondent*. [With this came photographs, which make us long the more for our Horticultural Hall. Ed.]

FOREIGN CORRESPONDENCE.

ANTIBES.

CENTRAL France has a climate hotter in summer, and colder in winter than that of England, and whose western shores, at least, are caressed by the Gulf Stream. But this said Gulf Stream has this year not done its duty, for even the Brittany coast has been ravaged by frost. At Antibes, Nice, and Cannes, the winter has not been more severe than usual, but at La Mortola, where the thermometer went down to 4° C. = 24 F., many plants were killed. Even more remarkable, Algiers and Tunis were covered with snow. There is nothing stable in this world, not even the climate. No, nor even the theories of the scientists! The discovery of microbes will effect a change in many departments of natural history and philosophy, perhaps in psychology. *C. N.*

BRUSSELS.

M. L. Lubbers, Curator of the Brussels Botanic Garden, has published in the *Bulletin* of the Royal Linnean Society of that town, a complete list of all species of this rich family which are cultivated in the Gardens. Although the work is of small appearance, it denotes all the same competency and deep erudition in the author. A synonymic list is also given, and the author hopes to supplement the work with notes on cultivation, the respective merits of various species, and by including those species of direct introduction which have not yet been determined. *Ch. D. B.*

GHENT.

Among the classes in the schedule of the exhibition to be held at Ghent by the Cercle Van Houtte in August next are the following, which might well be copied into the lists of other societies:—1, A basket of miscellaneous plants packed to be sent on a journey to some European country; 2, A parcel of miscellaneous plants packed and best protected from frost; 3, A parcel of *Azaleas* packed to be sent a long sea-voyage; 4, A parcel of miscellaneous plants to be sent a long sea-voyage; 5, The best packed parcel of tender plants for a long sea-voyage; 6, For a postal packet not more than 5 kilograms in weight containing six plants packed so as to travel and arrive in good condition in a European country. *Ch. D. B.*

FLORISTS' FLOWERS.

THE AURICULA.

FROM reports which reach me, there is apparently a rare promise of *Auricula* bloom in May. Since the break-up of the frost, the plants have made vigorous progress, and if I may judge from the appearance of my own plants, they are forwarder

than in recent years. My experience teaches me that a dry frosty winter is favourable to the well-being of the *Auricula*, and a mild wet one rather injurious. How few persons cultivate the florists', edged, and self *Auriculas* is shown by the fact that they are unknown to many who are familiar with the border varieties. The *Auricula* is, as the Rev. F. D. Horner forcibly put it, "a most richly endowed flower, possessing, singly or combined, all colours of the rainbow—violet, indigo, blue, green, yellow, orange, and red; and further still and rarer, that negation of all colours—black."

One difficulty has beset the raiser—that of developing in any flower, whether edged or self-coloured, the all-important feature of a rich gold tube, if the flower possesses tints of violet or blue. The tubes of such flowers as the Rev. F. D. Horner pointed out at the Primula Conference a few years ago, are pale or greenish-yellow, "always a colour of low vitality and weak endurance." In the alpine section, flowers having violet or blue-shaded margins are generally associated with a white centre, though there are indications of purple or violet, and the gold centre being in course of association. The blue self flowers of recent years show an improvement in this respect, and it has been brought about by fertilising with the pollen from flowers having the golden tube well developed.

It is somewhat puzzling to those who have a limited knowledge of the *Auricula* to understand why the self flowers should be one-coloured, while the alpine varieties are most esteemed when the margins are shaded in two colours or more. This is a floricultural tradition, and similarly the meal which in the eyes of the florist adds such value to the edged flowers is considered to be out of place on the alpine varieties; but it is so. In the north, unshaded alpine find little favour on the exhibition table; in the south, they are accepted in competition, and add variety to a collection. *R. D.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

EARLY FLOWERS IN BEDS.—The mild weather of late has had its effect, as the welcome harbingers of spring, the *Aconites*, *Snowdrops*, *Crocuses*, *Hepaticas*, and other plants, are either in full bloom or fast approaching that stage, and very soon beds and borders will be quite gay, and they should now be made neat and tidy by keeping the edges well trimmed, advantage being taken when the turf is soft to cut them with the knife. The next thing is to make the surface smooth by raking, for if the digging has not already been carried out, it had better be left till later on, when the bulbs and other spring plants have done blooming.

SHRUBBERIES.—The present is the time of year when shrubberies require much attention, the shrubs being carefully gone over and thinned, either by the removal of less choice kinds, or cutting away of parts of the more robust shrubs that may be encroaching on weaker growers. To have each shrub look well, it should stand just clear of others, and allowed to assume its natural shape, and any pruning that they may receive should be directed to that end. The digging of the ground among shrubs is a bad practice, as it destroys the roots at or near the surface. *Rhododendrons* are much benefited by an annual top-dressing of leaf-mould, or peat, or both combined.

LAWNS AND TURF VERGES.—The mild weather has made the grass grow, and before it makes much more progress, the roller should be plied first, and be followed by the mowing machine. Where there are many weeds or much moss in the turf, now is the time to spud them out, as the grass soon grows over the bare spots their removal has caused. How to deal with weeds on turf has already been mentioned, and if those directions are put into practice, the beauty of the lawn will be easily maintained throughout the summer.

THE HARDY FERNERY.—Growth has now begun, and the old fronds must be cleared away before much progress in growth is made, and a general cleaning up afforded the place. Where any species of Fern is of doubtful hardihood, the old dry fronds

should be left on the crown as a protection, for it is just at the time when new growth begins that the plant is the most easily injured by frost. These plants should remain untouched till the end of the present month.

Most persons possess the idea that it is necessary to build costly rockwork if they would have a rock fernery, but though a rockwork well planned and carried out is very desirable, it is not a matter of prime importance, and the want of it should not deter any one from making the best of a suitable situation for growing Ferns. The best places are dells or natural hollows, or ground of an irregular form sloping north. If the soil is damp and rich, much may be done, especially if water is near at hand, which may be conducted as small rivulets through the low ground, or converted into miniature ponds. In such a fernery, numerous plants of other genera if the light be not deficient in amount will succeed. As space forbids the mention of these now, I hope to treat more fully of them in my next; meantime, I would advise dividing and replanting any Ferns it is desired to increase or remove, and to add fresh soil round the necks or crowns of others, as annual dressings of that kind are a great help. *J. Sheppard, Woolverstone Park, Ipswich.*

THE ORCHID HOUSES.

THE EAST INDIA-HOUSE.—*Calanthes* will now need to be repotted, an operation which is annually needed by these plants. The most useful species are *C. Veitchii*, *C. vestita*, and *C. vestita grandiflora*; and although several other species are grown, the above are indispensable. The compost which I find to suit them consists of two parts fibrous loam, "from which the finer part has been sifted out," one part peat, and one of chopped sphagnum moss and silver sand, and the sizes of pots 32's and 24's. The pot should be filled to half its depth with crocks, and upon these some of the rougher portions of the turf placed; and each pseudobulb taken in the hand and made firm by ramming the soil with a potting-stick for owing to the compost being of a very light nature, it requires ramming to make it firm, and if this be well done, the pseudobulbs will not rock about afterwards. Three of these are sufficient to fill the smaller size of pot, and five or six may be planted in the larger. The compost should be in a slightly moist state, and then no water will be needed; but on warm summer mornings a dewing overhead with the syringe will assist them. The plants may be placed in a well-lighted position in the stove, Cucumber, or Melon-pit. *Fittionias*, *Tradescantias*, and *Panicum variegatum*, planted underneath stages, &c., to conserve moisture, should be re-planted forthwith, and where these cannot be grown, some provision should be made for making up a bed of Oak leaves instead, which should be kept moist, and turned over at intervals, to get it heated anew, and to rid it of insect pests. It should be borne in mind when building Orchid-houses, that Orchids do not naturally grow among stones, and wood or iron, and, unless some provision be made as above, failure more or less is sure to follow. *A. G. Catt, Parkfield, Hallow Worcester.*

THE KITCHEN GARDEN.

PEAS.—In mild weather the Peas which were sown in heat and have been hardened off, may be planted out. In doing this operation, drills of sufficient depth to hold the turves or balls of roots should be made, and the plants laid in them without any disturbance of the roots. After filling in the drill, earth up the plants carefully with the fine particles of soil, and make all moderately firm on each side. Pea-sticks may at once be put along the rows, or, failing these, some light Spruce or other evergreens may be stuck in on each side of the plants, but not to shade them overmuch—as a screen from harsh winds and frost. The land between the lines of Peas may be cropped with Spinach, early Turnips, Radishes, and Lettuces. Peas sown in pots may be planted in drills with a trowel, at a distance of 9 inches from bunch to bunch, but without breaking the ball. Telephone, Duke of Albany, or The Duchess, sown in shallow boxes as advised in calendar, January 24, will be ready for planting out, providing the plants have been hardened off, planting on well-tilled soil, which was heavily manured for a previous crop: drills 2½ inches deep should be made with the spade, and the Peas planted singly, with as little injury to the roots as may be. Three lines of plants should be put into each drill, about 2 inches apart each way.

After planting, enough water may be afforded them to settle the soil, and hoops made of fencing wire should be put over the drills, and netting spread over them, to exclude birds; at night, tiffany or mats may be laid on the nets, removing the covering early in the morning. By the first week in April the sticks may be put to them. By this kind of treatment, I am able to gather Peas of fine quality by June 20, the pods being 5 inches in length.

MAIN CROP PEAS.—Sowings should now be made, well tilled ground being chosen for them. The ground being raked over, broad trenches may be made with a spade or hoe 2½ inches deep, the seed being sown thinly, the rows being 5 and 6, and in some cases 7 feet apart. Intercropping may take place between the rows. For large growers drop the seed into the drills 3 inches apart each way, thus avoiding thinning the plants; and 1 pint of seed is sufficient in this way for sowing one row of 24 yards in length. Any of the earliest-sown Peas which may be appearing above-ground, should be earthed-up.

BROAD BEANS, raised in heat, should be planted out in broad drills, 2½ inches deep, of two rows each, and 8 inches from plant to plant. The same kind of protection as for Peas is advisable in their case. In removing Beans, be careful to keep much of the soil about the roots. *C. J. Waite, Glenhurst, Essex.*

THE HARDY FRUIT GARDEN.

THE TREATMENT OF YOUNG TREES.—The time has now arrived for pruning, staking, and nailing, as the case may be, all fruit trees planted in autumn and winter. Before doing anything to a tree, it is of great importance that the soil be trampled firmly about the roots. Young Peach and Nectarine trees should be so pruned at starting, that plenty of shoots can be made to spring direct from the stem; to do this, the heads must be cut back more or less according to their vigour and size; as for instance, a tree with only three shoots should be cut back to within 6 or 8 inches from the point of union of scion and stock, and subsequently four more shoots, the result of cutting back, should be neatly laid in at equal distances. Trees with well-ripened, moderate-sized shoots should have these shortened back if there appears to be any doubt about the emission of shoots from buds at the base, but if an even break may be looked for no shortening will be needed.

STANDARD APPLES AND PEARS.—These should be secured to stout stakes of wood or iron, the ground being trampled as before advised, a pad of hay, stout canvas, or leather being put round the stem before securing it to the stakes with wythes or tarred cord. In doing what pruning is necessary, select suitable shoots for forming the foundation of the future crown. Prune young trees, for although it is discountenanced by some growers, we find that to keep a well-balanced head of reasonable size, the knife must be used—of course, more sparingly with some varieties than others. Young nursery trees are really the better for being left unpruned the first year.

FIGS.—These trees may be uncovered, pruned, and trained forthwith, if the weather be genial. In pruning, cut out all weak or fruitless shoots, retaining as much as possible of the short, fruitful ones, and not taking the points out of these. The Fig should have its roots kept near to the surface, and the soil about them should be very firm. Loam and burnt earth mixed with old plaster make a capital compost for Figs; and if the border be small, and confined by walls of brick or stone in cement, the fruit will ripen well, and growth will be small and fruitful. Figs require much wall space for extension, or otherwise the knife has to be brought into excessive use in restraining growth, and this usually at the cost of its fruitfulness. *H. Markham, Mereworth Castle, Maidstone.*

FRUITS UNDER GLASS.

THE FIG-HOUSE.—The trees will be growing fast, and more water at the roots, syringing, and airing daily will be required, remembering that with deficient ventilation the fruits will become rusty, and sometimes drop prematurely. The temperature at night may be raised to 55° or 60° during mild nights, with 10° advance in warmth during the day. Thoroughly damp the walls and floors in the evening. Trees in pots are now at a critical period of their growth, and in no case should too many fruits be allowed to remain on them. Weak liquid-manure may be afforded them, alternately with clear water, and all overcrowding of shoots avoided, suckers being pulled up as fast as they appear. As the fruits

increase in size, the temperature should be gradually raised, and less overhead moisture given the trees. The latest lot of trees may now be started, bringing them on slowly with artificial warmth only just sufficient to keep the night temperature on cold nights at 40° to 45°. Syringe the trees on bright days.

CUCUMBERS.—These do the best in small pits, although they have to be grown in a variety of places. Plants for early fruiting should now have made good progress in the moist atmosphere of the pit, and high feeding with but little ventilation, as yet, will be necessary. The hills or pots may be top-dressed with loam, decayed manure, and some bone-dust, and older plants that may be making a new growth should also be top-dressed. Remove the old bine by degrees, and encourage young growth. The temperature may be 70° by night, and from 85° to 95° with sun-heat. Plants coming into bearing must have their fruits reduced in number, plants that are heavily cropped at first being short-lived. Seeds may be sown for planting in frames. Materials consisting of leaves and stable litter may now be prepared for frames.

TOMATOS.—Plants raised from seeds sown a few weeks since must not be allowed to get pot-bound when quite young, although some persons think that this state is conducive to early fruiting, and indeed it may result in a few fruits. On the contrary, I prefer to shift them on until they have grown to a good size, and then a much larger quantity of fruit is secured. Our earliest lot of plants from cuttings struck in the autumn are at the present time in 8-inch pots, and if the quantity of fruit will not be so large as that from seedlings, the fruits come into use some few weeks in advance of those. Seedling Tomatos are best when grown with one stem, which should be trained up near to the glass, or on the back wall of a pit. Our earliest fruits are got from plants grown in this way, but they must not be shaded by other plants. They do the best if the pots are plunged in a slight bottom-heat, but later successions may be planted out in beds. Whichever method be adopted, some good loam, bone-meal, and the soil made firm, are essential. *G. Wythes, Syon House, Brentford.*

PLANTS UNDER GLASS.

THE GREENHOUSE.—Chrysanthemum cuttings which may be rooted, should now be potted off singly into 60's in a mixture of two parts loam, one of leaf-mould, and some sand. The potting, if done firmly, will induce sturdy growth, and after potting them, they may be placed in frames or pits, and kept close for a few days, till the roots begin to run through the new soil, when air should be admitted to them whenever the weather is fine. Put in cuttings of Eupatorium riparium, E. odoratum, and E. Weinmannianum, Salvia Branti, S. Bethellii, and S. Pitcheri, as soon as they can be obtained; these will make most useful plants for autumn and early winter use.

BULBOUS PLANTS.—Scilla sibirica is a most useful plant, which may be had in bloom early in the season, but the flowers are not so large as when the plants are brought on gradually. To have them in bloom at the end of February and beginning of March, they may be brought on in cold frames till the flowers begin to open, when they may be taken to the greenhouse or conservatory, where they will make a fine feature, the colour of the flower being always admired. They may be planted out in the open in good garden soil, choosing a shady situation, when done flowering, and may be taken up and potted the succeeding autumn for blooming the following spring.

The present is a good time to pot Tuberoses for summer flowering, using for them a compost consisting of three parts good fibrous loam, one of leaf-mould, and sufficient sand to keep the soil open. When potting them, keep a portion of the bulb above the soil, and at the same time pot firmly. Single bulbs may be potted in 5 and 6-inch pots, or four or five in 8 and 9-inch; and plunge the pots in a bed of warm tan or leaves in a warm pit. They will not require any water, until the roots have run through the soil. Bring in a quantity of the different species of Lilies which are best adapted for forcing, to take the place of those started earlier. Liliun longiflorum Harrisii, and L. eximium are very free-flowering species, and most suitable either for early or late forcing; and when done flowering they should be placed either in a cold pit or frame out of the reach of frost, and have the necessary attention in the way of water and air.

Have a batch of Gladioli The Bride and G. Rose

Gem brought in according to the demand. These will be found very useful for cutting purposes, if grown in an intermediate-house; the spikes are very sturdy, and the flowers last much longer when cut, than when grown in a higher temperature.

Seeds of Capsicum Prince of Wales and Little Gem, may now be sown, placing them in a warm house or pit. When the seedlings are large enough, let them be pricked off into pans; the most suitable soil for these plants is a light friable loam. When large enough have them potted off into 4-inch pots, and later on if required into 6-inch, keeping them well up to the glass, to encourage a sturdy growth. A temperature from 60° to 65° will be sufficient for them until the fruits are fully developed.

PELARGONIUMS.—Attention should now be paid to the fancy and large-flowered Pelargoniums, by placing the requisite number of sticks to them for training them to, not a stick more than is necessary being used, as by using many stakes great injury will be done to the roots, however carefully the job may be performed. Now that the pots are well filled with roots, the plants should have a regular supply of liquid manure once or twice a week, or as the plants may seem to require it. Give abundance of ventilation in mild weather, and do not crowd the plants, or weak growth and loss of foliage will follow.

SCHIZOSTYLIS COCCINEA.—It is the proper season for dividing the roots of this desirable autumn and winter flowering plant, at least if they are becoming overcrowded in the pots. It is a plant whose roots increase very fast, and one that should not be allowed to suffer for want of root space. Pots of 6 or 8 inches in diameter, will be found suitable for growing the plants to a good size; and the soil may consist of three parts loam, one of leaf mould and one of sand. Although the plant is quite hardy, it is more satisfactory when grown in a pot, as without some kind of protection, the flowers are cut off by frost in the generality of years. After potting, place them in a cold frame, out of the reach of frost, until it will be safe to stand them out of doors. *R. Milner, Penrice Castle, Swansea.*

THE APIARY.

Bees are commencing to carry in pollen, principally from the Hazel catkins, and are now making frequent journeys for water. Should the latter not exist near the apiary, it should be provided, in a shallow receptacle, in which moss, chips of wood, or anything of the kind is placed, to prevent drowning. Any bee-keeper residing in a county that has a Bee-keepers' Association, and who is thinking of joining it, should lose no time in doing so, to entitle him to a spring visit from the expert. These associations do a lot of good, and are thoroughly deserving of support, although it is a pity that cottagers, whom they were originally intended to benefit, do not somehow seem to be capable of being educated to as great an extent as would be to their advantage. A great deal more honey might be produced in a saleable form if only cottagers and others would give up the stupid little skeps that are so common, and use a larger size, say, about 16 by 10 inches, with a flat top. The bees are continually swarming from these small skeps, and the most emphasised maxims of modern bee-keeping are, "Keep your bees strong," and "You must not expect to get increase and honey as well." Probable the best results are to be obtained from skeps by inverting them, or as some have it, "keeping bees upside down." This should be done at the commencement of the honey flow, and a crate of sections placed over the mouth, the hive being so arranged that the bees can enter at the feed-hole, now at the bottom. Considering that a crate of sections can be purchased ready for use for about half-a-crown, this is not an expensive way of going to work, and instances are known where as much as ninety pounds of honey, or even more, have been taken by this method in a season. The reason for inversion is, that the bees are better able to maintain the proper temperature in the super, as none of the heat that ascends from the skep, which is now the brood chamber, is lost.

A new frame has just been introduced by Mr. Meadows, which seems likely to come to the front. The top bar has a deep groove nearly through it, so that it can be pulled open and the foundation inserted. All that is then necessary is to slip on W. B. C. metal ends, or nail together. It is a great improvement on the old saw cut, and the cost is about the same. Oval wire nails are the best to use for all wood-work in connection with bees. *Expert.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, MAR. 10 { Royal Horticultural Society ;
Fruit, Floral, and Scientific Com-
mittees, and Lecture on Snow-
drops.

SHOWS.

MONDAY, MAR. 9 { Horticultural Exhibition, Crystal
Palace (closing on the 21st.)

WEDNESDAY, MAR. 11—Royal Aquarium.

SALES.

MONDAY, MAR. 9 { Hardy Bulbs and Plants at Prothe-
roe & Morris' Rooms.

WEDNESDAY, MAR. 11 { Roses, Fruit Trees, Shrubs, Border
Plants and Bulbs, Liliums, from
Japan, &c., at Stevens' Rooms.
Lilies, Roses, Plants, &c., at Pro-
theroe & Morris' Rooms.

THURSDAY, MAR. 12 { Established Orchids, from Mr.
Sander, at Stevens' Rooms.

FRIDAY, MAR. 13 { Imported and Established Orchids,
at Protheroe & Morris' Rooms.

SATURDAY, MAR. 14 { Roses, Fruit Trees, Shrubs, Border
Plants and Bulbs, and Liliums
from Japan, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—42°.

On more than one account we are glad to see in the *Journal des Orchidées*, the subjoined particulars as to the native place of one of our most popular, perhaps the most popular of Orchids. When the plant has ceased to exist, as may be the case, it will be even more than it is now, a matter of scientific interest to know whence it came, even more important will it be to know whence came the remarkable varieties, and under what conditions they grew. A change in fashion perhaps will occur, and the quest for these Orchids will resume moderate proportions—we do not think it will ever cease in our time. The question is, whether total extirpation will not have been reached before the turn of the wheel gives the Orchids a rest. In some cases, no doubt, total destruction will, or has already, ensued; in other cases, it must be next to impossible to effect complete annihilation, though easy to do so temporarily. Happily, the rage for Orchids has had one good result—it has caused a large number of them to be known, recorded, and figured, which otherwise would have escaped notice, so that loss and gain are pretty evenly balanced. Here is the interesting story of the discovery of *Odontoglossum crispum* :—

"We owe the discovery of *Odontoglossum crispum* (Alexandria) to Charles Théodore Hartweg and to J. Linden, in the year 1842; and, as we must also add, eventually to Warszewicz, and in 1863 to Schlim, a collector for Linden, who succeeded in importing the

first living specimens. . . . Unhappily, the selfish greed of some collectors, or perhaps their desire to obtain a monopoly, has gradually caused *O. Alexandria* to disappear almost entirely from this region. In the environs of Pacho, where hundreds and thousands of specimens of it have been collected, there are now left but a few plants; and it is to be feared that they will never again be found in many places where the vandalism of speculators has been such that they destroyed by fire the specimens that they were unable to carry away. . . . Those who are seeking for specimens usually separate into groups of from five to ten; each party makes a separate collection on its own account, and penetrates into the forest. *O. Alexandria* is usually found in the clearings, open spaces consequent upon the loss of some fallen tree, and where the air and light can penetrate; it prefers to grow on the trunks of trees, rarely on the branches, and invariably on the thickest. It is difficult to collect, because the natives are averse to climbing the trees, on account of the scorpions and thousands of insects there concealed; the ants, especially, have a very severe sting. There is generally but one plan to pursue—to cut down the tree. This is not always easy; it is sometimes necessary for four or five men to work together all day, and when, at last, the work is done, and the treasures seem close at hand, it is sometimes discovered that the precious Orchid is not there, and that all these efforts have resulted in utter failure. . . . The expeditions usually last a fortnight, and provisions are brought for the whole journey. The natives feed on dried meat, lump-sugar, and rum; moreover, they are always furnished with a gun, which enables them to add to their diet, game, birds, &c., which are often seen in the forests. They sleep, either in a hammock, or on a bed of Bamboo, covered with the dense foliage of Bananas or Palms. . . . As the plants are collected, they are heaped under a tent in a place specially chosen to serve as a sort of head-quarters. The specimens are cleaned and carefully wiped, that they may retain no moisture, as this rapidly causes them to rot. Finally, when a sufficient quantity has been amassed, and the excursion is over, they are put in crates, which are placed on the back of a mule, and carried to the point of embarkation. The journey occupies at least five days under ordinary circumstances, and in a favourable season; but unforeseen hindrances may be expected, especially the rains, which are very heavy in these regions, and transform, in a few hours, peaceful brooks into raging torrents. Sometimes it is necessary to throw temporary bridges over suddenly-swollen water-courses, and to carry the crates across by hand, while the mules, relieved of their burdens, swim across as they best can. The vessels start from the town of Honda in the State of Tolima, whence they proceed, following the course of the Magdalena, as far as Barranquilla, where the river divides into two streams, the Upper and Lower Magdalena, and forms very dangerous rapids. There the cases are transferred to the railway, and by this taken to Savanilla, where they are shipped by the Transatlantic liners to Europe. The passage across the ocean, and the railway journey to their destination, lasts six weeks, and, sometimes, two months; but this long voyage is, perhaps, less fatal to the *Odontoglossum* than the journey from Honda to Barranquilla, during which they are almost constantly subjected to torrid heat; it is then that the specimens suffer most, and a certain number of them are found to be already decayed when they are brought to the shore." Abridged from the *Journal des Orchidées*, February, 1891.

ABIES RELIGIOSA.—Wherever the winter climate is sufficiently mild, and the spring not too treacherous, this lovely Conifer should be grown, but we cannot recommend it for any but the most favoured regions. It is a native of Mexico, growing at high elevations. The specimen tree represented (fig. 69) is from the garden of J. Rashleigh, Esq., Menabilly, Cornwall; the cone from a tree in the garden of the

late Hon. and Rev. J. T. Boscawen, at Lamorran. Mr. Smith-Barry's collection at Fota, co. Cork, are trees with dark violet and paler cones respectively, and the trees there also differ in degree of hardness. The name *religiosa* is in allusion to the fact that the Mexicans decorate their churches with the boughs.

LINNEAN SOCIETY.—At the meeting of this Society, on February 19, Professor STEWART, President, in the chair, Messrs. A. W. Kuppel, E. McClure, J. F. Braga, and W. M. Webb were admitted Fellows; and Messrs. H. Jones, F. H. Coste, and A. H. Turnbull were elected. Mr. Thomas Christy exhibited a number of food Nuts, utilised by the natives of Northern Queensland, but the species of which had not been determined, since no flowers or foliage of the trees producing them had been obtained. On behalf of Mr. A. R. Hunt, the Secretary exhibited a curiosity, in the shape of an Orange within an Orange, and remarked that although by no means of [un] common occurrence, a similar abnormality had been described and figured by Dr. Perrier (*Bull. Soc. Linn. Normand.*, ix, tab. 2). Mr. G. C. Druce gave an account of the Dillenian Herbarium at Oxford, prefacing his remarks with some particulars of Dillenius's life and labours, and of the botanists of his day with whom he was in correspondence. A paper was then read by Dr. John Lowe on some points in the life-history and rate of growth in Yew trees, and some excellent photographs and drawings of celebrated Yews were shown in illustration of his remarks.

NATIONAL AURICULA AND PRIMULA SOCIETY (southern section) and the NATIONAL CARNATION AND PICOTEE SOCIETY (southern section).—We have before us the schedules of the two societies above named, and learn that the show of the former will be held on April 21, in the Drill Hall, James Street, Westminster. The classes seem to be similar to those of previous years; and the Royal Horticultural Society will contribute £10 to the prize fund, and distribute 250 one shilling admission tickets to members of the National Auricula and Primula Society. The show of the National Carnation and Picotee Society is fixed for July 21, with prizes to all exhibitors, whether subscribers or not. The place of exhibition and the contributions of the Royal Horticultural Society, are the same as in the case of the first-named society. Mr. T. E. Henwood is Honorary Treasurer, and Mr. J. Douglas is the Honorary Secretary of both.

THE GARDENERS' ORPHAN FUND.—The usual monthly meeting of the Committee took place at the Horticultural Club, Hotel Windsor, on February 27, W. MARSHALL, Esq., in the chair. The Secretary reported a balance at the bank of £545 5s. 6d., and a letter was read from Mr. H. J. VEITCH enclosing a cheque for £250, as part of the Mr. B. Williams Memorial Fund, for the purpose of placing two children upon the Fund. A letter was read from Mr. H. WILLIAMS, who was the nominator of the children, stating that he was awaiting further particulars in reference to one or two of the applicants, but would shortly give his decision. Mr. A. HENDERSON, Thoresby Gardens, wrote in reference to a child in whose case he was much interested, which was bereft of both its parents. Mr. HENDERSON stated that he was raising a fund for the child, and had already secured some £13, and desired to know if he forwarded that amount, the Committee would place the child upon the Fund at once, he on his part promising to forward what other sums he might receive. The Secretary was instructed to say that the Committee had no power to proceed in this manner, and the applicant could obtain the benefit of the Fund only by being elected. The following special receipts were announced:—Brighton and Hove Chrysanthemum Society, by Mr. Mark Longhurst, a donation of £5; and collecting box, per Mr. W. G. Head, Crystal Palace, £27s. 6d. The usual votes of thanks were passed Mr. Fred. Collyer, Rosemount Nursery, Ilkley, was



FIG. 69.—SPECIMEN PLANT OF *ABIES RELIGIOSA*, IN MR. BASKLEIGH'S GARDEN, AT MENABILLY, CORNWALL, (SEE P. 304.)

appointed Local Secretary for Ikley and district. The Covent Garden Fête in aid of the Fund was mentioned, Mr. Barron stating that he had seen Mr. Stutfield, the Duke of Bedford's agent in the market, and Mr. Asbee, and an application for the use of the Wholesale Flower Market had been made to his Grace, but no reply had as yet been received, owing, probably, to the recent illness of the Duke. Mr. Barron was instructed to make the necessary preliminary arrangements, and convene a meeting of the committee, if that should be found necessary. The following resolution was unanimously passed, on the motion of the Chairman:—"The committee of the Gardeners' Orphan Fund desire to express the great regret with which they have heard of the deaths of Mr. E. R. Cutler, the Secretary to the Gardeners' Royal Benevolent Institution; Mr. J. Dominy, of Chelsea; and Mr. Frank Casey, of Clapton; and request their Secretary to convey to the relatives of the deceased their condolence and sympathy." As the usual monthly meeting of the committee in March falls on Good Friday, it was agreed that it should take place on the 20th inst. A vote of thanks to the Chairman brought the proceedings to a close.

HIGHGATE HORTICULTURAL SOCIETY.—The thirty-first annual meeting of the above was held on the evening of Friday, February 27, at the Highgate Literary and Scientific Institution. The annual report, which was read after dispensing thanks to Mr. A. J. REYNOLDS for placing the grounds at Northfield at the disposal of the Society on the occasion of the last exhibition, and specially thanking Baroness BURDELT-COUTTS for her continued interest in the Society, and the support she affords it in a variety of ways, the committee stated that, notwithstanding the very small takings at the gate on the occasion of the show, the balance in hand shows a sum of £80 17s. 3d.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—The prize schedule for this year has just been issued. In connection with the North of Scotland Horticultural Association, the above Society has arranged to hold a spring show in the Music Hall Buildings, Aberdeen, on April 10 and 11, in addition to the usual autumn Floral Fête. Promises of exhibits have been received from England, and from many parts of Scotland. There are ninety-one classes and 273 prizes. In consideration of the success attending the lectures given by Dr. JAMES W. H. TRAIL, Professor of Botany in Aberdeen University, last year, that gentleman has kindly agreed to address the public attending the exhibition, on "Spring Flowers and the Cultivation of Plants." Various other attractions will be offered, the Society having engaged the whole suite of rooms. Music will be supplied by the excellent band of the 1st Volunteer Battalion of the Gordon Highlanders (by permission of Colonel DUNCAN), under the leadership of Bandmaster FRASER. The schedule for the floral fete, which is to be held in the Duthie Public Park, Aberdeen, on August 20, 21, and 22, contains 232 classes, with 698 prizes. The Directors have resolved that the Society shall not pay for any intoxicating liquors this year.

SALE-ROOM GOSSIP.—With the announcement of the disposal of two or three private collections, in addition to the supplies from trade establishments, the Orchid lover need not be at a loss for facilities to get rid of his money. Never were so many successful sales made before, although the proportion of high prices to sales was far greater a few years ago. The sale-rooms have done much to spread Orchid culture, and have now become meeting-places for Orchidists, who often bring specimen blooms of their cherished novelties to elicit the opinions of those present. Last Friday, in the Cheapside Rooms, a very handsome form of *Dendrobium Findlayanum* was on view, which had been sent by Messrs. F. HORSMAN & Co., of Colchester; its departure from the ordinary type of

flowers consisted in the sepals and petals being of a bright rosy-crimson. Mr. J. C. STEVENS announces another sale of Orchids in flower on March 19, and there should be a good show at his place on that occasion.

ROYAL AQUARIUM EXHIBITIONS.—The first of a series of five exhibitions, arranged by the Royal Aquarium Society, and which are under the superintendence of Mr. R. DEAN, will take place on the 11th and 12th inst., spring flowers being fully represented.

BATH FLORAL FÊTE.—The Secretaries of the above undertaking, Messrs. PEARSON and JEFFERY, desire to inform our readers that the date of the Rose show has been fixed for July 9 instead of the 2nd of that month, as previously announced in our columns.

IRIS DANFORDIÆ.—Mr. MAX LEICHTLIN, Baden-Baden, desires to make the following correction. "In consequence of an error, I sent out last year a small yellow-flowered, bulbous Iris as *I. Bornmülleri*. Since then, the plant has been verified as *I. Danfordiæ*, whilst the plant now in flower here under the name, proves to be a distinct species. The principal difference is in the size and breadth of the outer segments and of the stigma. The stigma of *I. Danfordiæ* is always smaller than the lamina, and is devoid of any marking. In *I. Bornmülleri*, it is always larger, and has two broad stripes of bright green along its ridge; in consequence, *I. Bornmülleri* looks fuller and larger."

FLOWER SHOW AT READING.—Mr. PHIPPEN'S annual spring show of flowers will take place in the large Town Hall on Wednesday, March 11.

MR. CLAYTON.—Those of our readers who are personally acquainted with the genial gardener at Grimston Park, Tadcaster, will be pleased to learn that he is fast recovering from his recent illness.

THE NATIONAL PINK SOCIETY.—The Midland section of the above intend to hold a show of Pinks in connection with the Wolverhampton Floral Fête in the public park of that town on Tuesday, July 14, 1891, and two following days. The prizes to be awarded are liberal ones, and the committee are desirous of securing a large amount of competition in the nine different classes of which the schedule consists. Mr. C. F. THURSTON, Penn Fields, Wolverhampton, is the Honorary Secretary.

THE LATE SECRETARY OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—All that is mortal of ROGER CUTLER was laid to rest on Saturday last, in Woking Cemetery, close by the roots of a sturdy Scotch Fir, where he himself had expressed a wish to be laid. Of those present at the grave-side we noticed, amongst others of his old friends of the "Benevolent," Messrs. N. Sherwood, A. J. Veitch, J. H. Veitch, W. T. Baker, T. A. Dickson, J. Webber, — Meston, jun., H. Laing, H. Turner, H. Williams, B. Wynne, W. G. Head, A. F. Barron, — Wheeler, S. Osborn, — Cavendish, &c.; and we must not omit to mention his faithful Collie, "Clyde," who, perhaps, did not altogether realise his loss. A vast number of wreaths had been sent by sorrowing and sympathetic friends, including his brother Freemasons and the Knight's Club, of which the deceased was a very old member; one of the most elaborate coming from the Committee of the Gardeners' Royal Benevolent Institution, the letters "G. R. B. I." being formed of Parma Violets.

HOW HISTORY (ROMANCE) IS WRITTEN.—One of our foreign contemporaries, alluding to the Primrose Day celebrations in honour of the memory of Lord BEACONSFIELD, gives the following details as to the reason why:—D'ISRAËLI, from this statement, met a *ravissante jeune fille* at a ball. The charming young lady wore in her brown hair (note the precision of detail) a coronet of Primroses. Expressing his admiration of this simple decoration to a companion, a question arose as to whether or no it was artificial. The young writer protested and laid a wager that it

was fresh. The young lady was appealed to, with the result that D'ISRAËLI was presented by her with two flowers from the wreath. Ever afterwards, continues the chronicler, a Primrose might be seen in the button-hole of the statesman. To the end of his life he cherished this reminiscence of a (*sic*) first love. It is on this legend that the Primrose League is based!

GERMAN NEWS.—"Professor Dr. KNY has been appointed to succeed Professor WITTMACK as Rector of the Royal Agricultural High School of Berlin.

"HERR JUHLKE. On the first day of April will be celebrated the twenty-fifth anniversary of the appointment of this gentleman as Curator "Hofgarten direktor" of the Royal Garden at Potsdam.

"HERR AD. KELLER has been appointed Head Gardener to the King of Saxony, at Moretzburg." *Gartenflora*.

THE VERSAILLES NATIONAL SCHOOL OF HORTICULTURE.—M. ED. ANDRÉ has reprinted from the *Revue Horticole* his suggestive essay on the Paris School of Horticulture, to which we shall probably refer at great length on another occasion.

EXCHANGE LIST OF SEEDS RECEIVED.—Botanic Garden, Palermo, Professor BARON TODARO, Director. Jardin des Plantes, Paris, Rue Cuvier 27, Professor CORNU, Director. Botanic Gardens, Klausenburg, Hungary, Dr. KANITZ, Director. Botanic Gardens, Oxford, Professor VINES, Director.

FRUIT IN NOVA SCOTIA AND THE STATES: THE APPLE ORCHARDS.—The production of Apples in large quantities for market has, as we learn from the Crop Report obligingly forwarded by Dr. LAWSON, hitherto been limited to a few counties of the Province—chiefly, in fact, to the so-called Apple belt or valley between the North and South Mountains, running through portions of Annapolis and King's counties. A reduction of the returns of market varieties from Annapolis and King's is accordingly given, from which it will be seen that none of the prominent market varieties approached an average, and that the average of the whole reached only to 73 per cent. of a full crop. This coincides with the Apple crop in New Brunswick this year, which was exactly 73. From the United States Report it appears, that the season was the worst for fruit that the Department of Agriculture has ever reported. The extraordinary mildness of the winter, causing winter blooming and great tenderness of bud growth, rendered the frosts of March almost universally destructive. Peaches were almost unknown in the great Peach-growing sections, and Apples are a rarity in the great Apple-producing sections. The Missouri River bluffs, and contiguous areas, furnish the principal supplies, which go to all parts of the country. The Ben Davis variety, which some people regard as better than nothing, is the mainstay of many markets. Pears have been almost equally scarce, and necessarily high in price.

TENDER AQUATICS OUT-OF-DOORS.—Mr. J. A. PETTIGREW, Superintendent of the Lincoln Park, Chicago, U.S.A., in a letter to Mr. W. B. LATHAM, Botanic Gardens, Birmingham, states, that "The result of my experiments with the culture of tender aquatics outside, I may say that our success last year was greater than that of the preceding year. We had no trouble in perfecting seeds of the Victoria Regina, or of any others of the Zanzibar class, and last year our ponds were fairly ablaze with purple, blue, lavender, pink, and white Zanzibar and other African Lilies or Nymphaeas, and with flowers of immense size, some 10 to 12 inches in diameter, such as *Odonata rosea* (from North America), *Alba candidissima* (an improvement on *Alba*), and others, were the finest of the hardy kinds. I must not however, forget our *N. odorata*, a larger flower than *N. alba*, but not so fine, I think. *Rubra* and *Devoniensis*, from the East Indies, are two remarkable species, plants in one season cover a space of 30 feet each, and with from twelve to sixteen 10-inch diameter blooms on each plant open at one time. The *Nelumbiums* come in for a good share of admi-

ration, and give us freely their immense pink blooms from July until we get frost. We last year made another pond betwixt two sand-hills on the lake shore, and now our ponds are famed from the Atlantic to the Pacific."

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the above Society will take place in the Drill Hall on Tuesday, March 10. Besides the usual novelties in the way of flowers, fruits, vegetables, Orchids, &c., an open competition will be held for the Silver Medal offered by Messrs. BARE for the best collection of forced Daffodils. All varieties of Daffodils, with the exception of *Polyanthus*, may be entered for competition. There will also be a good collection of Snowdrops; and, at 3 o'clock, Mr. J. ALLEN, Park House, Shepton Mallet, and Mr. W. BOYD, Melrose, N.B., will read papers on their culture.

PUBLICATIONS RECEIVED.—*Agricultural Gazette of New South Wales*, vol. i., part 3 (Dept. of Agriculture, N.S.W.).—*The Visit of the Tenant-Farmer Delegates to Canada in 1890*, parts i., ii., and iii. (Dept. of Agriculture, Canada; London, England, 17, Victoria Street, S.W.).—*Report of Observations of Injurious Insects, &c.*, by E. A. ORMEROD. (London: SIMPKIN, MARSHALL, HAMILTON, KENT & Co.)

PLANT PORTRAITS.

- CATTLEYA BICOLOR, Lindley, *l'Orchidophile*, February.
CATTLEYA MOSSIE DECORA, *Orchid Album*, t. 421.
CATTLEYA CRISPA DELICATISSIMA, *Orchid Album*, t. 424.
CHRYSAETHUM SUNSET.—One of Messrs. Cannells seedlings, *Illustration Horticole*.
CLEMATIS PANICULATA, *Garden and Forest*, Dec. 24.
CLEMATIS VITICELLA, var., *Garden*, January 10.
COLLINSIA VERNIA, *Westnik*, t. 27, February, 1890.
DIPLODIUM PALUDOSUM, *Orchid Album*, t. 422.
EMBOTHRIUM COCCINEUM, *Gartenflora*, t. 1340.
LÆLIA CRISPA var. CATWELAARTLE, distinguished as a variety by the greenish-yellow colour of the segments and of the lip. *Illustration Horticole*, t. 121.
LILIIUM LONGIFLORUM HARRIS, *Revue de l'Horticulture Belge*, February.
LONICERA KESSELRINGI, *Gartenflora*, p. 123.
MASDEVALLIA BIFLORA, *Regel*, in *Gartenflora*, t. 1341, fig. 2. A small and not very showy species, with whitish flowers, the ovate segments of which are prolonged into long yellowish points.
MINA LOBATA, *Garden*, February 14.
MINA LOBATA, *Revue de l'Horticulture Belge*, March, 1891.
ODONTOGLOSSUM GALEOTTIANUM, *Orchid Album*, t. 423.
ODONTOGLOSSUM GRANDE var. EXCELSIOR, *Revue de l'Horticulture Belge*, March, 1891.
PEAR TRIOMPHE DE JODOIGNE, *Westnik*, t. 28, 1890.
RHODODENDRON BRACHYCARPUM, *Westnik*, t. 25, January, 1890.
ROSE ANNA OLIVIER, *Garden*, January 31.
SOBRALIA MACRANTHA, *Revue de l'Horticulture Belge*, February.
SPARTIUM SCOPARIUM var. ANDREANA, *Gartenflora*, 1891, t. 1342.
SPINOVISITIS DAVIDII, *Revue Horticole*, March 1, p. 102.
STRAWBERRY RUHM VON CÖTHEN (Glory of Cöthen), *Bulletin d'Arboriculture*, February, 1891.
STRAWBERRY KING OF THE EARLIES, *Bulletin d'Arboriculture*, February, 1891.
STRAWBERRY ASCANIA, *Bulletin d'Arboriculture*, February, 1891.
SYRINGA BRETSCHNEIDERI (*hort.*), *Garden*, January 31. A variety of *S. Emodi*, according to M. E. Lemoine.
WALNEA PULCHELLA, *Regel*, in *Gartenflora*, t. 1341, represents a new genus of Orchidaceæ, from Central Brazil. The plant is small, and the lateral petals whitish, barred with red not very conspicuous. *Bot. Gard., St. Petersburg*.

TRADE NOTICE.

CHANGE OF ADDRESS.

MESSRS. JOHN SHAW & SONS, formerly of 37, Mark Lane, have removed to 15, Corn Exchange, Mark Lane, E.C., and Great Maze Pond, Bowing, London.

HEALTHY CONDITION OF ORCHID-HOUSES.

THERE can be no doubt but that the long period of severe weather through which we have passed, will have revealed to observant cultivators, defects in the internal arrangements which hitherto had been scarcely recognised. The fact that day and night for some seven weeks, continual hard firing was necessary to maintain even a minimum temperature in the various divisions or houses, will naturally suggest the advisability, during the coming summer, of so altering the arrangement of the hotwater-pipes

dition of things has prevailed most hurtful to the plants; at the same time, such aridity is most congenial for the increase of almost all kinds of insect foes. In houses so highly heated, the moisture created by damping floors and side benches is rapidly dried up, so that a quick return to unfavourable conditions takes place, the plants suffering meanwhile; the after effects are certain to be followed by injuries more or less grievous. There can be no doubt but that the most desirable floor for an Orchid house is the earth itself, as it does retain the moisture thrown on it for a long time, and giving it off in sufficient amount for the increase of evaporation due to greater heat in the

on the *Dendrobiums*, *Cattleyas*, *Saccolabiums*, *Phalenopsis*, &c., was sufficient to convince the most sceptical that this method was the right one. Under the side stages the ground was dug out some 18 inches below the level of the path; into this hole, leaves mixed with stable litter were placed, a certain portion of it being filled at a time. This mass heated just a little, and a genial growing atmosphere was created, ammonia and other vapours being given off, which must have largely supplied the aerial roots with nutriment such as they could assimilate. As fast as the heating material in one division of the pit lost its freshness, more leaves

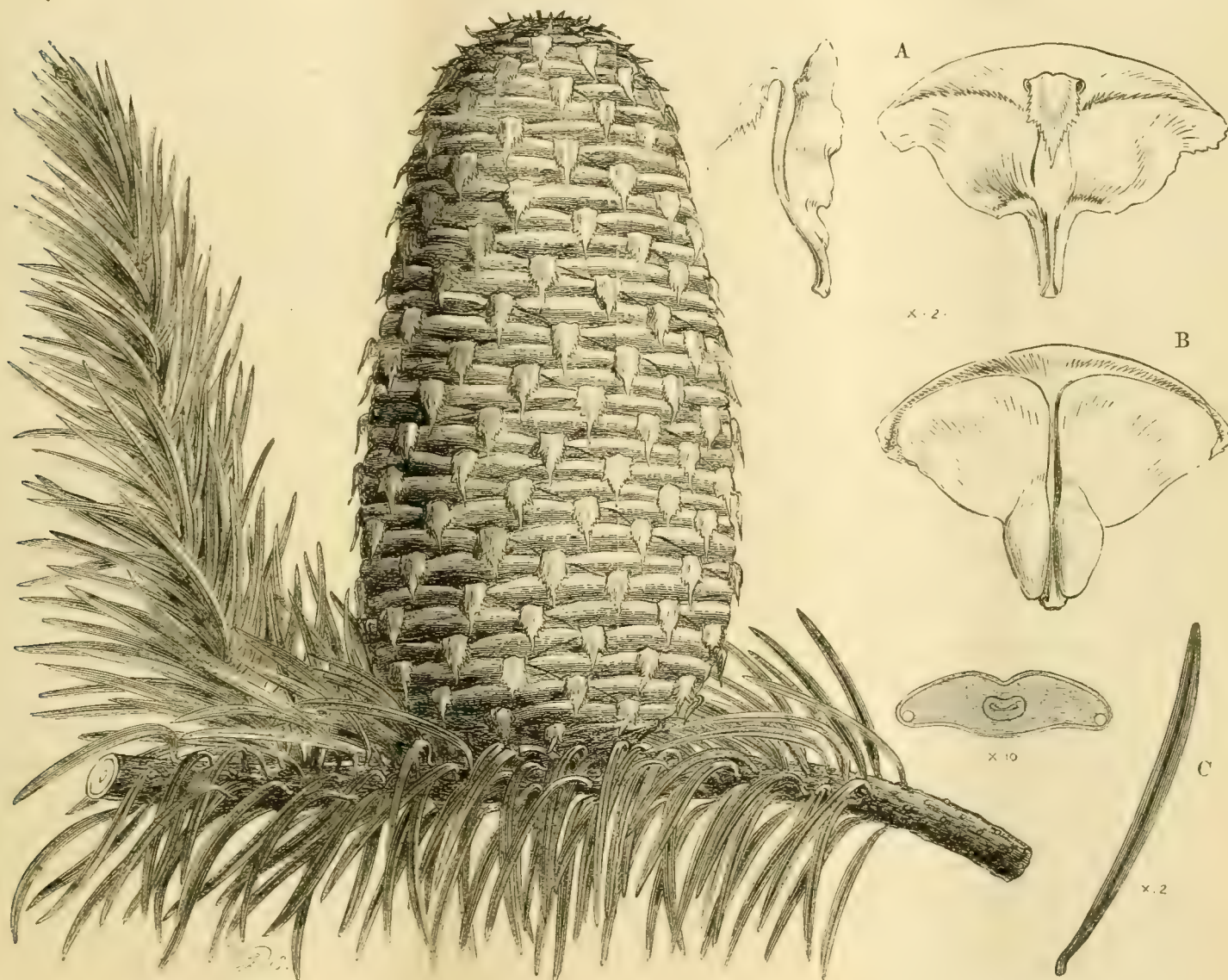


FIG. 70.—CONE AND SEGMENTS OF *ABIES RELIGIOSA*. (SEE P. 304.)

and boiler power, either by adding to the former or getting a more powerful boiler in place of the present one. It may, perhaps, be imagined that because one has passed through the present exceptional season without any great mishap, there will not be another so bad—at least, for some years to come. Still, it is better to err on the right side, and so by all means I would say, "Don't run risks, but make the future safer, and thus more satisfactory." Again, the large amount of fire-heat employed will have also made apparent another drawback in many an Orchid-house, viz., the difficulty of so regulating the moisture to the heat supplied that too often a con-

pipes. Iron gratings may be fixed so as to obtain comfort in walking, or when engaged in work, &c. The spaces under the middle stage, and under the pipes, should never be paved or cemented over; but if sufficient depth can be secured, a layer of clean, dried leaves, mixed with some fresh stable manure, having plenty of litter in it, should be placed there, this forming one of the best surfaces that can be given in any Orchid house. Some twenty years ago, a lengthened discussion took place in the pages of the *Gardeners' Chronicle* on this very matter, and it was my good fortune several times to visit the Fairfield Nursery, and the stout growths there obtained

and litter were added and mixed with the old, and these continual renewals maintained a moist atmosphere charged with life-sustaining properties in a marked degree. *Vanda*.

HOME CORRESPONDENCE.

STIRLING CASTLE AND THE OLDER VARIETIES OF PEACHES.—I am very glad to see two old friends and good growers and judges of fruit virtually agree on the superior qualities of the older varieties. True, there is a little difference over Stirling Castle

—not as to its quality, but its origin. I understand Mr. Sheppard places it almost first, and calls it still a Royal George. With all due deference to him, I follow the lead of Mr. M. Carmichael, who speaks with special knowledge and authority on the point, having had more to do with the sort, and having probably grown it more largely and better than any living man. I have seen the Stirling Castle at Sandringham and elsewhere, and consider this grand Peach is better than the Royal George at its best—if that be possible. Mr. Sheppard also places it abreast or before Noblesse, Grosse Mignonne, Bellegarde, and Barrington, and this should satisfy Mr. Carmichael as well as the assurance that all his old friends in the south—not a few of whose hearts are in Edinburgh—are greatly pleased to meet him once again, with all his old fervour and force, among his favourite Peaches, that he grew so profitably for so many years. *D. T. Fish.*

THE "OLD" GUM CISTUS.—Mr. Wilson remonstrates with me for saying on p. 247, that the "Old" Gum Cistus is *C. ladaniferus*, not *C. cyrius*. I admit that modern authorities seem to differ about it. *C. cyrius* does not seem to have been recognised as distinct, or named, until the publication of Lamarck's *Encyclopædia* at the end of last century. It is, however, very distinct, being more hardy, having broader leaves, and bearing its flowers in threes, not solitary, as is always the case with *C. ladaniferus*. Surely this difference of opinion shows the value of using botanical names in referring to a plant. I made a mistake, however, in referring to Curtis's *Botanical Magazine*, t. 112, as a true authority for *C. ladaniferus*, the Gum Cistus. The plant figured there is certainly *C. cyrius*. The two species are well figured, and distinguished in Sweet's *Cistinea*, t. 1 and t. 39. *C. Wolley Dod, Edg. Hall, Malpas.*

WEATHER PROVERBS.—One day last week, when talking to an acquaintance on the subject of the old saws and sayings about the weather, such as "February fill dyke," &c., he said that, over forty years ago, a relative of his had told him that February was the most dry month of the year, and that if he would take the trouble to notice what the weather was in February, it would be found so. My informant went on to say, "that he had kept a record for a long while, and his experience was, that there were more dry days in February than in any other month. Reading the paragraph in your issue of Feb. 28 on this subject, I was reminded of the forgoing conversation, and now send it to you. *J. A. C.*

PRIMULA ROSEA FOR SPRING BEDDING.—"Once more begins the grand procession of the flowers; not many times will our eyes behold it." A real gem of the spring is *Primula rosea*, with its brilliant pink flowers, as easy to grow as a Cabbage, provided the soil is not too light, and that the plant gets well cared for in summer, when it likes a damp cool place. I have worked up a large stock of these *Primulas*, a task which has taken me years to do, and I use them plentifully in the spring flower-garden. To show them off to the best advantage, a carpet of mossy Saxifrage beneath them is advisable, and the plant having a quantity of fibrous roots, it can be moved about without fear of injuring it. By keeping reserves of them in the kitchen garden or elsewhere in different aspects, and in a state of readiness for removal to the beds or borders, I am able to greatly prolong the brightness of the beds, an important point with this species, as it cannot be called a long bloomer. I have come round, like many others, to the conviction that, instead of aiming at collecting a great variety of plants, it is better to make a selection of a few good things, and have plenty of these. But how is this to be done, unless you have a long purse? Supposing, for instance, that I want a hundred *Anemone blanda*, what am I to do? I object to paying at the rate of 1s. each for the microscopic morsels which many nurserymen would send me. What we want is more specialists, who will grow largely certain first-rate bedding plants, letting us have them cheaply, when a large quantity is taken. This, nurserymen at the present time, rarely do. *Primula rosea* is a case in point: 1s. each is no uncommon charge for this plant, and then the complaint is made that there is so little demand for it! *E. Fison, Allington House, Ipswich.*

THE ACTION OF GALVANISED IRON-WIRE ON PEACH TREES.—Twenty-five years ago I had all the south wall at Elmham Hall Gardens covered with galvanised iron-wire, and found that it injured all the young shoots. Where the wire touched them

turning them black, and killing the wood to a depth of one-third. I thought at first the injury was due to the sun heating the wire overmuch before the leaves were large enough to cover up the shoots. Before being put up, all new galvanised wire should I think, be well washed, and unless this be done, some of the sal ammoniac used with the zinc to prevent oxidation may remain on the wire and cause injury; the greatest amount of which is done in the first year after fixing it to such shoots as were tied close to it. I know that in a very warm summer the young shoots suffer more than in a dull cool one. *Wm. Smythe, Basing Park, Alton.*

GALVANISED WIRE.—Some years ago the galvanised wire in an unforced Peach case at this place was found to injure the young shoots of the Peach so much, that it was necessary to prune below the damaged parts, the shoots above the wound dying away during the following summer. After trying various methods of preventing the shoots coming into contact with the galvanised wire, it was decided to coat the latter with thick oil-paint, since which time the injury has entirely ceased. *G. Fennell, Fairlawn, Tunbridge.*

MR. MARTIN SMITH'S CARNATION PRIZES.—I am very pleased to see that Mr. Divers has pointed out some of the weak elements in the conditions imposed by Mr. Smith on competitors for the above prizes in the National Society's schedule. I could not understand why Mr. Smith, being a member of the Council of the Royal Horticultural Society should select the National Carnation Society as the medium through which his prizes should be offered, when there could be found no better means of testing Carnations for hardiness and fitness for all ordinary outdoor culture than the Carnation trials at Chiswick presented. Mr. Divers is not the first of critics who have pointed out how it will be possible to evade the conditions imposed on competitors if anyone chooses to do so. Now, at Chiswick, such a thing would be impossible. It was but to stipulate that so many plants of any one variety, say, three, should be forwarded there for planting out not later than November 30, and only such plants should be admitted to the competition. There would have been no necessity whatever for making the awards on one day or in one week. A month at least might have been allowed for the judges to determine the respective merits of the various varieties, as to hardiness of constitution, floriferousness, quality of flowers, nature of calyx and general effectiveness. Such a competition could have admitted of no possible misconceptions, or have been in any way productive of improper exhibiting. The fact is, many varieties which look most beautiful and bright from glass-culture, are rough and ineffective outdoors. Setting up cut blooms in bunches is a most misleading method of displaying the merits of Carnations when specially required for border decoration. *A. D.*

LONDON FOG AND SMOKE.—Can any one remember such a long continuation of fog and smoke as during the present season? For something like ten days the sun was scarcely visible, and the days were as dark as night, with a thick fog heavily charged with sulphurous gases, which made one's eyes smart. Everything here is coated with soot to an extraordinary extent, reminding one more of the "black country" than the "west end" of the great City. Glass structures appear as if roofed with slate, and so thick is the deposit of soot, that no light can be had until every square is scrubbed and washed. One may guess the effect of all this—not alone the fog and the sulphurous gases, but the darkness also on young and tender foliage and flowers; in many cases the leaves became quite yellow (blanched) and gradually decayed. Tomatoes have suffered severely; young seedling plants in seed-pots being almost completely destroyed (sample enclosed). It is curious to note, how that one variety (*Chemin*), growing under precisely the same conditions as twenty other sorts, should not have been affected! What sort of a constitution can this variety have, different to its *confrères*, to render it fog and smoke proof? this is a new qualification for a Tomato! The present season is also one of the driest on record, scarcely a drop of rain having fallen during the last month. This absence of rain, in some degree, accounts for the begrimed condition of everything. A good soaking rain is wanted to wash the face of the country. *A. F. B., Chiswick.*

DISAS.—The temperature for Disas has been the subject of some controversy in these columns, and a word or two on this and other conditions of their

well-being may not be out of place. *Disa grandiflora* is a well-known favourite, probably the best known of the genus, and is frequently met with in good condition. At Kew this species has not been, to the best of my knowledge, a success—the low temperature which Sir Charles Strickland and Mr. Thomas favour, and from which they appear to have obtained excellent results, having been carefully observed there. This failure with *Disa grandiflora* is by no means confined to Kew, for I have seen plants apparently well and properly cared for, giving no better results elsewhere. When visiting Mr. McArthur's nursery, Maida Vale, in June last, there was found in one of the houses a batch of plants apparently in the best of health, growing in a temperature that would have alarmed some of the advocates of low temperature. Mr. McArthur favours a warm temperature for this *Disa*, and, judging from the flourishing state of his plants, not without reason. I believe that there are some localities where this species will not succeed, and Kew is one of them. I have often been told that *Disa grandiflora* will not succeed in certain localities, and in three cases which have come under my notice during the last few years it seems to be the case. The amount of moisture supplied to this species has much to do with its welfare, careful observation and practice being the only sure guides to this; and this points to the undesirability of frequent changes in the staff of this department. *Disa racemosa* has a much better record at Kew. Plants of this species were brought from the Cape under Mr. Watson's personal care; they were housed among bulbous and other plants in a cool-house. Here they must have endured a very low temperature; frost being merely kept out. Early in 1888 they were transferred to the Orchid department, and after being tidied up, were placed at the coolest end of a house containing a mixed collection of cool Orchids. Some of the plants had been under a drip and were sodden with water, while others were very dry. This does not seem to have influenced their flowering in the least. All the plants were inactive up to January, when they were more liberally treated. The mean temperature afforded them was about 10° higher than that prescribed for *D. grandiflora* by Mr. Thomas. The plants were finely syringed three times a day in dry, bright weather, and the ashes over which they were stood kept continually damp. The plants flowered grandly, and were shown at a meeting of the Royal Horticultural Society. It is strange that some plants will give apparently the same good results from dissimilar treatment. *Disas* certainly possess this peculiarity. *W. R. Williams, Great Marlborough.*

LATE MELONS.—Those who require a Melon that will ripen off late, and be of good flavour, should grow Suttons' Monarch. I have grown it for two years with perfect success, and have managed to have all of the fruit ripe by the end of the first week in November. If carefully handled when cutting them, and stored in a dry room, the fruit will keep in good condition till Christmas Day. I believe it to be the only good late Melon now grown. To-day, February 18, our November crop of fruits is finished—flesh sound, and flavour still excellent. *W. Allen, Swallowfield Park, Reading.*

MEMINISSE JUVAT.—In the *Garden* of last week, a graceful writer discourses on the mnemonic tendencies of certain flowers. Nine-tenths, he says, of his flowers are to him "Forget-Me-Nots," that remind him of places or some pleasurable association. He struck a sympathetic note for me personally, in saying how Pinks always reminds him of the Castle of Falaise, that one or two recollections of the same kind may awaken chords in the minds of some of your readers. It is impossible for me to see a hoop-petticoat Daffodil, without my fancy running back to the ruined Moorish castle that looks down upon Cintra. There every little cranny or crevice, in steps or wall, has its goldlocked tenants. *Mesembryanthemums* always bring back to recollection the shores of Treco in the Scilly Isles, where the Hottentot Fig is used to bind the shifting sands, and over a bank of which one beholds one of the loveliest seascapes in the islands. *Michaelmas Daisies* suggest a memory of quite another sort, namely, the endless dykes in the Lincolnshire marsh, which they often try, if possible, to make brighter. Irises always remind of the quaint Dutch garden at Culford, where Mr. Grieve grew so well the *I. Susiana*; *Scarlet Duc Van Thol Tulips*, of the pretty village of Vogelenzang, near Haarlem; *Polypods* on trees of Swanbourne Lake, at Arundel, with its abrupt

chalky bourn; Rhododendron Falconeri of Lord Falmouth's *paradise* in sole at Tregothnan, with its views of river scenery equal to or surpassing anything to be seen on the Dart. In fact, quite a crowd of recollections muster in one's memory, but to repeat more would be tedious. C. A. M. C.

PEACHES AND NECTARINES.—Through the courtesy of Messrs. Rivers' manager, Mr. Camp, I am now able to give the dates when several of the Peaches I mentioned previously were sent out—viz., Early Albert and Prince of Wales, 1863; Princess of Wales, 1864; Crimson Galande, 1866; Early Beatrice and Early Louise, 1867. The Nectarine Peach and Sea Eagle, 1871. None of these varieties have, therefore, been "well-known for thirty or forty years," and I often receive strong evidence (in the shape of enquiries from various gardeners) that many of them are not "well-known" yet. I was very pleased to read Mr. Carmichael's account of the origin of Stirling Castle, on p. 246, which is very interesting, although no date is given when it was first sent out. This is one of our best Peaches, and is quite distinct from all other kinds. [In a note on this Peach, written by Mr. David Thomson, of Drumlanrig Gardens, which appeared in these pages in 1860, p. 734, and of which he has kindly reminded us, it is stated that Stirling Castle Peach was raised from a stone about twenty years previously, that is in 1840; and this fact he had from Mr. Carmichael, then gardener at Dunmore. That plant was on its own roots, but buds had been put on the Barrington, Royal George, and other Peaches on the open wall. Ed.] Mr. Sheppard has quoted the *Fruit Manual* on Grosse Mignonne, but has evidently overlooked the fact that it refers to fruit grown outside, as the remainder of the description shows; and again, if he takes the authorities he mentions as a guide on Grosse Mignonne, why does he not also for Early Beatrice and Early Louise. In the *Fruit Manual* I find, "Early Beatrice, flesh melting and juicy, richly flavoured;" "Early Louise, flesh very tender, and richly flavoured;" and in Messrs. Veitch's Catalogue, "Early Beatrice, medium sized highly coloured, and finely flavoured;" "Early Louise, melting, juicy, and exquisitely flavoured." So it is very evident others beside myself are able to grow them fit to eat as well as to look at. The fact is, these varieties fill a very useful place in early forced Peach-houses, from the short time they take in stoning and ripening off, and with proper care and attention they grow very much larger under glass than outside. I should think very few persons would refer to the "Hardy Fruit Calendar" on matters connected with Peaches under glass as Mr. Sheppard has done; and the list he gives again on p. 247 is not even complete for outside culture, as none of the varieties he mentions would ripen before the third week in August; but by growing Alexander and Hale's Early (which do well enough outside), the season of ripe Peaches outside commences about the middle of July—a gain of one month in length of season. W. H. Divers, *Ketton Hall Gardens, Stamford*.

VICTORIA SPINACH AND OTHER VEGETABLES.—I can endorse all that Mr. G. Wythes said in a recent *Gardeners' Chronicle*, p. 245, in favour of Victoria Spinach, as I have it growing alongside the old variety, both having been sown at the same time, and I find it superior in every respect, as it is hardier, more robust, and produces bigger leaves of greater substance. I have not tried it as yet in a cooked state, but from what I have remarked on it, and taking its general appearance, I should think it is a more succulent kind than the other, and I am of opinion that, when better known, it will be grown in preference all the year round. It is very fortunate for us gardeners that the Spinach crop has stood so well this winter, as most other green vegetables are much injured or killed. Broccoli are rotting wholesale, even Brussels Sprouts are much out up, and young Cauliflowers and Cabbage plants are sadly crippled, so that most of us will have to rely on spring-raised plants for the early supplies. J. Sheppard.

USEFUL INVENTION.

GARDEN WEBBER.

A NOVELTY under this name is introduced by Mr. J. J. Royle (London: 14, Holborn Viaduct). The device (represented in fig. 71) has been designed to facilitate what is known as the "webbing" of seed-

beds, Pea-drills, and fruit trees, in order to protect the sowings from the depredations of birds. The system is effective, and cheaper than any form of netting, but, for want of a convenient tool, it has hitherto been laborious to perform. The "Webber" consists of a handle and frame for holding a cotton-cop, after the manner of a weaver's shuttle. The thread is led down a groove in the stick, and out through a porcelain eye. The stick is convenient for rapidly sweeping over a large surface, and the apparatus will doubtless be a favourite with amateurs who work on a small scale.

THE HORTICULTURAL EXHIBITION.

THIS event, which was opened on Tuesday last at the Crystal Palace, Sydenham, and remains open till Saturday, the 21st inst., cannot be described as a great success, there being no more than thirty-five stands, whilst general garden appliances in the way of

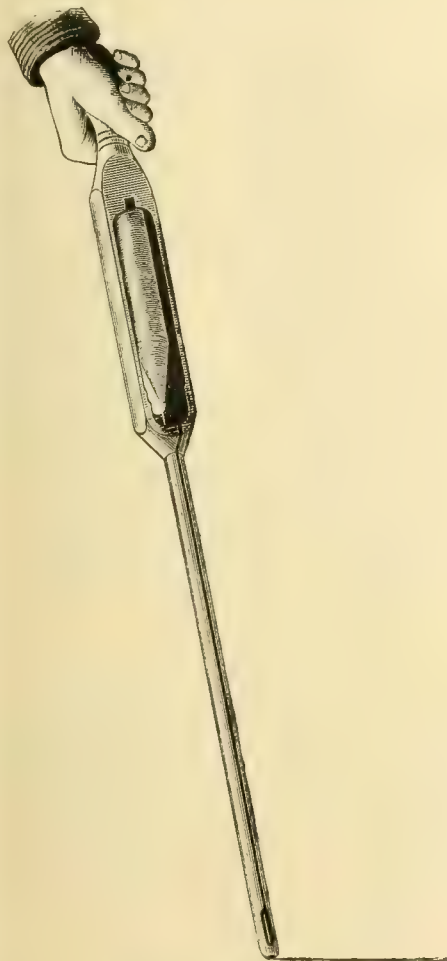


FIG. 71.—GARDEN WEBBER.

tools, &c., are conspicuously absent. Sundries are, however, plentiful; insecticides are very numerous, and, with all the various sorts now before the public, dirty plants should be rare.

The chief interest in the exhibition centres in the several apparatus and contrivances for producing fine sprays for the application of insecticides—a point of importance at the present time in dealing with powerful solutions, which, if applied in a too heavy form, would damage the plant, as is the case with the arsenites now used largely. Under this head are the exhibits of the Stott Fertiliser and Insecticide Distributor Company, Barton House, Deansgate, Manchester; the Stott Distributor, which is a metal cylinder, into which the insecticide is

placed, and through which the water from the tap is passed, is now pretty generally known, as is also the spray jet, but a new adaptation of these two features to a syringe provides a serviceable instrument for use on a small scale, or where water pressure could not be secured for the cylinder. A new Paris Green emulsion, which is shown, works well with the syringe, and a special cell is constructed for general work with the hose. There are also Royle's Tap Union, for hose attachment, and the Royle's Garden Webber, an appliance for webbing over seed beds, &c., to keep off birds; the thread is let out through a rod, and the work of threading on a bed is greatly facilitated, see fig. 71.

Messrs. Richard Hornsby & Sons, Spittlegate Ironworks, Grantham, exhibit a useful sized Strawsoniser for horticultural purposes for distributing liquid or dry insecticides. It is a hand-power instrument, and is a very convenient form of this well-known apparatus. Another apparatus of a very convenient form is the L'Eclair knapsack spraying-pump of M. Vermorel, Villefranche, France (London: Charles Clark & Co., 20, Great St. Helen's, E.C.), is a sheet copper chest, into which the solution is placed, and is forced out by working a lever with the left-hand, the right-hand directing the nozzle; its capacity is three gallons. As its name indicates, the contrivance is carried on the back, a sliding telescopic tube of greater length (up to 13 feet) is also supplied, enabling the spray to reach the heads of standard trees; a larger form is also made to be drawn by a horse, the distributing power being derived from the wheels (capacity 25 galls.); this is specially adapted for Hops and Potatoes, covering six rows at once. In the same stand is "La Torpille," which is adapted for distributing powders in a dry state, and which is constructed to carry 22 lb. of flowers-of-sulphur. The first-described apparatus is constructed primarily for the Bordeaux mixture.

Mr. J. J. Snow, 151, Sandringham Road, Dalston, N.E., exhibits the "Universal" garden or fire-pump, a very ingenious apparatus, which fits easily into an ordinary garden pail. A good pressure is produced with the expenditure of but little energy by working a piston up and down; there is no packing as in an ordinary garden engine or syringe, the machine raising a column of water inside which acts as a packing and supplies the pressure. The Helmet Spray Jet, which is fitted to this apparatus, consists of a cone with a small hole at the top, from which the water issues; and a fine screw-top is adjusted in front of this, whereby a conical spray is produced. This apparatus is very simple and easily worked, and moreover throws a spray or jet, as the case may be, some considerable distance.

Messrs. Pontifex & Wood, Shoe Lane, E.C., contribute garden engines, &c., fitted with the Farringdon pump, and also spray jets for work on a large scale in Hop fields, &c.

Hemmingway's London Purple Co., 60, Mark Lane, E.C., have samples of London Purple and Emerald Green; the former, to which we have repeatedly called attention, is now being introduced to the English market; and they also have a distributing force-pump, which is a modification of the American pattern; several nozzles are also shown.

After advocating these measures, and calling attention to what other countries have done in the matter of insecticides and apparatus for their distribution, it is some satisfaction at last to see the subject practically attended to at home. John Bull is very slow to move, and even manufacturers do not seem to read the papers.

The Sundriesmen have large stands. Messrs. Corry, Soper, Fowler & Co., 16, Finsbury Street, E.C., have the Lethorion vapour cone, and numerous insecticides in liquid form, Nicotine soap, Standen's manure, seed measurers, &c. Messrs. Osman & Co., 132, Commercial Street, E., show dried flowers, wreaths, insecticides, small moveable frames, knives, &c.; and Mr. J. George, 10, Victoria Road, Putney, S.W., shows a varied collection, including Nicotina fumigator and numerous other insecticides, manures, soils, wood wool, &c.

Messrs. Wrench & Sons, Ipswich, show a good selection of greenhouses of elegant appearance, frames, pits, and a varied assortment of garden furniture, including automatic folding-seats, &c., and the Paragon camp furniture, which includes tables, chairs, &c., all of which fold up into very little space, are light, and strong. A capital Pitch Pine summer-house, lawn sprinklers, &c., are also shown.

Messrs. E. Newton & Co., Hitchin, show a couple of houses—one a span-roof forcing-pit, the other a lean-to wall-cover and house combined—both very serviceable and strong, and glazed on their own system, with rolled steel sash-bars, and geared ventilators.

The cheap class of house for amateurs' gardens are represented by Mr. W. Cooper, Old Kent Road, S.E., and they also have serviceable heating apparatus for small structures, burning either oil or gas. Mr. W. Clark, Station Road, Reading, has samples of his dry glazing. Mr. J. Pratt, Sydenham, S.E., has a house with curved wood rafters and zinc clips; and Mr. Fidler, Anerley, has models of glasshouses. Galvanised iron staging comes from Messrs. F. Braby & Co., 352, Euston Road, a strong serviceable article. Messrs. B. Edgington & Co., 2, Duke Street, London Bridge, send tents, hammocks, and other garden furniture. Boilers are shown by the Thames Bank Iron Co., Upper Ground Street, and by Messrs. Rosser & Russell, Charing Cross. Pottery by Mr. C. G. Warne, Weston-super-Mare, and by Messrs. W. S. Iles & Co., Camberwell Park, S.E. The Standard Manufacturing Company, Derby, have standard tree-pruners, the Myticuttahs, saws, and other useful appliances for tree-pruning. The specialties of the Agri-Horticultural Chemical Company, Tunbridge, Kent, are on view, including the Acme Weed-killer, manures, &c.; The Silk-o-Zone Company, Leadenhall Street, has samples of fertilisers, &c.; aviaries, garden arches, and roseries, are sent by Mr. J. Groom, Kensington Square.

Lawn mowers are very few. Messrs. Ransomes, Sims & Jefferies, Ipswich, show a good selection of the new automaton mowers with multiple gear, and fitted with a spring adjustment to the knives, which is worked by one screw only on each side instead of two as is usually the case, the second screw being replaced by a special spring, and which would, no doubt, greatly diminish the difficulty of the regulation of the knives. Messrs. Barford & Perkins, Peterborough, have specimens of their lawn-mowers fitted with block steel chains with no pins. Garden-rollers are also shown. Seeds are shown by Messrs. Sutton & Sons, Reading, who also show models of vegetables, &c., and by Mr. G. W. Cousins, Wood Green, N., who also exhibit a large collection. Messrs. W. Gaymer & Son, Attleborough, Norfolk, contribute a stand of their Norfolk cider, a light sparkling drink made from the better quality of dessert Apples; and Messrs. G. Neighbour & Sons, 127, High Holborn, have a varied assortment of apary appliances.

SCOTLAND.

EDINBURGH BOTANICAL SOCIETY, FEB. 12.

THE Society met in the evening at 5, St. Andrew Square; Mr. Lindsay, President, in the chair. A new species of Snowdrop (*Galanthus*) obtained from Mr. Max Leichtlin, *Iris stylosa* and *Hamamelis japonica* were exhibited in flower from the Royal Botanic Garden, and a specimen of Prince Wood (*Cordia*?) bored by beetles, presented to the Museum at the Royal Botanic Garden by Dr. Underwood, Foo Chow, was also shown. Professor Balfour exhibited a section of a stem of Copper Beech, showing the characteristic reddish-pink coloration of the outer layers of the Alburnum. This is due to the presence of red sap, especially in the cells of the uniseriate medullary rays. Mr. James Grieve exhibited *Calluna vulgaris* with red and white flowers on the same plant, and also a golden form of the same species.

Mr. Forgan directed attention to his adaptation of the Zeiss iris-diaphragm to the lantern, and demonstration of the advantages of the application was made. He believed he was the first who had made the application, and he anticipated that when its value became known, no lantern, especially for micro-work, would be complete without the iris-diaphragm.

Specimens of the rare *Geaster striatus*, from near Sevenoaks, Kent, and of *Mollia fragilis*, from Tents Muir, Fife, were exhibited, from Mr. E. M. Holmes, F.L.S. The interest of the latter plant is its occurrence in Scotland in a seaside habitat. The following communications were read:—

1. "Commentaries on British Plants: No. I. The Coarse Anatomy of the Wood of Trees and Shrubs" (continuation). By Professor Bayley-Balfour and Dr. J. Muirhead Macfarlane. (With lantern illustrations of structure.) The structure of the wood of the British species of the following genera was exhibited on the lantern screen:—*Genista*, *Cytisus*, *Ulex*, *Prunus*, *Dryas*, *Potentilla*, *Rosa*, *Pyrus*, *Crataegus*, *Cotoneaster*, *Ribes*, *Hedera*, and *Cornus*.

2. "An Examination of some Forms of *Erica*, collected by the Scottish Alpine Botanical Club in Connemara in 1890." By Dr. J. N. Macfarlane. He stated that, though the members of the Club had failed to find *E. ciliaris*, and though doubts had been expressed by some as to its occurrence in West Ireland, authentic specimens, in the herbarium of the garden, proved that it, at one time at least, had a home there. He then discussed the structure and affinities of *E. Mackayi*, also a form found by Dr. Stuart, of Chirnside, and the other members of the party, in close proximity to the Mackayi station. From naked eye and microscopic examination of the former, he concluded that it is not a hybrid, and does not deserve to rank as a true species, but is a well-marked sub-species of *E. tetralix*. The latter was shown to deviate still more widely from typical examples of *E. tetralix*, but to be connected with it by the garden variety known as *E. Lawsoniana*. The author proposed, therefore, a subdivision of *E. tetralix* into four sub-species—*tetralix* proper, *Mackayi*, *Lawsoniana*, and *Stuarti*, each characterised by certain well-marked peculiarities. The importance of knowing wherein sub-species and varieties differed from a type, not merely in naked-eye appearance but in microscopic details, was insisted on, as a first step towards the recognition of their evolutionary relationship.

3. "Development of the Macrosporangium in *Myosurus minimus*, Linn. Part I." By Gustav Mann. The stages up to the isolation of the archesporium were described, and the author inclined to the view that the embryo sac is a sporocyte. In course of his description, the author pointed out that the nucleolus always initiates karyokinesis, and that nucleolar substance is spread throughout the nucleus.

4. "Potato Disease and Parasitism." By A. Stephen Wilson, Kilmundy. In this paper the view is advanced that the tuber of the Potato is the result of the action of *Peronospora infestans*, the well-known Potato disease fungus.

5. "On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

Report for January, 1891.—During the past month of January, the weather experienced was more severe than it has been for that month since 1886; still, we have no such disastrous frosts to record as have been prevalent in the south of England. The thermometer was at or below the freezing point on seventeen occasions, indicating collectively 126° of frost for the month, as against 45° for the corresponding month last year. The lowest readings occurred on the 7th, 20°; 8th, 18°; 10th, 22°; 18th, 19°; 23rd, 21°. The lowest day temperature was 33°, on the 21st, and the highest, 53°, on the 28th. West and south-west winds were prevalent. Rain fell on nine days, and snow on six days during the month. The continuance of dull cold weather has had the effect of retarding the flowering of spring plants considerably. Of the forty selected plants whose dates of

following are annually recorded to the Society, the following five came into flower, viz.:—*Rhododendron atrovirens*, on January 21; *Tussilago fragrans*, January 26; *Dondia epipactis*, January 30; *Galanthus plicatus*, January 30; *G. nivalis*, January 31. At the same date last year as many as eighteen were in flower.

On the rock garden only six plants came into flower during January, viz.:—*Helleborus atrorubens*, *H. purpurascens*, *Primula inflata*, *Dondia epipactis*, *Galanthus plicatus*, and *Erica herbacea alba*. In January, 1890, there were thirty-seven in flower. The only plants much injured by frost, so far, are *Veronica Lindleyana*, *Andersoni parviflora*, and *Eucalyptus globulus*, and *coccifera*. Throughout the garden the most conspicuous plants in flower are *Jasminum nudiflorum*, *Hamamelis japonica*, *Cydonia japonica*, *Erica herbacea alba*, and varieties of *Helleborus niger*.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

The annual general meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on the 3rd inst., Mr. Morrison, Vice-President, in the chair. Mr. R. B. Ferguson, Secretary, submitted to the meeting the annual report, in which it was stated that the Association had made steady progress during the year. Fifty-three new members had been elected since the last annual meeting, and the total roll of members now numbered 420. The Treasurer, Mr. Alex. Mackenzie, submitted the financial statement, which showed that the income from the Chrysanthemum show was £1203, and the expenditure thereon was £1057, leaving a balance to the credit of the show fund of £146, which, added to that of last year, made a total balance in hand of £492. The ordinary income of the Association from membership had been £33, and the expenditure £27; and the balance to credit of the ordinary account was £28 10s. The reports of the Secretary and the Treasurer were adopted, and the thanks of the meeting conveyed to both officers.

The date of the annual general meeting was altered from the first Tuesday in March to the second Tuesday in January. The Duke of Buccleuch was again re-elected Honorary President of the Association, and Mr. W. W. Welsh, of Messrs. Dicksons & Co., Edinburgh, was elected President for the year. Professor Bayley Balfour and Mr. Robert Morrison were elected Vice-Presidents. Mr. Robert Laird, of Messrs. R. B. Laird & Sons, was appointed Secretary in room of Mr. Ferguson, who retired; and Mr. Alex. Mackenzie was re-elected Treasurer.

Obituary.

GEORGE PARMENTER.—Many of our readers will regret to hear of the death of Mr. George Parmenter, Nurseryman, of Camden Road, N.W., which happened suddenly on Tuesday, February 24. The deceased for many years carried on business at the Brecknock Nursery, but he had retired some few months ago, and the business was carried on by his son. Mr. Parmenter had come from Sudbury to the Nursery on business, and during his stay there, had remarked on the sudden death of Mr. Casey, of the Clapton Nursery—little thinking that his own end was so near. He hurried to catch his train at Euston, and died before reaching Chalk Farm; the cause of death being heart disease.

GEORGE CUNNINGHAM.—A gentleman who for a great number of years has been well-known, not only in Liverpool, but throughout the country generally as an authority on horticulture, died peacefully, on February 25, at the advanced age of 91. The deceased gentleman, George Cunningham, was like many other men who have been eminent in the business of nurseryman and seedsman, of Scottish descent. He and his father lived and carried on the same business at the nursery in Broad Green Road, for over 140 years. The nursery was at one time a very extensive place, one of the largest in the country, and its dimensions may be judged by the fact that an order for as many as a million of Larch trees had

been carried out by the Cunninghams for Scottish and Irish noblemen. The making of the cutting on the London and North Western Railway Company's line to Manchester reduced the nursery to less than one-half. Mr. Cunningham was an intellectual man, and a clever French and Latin scholar, and his father was among the first to import *Araucaria imbricata*. For nearly sixty consecutive years he travelled regularly to Scotland and Ireland, and owing to regular out-door exercise he did not suffer from any ailment which caused him to be confined to bed until three weeks previous to his death.

EDWARD KEMP.—We regret to have to announce the death on the 2nd inst., of Mr. Edward Kemp, at his residence, The Park, Birkenhead. Mr. Kemp was born at Streatham, on September 25, 1817, and passed into the gardens of the Horticultural Society at Chiswick, under the direction of Dr. Lindley. Subsequently he assisted Sir Joseph Paxton in his gardening and botanical work. Mr. Kemp was a landscape gardener of much taste and ability, and his work, *How to Lay out a Garden*, which ran to three editions, was until lately the only modern book of any pretensions on the subject, and one of which a new edition would still be welcome.

Mr. Kemp was one of our oldest contributors, though of late years we had little from his pen. Among other works, he laid out the park at Birkenhead, of which we lately gave an illustration. Next week we hope to give further details as to his labours as a landscape gardener.

LAW NOTES.

THE LIABILITY OF CARRIERS.

ROOTS LOST IN TRANSIT.—In the Westminster County Court on Wednesday, the case of Denman v. Rubert was before his honour Judge Bayley, and was an action by the plaintiff, a seed merchant, carrying on business at 7, Catherine Street, Strand, to recover the sum of £8 15s., being the value of a parcel of Lily of the Valley roots, which were lost in transit, and for which it was sought to make the defendant liable, they being a firm of carriers in Hamburg, and having offices at London Wall, E.C.

The plaintiff was called, and said that in November last year, he purchased a hundred thousand Lily roots from a firm in Hamburg, the order being given to Mr. Oscar Mengel, the London agent to the firm. In due course he received an invoice from the firm in Hamburg, stating the goods had been delivered to the defendant, and were on their way to London. The package in question, however, never arrived, and the present action was brought to recover its value.

After hearing the evidence at some length, his honour said there was no evidence of any contract between the plaintiff and the defendant, and in the absence of any such evidence, plaintiff could not recover. Under the circumstances, there must be a non-suit with costs.

MARKETS.

COVENT GARDEN, March 5.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. ED.]

Business quiet, with little alteration. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 1-sieve ... 3 6-6 0	Lemons, per case ... 15-20 0
— Nova Scotia, brl. 15 0-25 0	Oranges, ...
Cobs, Kent, 100 lb. ... 45 0-50 0	Pine-apples, St. Michael, each ... 2 0 8 0
Grapes, lb. ... 1 6-3 6	

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Lettuces, per dozen ... 3 0-...
Beans, French, lb. ... 2 6-3 0	Mushrooms, punnet 2 0-...
Beet, red, per dozen ... 2 0-3 0	Mustard and Cress, punnet ... 0 4-...
Brussels Sprouts, lb. ... 0 4-...	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 2 0-3 0
Cauliflowers, each ... 0 9 1 0	Shallots, per lb. ... 0 6-...
Celery, per bundle ... 2 6-3 6	Spinach, per bushel ... 7 0-...
Cucumbers, each ... 0 9 1 6	Tomatoes, per lb. ... 0 9-1 3
Endive, per dozen ... 4 0-...	Turnips, per bunch ... 0 6-...
Herbs, per bunch ... 0 4-...	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. ... 6 0-18 0	Ferns, in var., doz. ... 4 0-18 0
Aspidistra, doz. ... 18 0-42 0	Ficus elastica, each ... 1 6-7 0
— spec. plants, each ... 7 6-10 0	Foliage plants, various, each ... 2 0-10 0
Azalea, per dozen ... 24 0-12 0	Genista, per dozen ... 9 0-12 0
Bouvardias, p. doz. ... 9 0-18 0	Hyacinths, per doz. ... 6 0-9 0
Cineraria, per dozen ... 8 0-10 0	Lily of the Valley, per dozen pots ... 9 0-18 0
Cyclamens, dozen ... 9 0-18 0	Marguerites, doz. ... 6 0-12 0
Cyperus, per dozen ... 4 0-12 0	Mignonette, per doz. ... 6 0-9 0
Dielytra, per dozen ... 8 0-12 0	Myrtle, per doz. pots ... 6 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Palm in variety, each ... 2 6-21 0
— viridis, per doz. 12 ... 24 0-40 0	Primula sinensis, doz. ... 4 0-6 0
Euonymus, in var., per dozen ... 8 0-18 0	Spiraea, per dozen ... 9 0-12 0
Ericas, various, doz. ... 8 0-18 0	Solanums, per doz. ... 9 0-15 0
Evergreens, in var., per dozen ... 6 0-24 0	Tulips, per doz. pots ... 8 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Anemone (Fr.), 12 bun. ... 2 0-4 0	Narcissus (yellow), 12 bun. ... 3 0-6 0
Azalea, 12 sprays ... 0 6-1 0	— (double), 12 bun. ... 2 0-4 0
Bouvardias, per bun. ... 1 0-1 6	— Poeticus (Pheasant Eye) 12 bun ... 9 0-12 0
Callaethiopia, 12 bl. ... 2 0-4 0	Mimosa (French) 12 bun. ... 1 6-2 6
Camellias, white, 12 blooms ... 2 0-4 0	— (French) basket 4 0-6 0
— cold, 12 blms. ... 0 9-1 6	Myosotis, 12 bun. ... 4 0-6 0
Carnations, 12 blms. ... 1 0-3 0	Pelargonium, scarlet, 12 spr. ... 0 6-0 9
Christmas Roses, 12 blooms ... 0 4-0 6	Poinsettias, 12 blms. ... 1 0-4 0
Chrysanth., 12 bun. ... 4 0-6 0	Primroses 12 bun. ... 1 0-2 0
Cyclamens, per doz ... 0 3-0 6	Primulas, double, 12 sprays ... 0 6-1 0
Daffodils, various, 12 blooms ... 1 0-2 0	— single, 12 sprays ... 0 4-0 6
— (Foreign), 12 bun. ... 3 0-6 0	Roses, Tea, per doz. ... 1 0-4 0
Eucharis, per dozen ... 3 0-5 0	— coloured, dozen ... 3 0-6 0
Gardenias, per doz. ... 4 0-9 0	— yellow (Maréchal), each ... 0 6-0 9
Heliotropes, 12 spr. ... 0 6-1 0	— red, per dozen ... 6 0-12 0
Hyacinths, Rom., 12 bunches ... 1 0-2 0	— ditto, per dozen ... 1 0-3 0
Hyacinth, various, 12 spikes ... 3 0-6 0	Snowdrops, doz. bun. ... 1 0-3 0
Lily of the Valley, 12 sprays ... 0 6-1 0	Tuberose, 12 blms. ... 1 0-2 0
Maiden Hair Fern, 12 bunches ... 4 0-9 0	Tulips, various, 12 bl. ... 0 9-1 6
Marguerites, 12 bun. ... 3 0-6 0	Violets, 12 bun. ... 1 6-3 6
Narcissus (paper white), 12 sprays ... 1 6-4 0	— Parma, Fr., bun. ... 2 6-3 6
— French, 12 bun. ... 1 6-2 6	— dark, Fr., bun ... 1 6-2 6

ORCHID-BLOOM in variety.

OLD POTATOS.—During the past week the demand has not been quite so brisk; the general feeling of the trade is that prices are too high, and specially for the inferior samples.

Of NEW POTATOS the arrivals have increased, and prices rule lower.

Malta kidneys, 11s. to 26s.; rounds, 7s. to 10s.
Canary Islands kidneys, 10s. to 28s.; rounds, 6s. to 10s. *J. B. Thomas.*

SEEDS.

LONDON: March 4.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., report a good quiet business passing in field seeds. Values generally remain without change. Choice English red Clover seed is getting into narrow compass. Excellent foreign seed can, however, be bought at moderate prices. Fine Alsike continues dull. White and Trefoil keep steady. There is more passing in Italian and perennial Rye-grasses. Tares are in improved request. For bird-seeds quotations show firmness. In Peas and Haricots the tendency is still upwards. Buckwheat and Linseed are likewise advancing.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending February 28, and for the corresponding period last year:—1891: Wheat, 32s. 4d.; Barley, 27s. 5d.; Oats, 18s. 2d. 1890: Wheat, 29s. 10d.; Barley, 30s. 11d.; Oats, 18s. 8d. Difference: Wheat, +2s. 6d.; Barley, -3s. 6d.; Oats, -0s. 6d.

FRUIT AND VEGETABLES.

SPITALFIELDS: March 4.—Good supplies of all kinds of green vegetables; demand good, without material change in prices. Savoys, 5s. to 10s. per tally; Cabbages, 4s. to 8s. do.; Turnip-tops, 4s. per sack; Brussels Sprouts, 2s. to 3s. per half-sieve; Sprouting Broccoli, 1s. 9d. to 2s. 6d. per sieve; do., 3s. to 4s. per sack; Cauliflowers, 2s. to 3s. per dozen; Curly Kale, 2s. to 2s. 6d. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Greens, 5s. to 8s. per dozen bunches; Turnips, 1s. 6d. to 2s. 6d. do.; Carrots, 3s. to 3s. 6d. do.; Parsley, 9s. to 12s. do.; Celery, 6s. to 12s. per dozen bunches; Horseradish, 1s. to 1s. 4d. per bundle; Parsnips, 1s. to 1s. 6d. per score; Beet-roots, 4d. to 6d. per dozen; Endive, 1s. 6d. to 2s. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Cabbage Lettuce, 1s. 6d. to 2s. per dozen; Leeks, 2s. to 3s. per dozen bunches; English Onions, 7s. 6d. to 8s. per cwt.; Spanish do., 8s. to 6s. 6d. per case; Bordeaux do., 6s. to 6s. 6d. do.;

Belgian do., 4s. 6d. to 5s. 6d. per bag of 110 lb.; Carrots, 25s. to 50s. per ton; English Apples, 5s. 6d. to 10s. per bushel; American do., 11s. to 26s. per barrel; foreign Tomatoes, 1s. 6d. to 2s. 6d. per box; forced Rhubarb, 1s. 6d. to 2s. per dozen bundles.

STRATFORD: March 1.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 5s. to 6s. 6d. per tally; Savoys, 6s. to 8s. do.; Greens, 1s. 6d. to 2s. 6d. per sieve; do., 5s. to 7s. per dozen bunches; Cauliflowers, 1s. 3d. to 2s. 6d. per dozen; do., 6s. 6d. to 10s. per tally; Turnips, 2s. to 3s. 6d. per dozen bunches; do., 50s. to 6 s. per ton; Carrots, household, 40s. to 50s. do.; do., cattle feeding, 34s. to 40s. do.; Parsnips, 9d. to 1s. 6d. per score; Mangels, 20s. to 23s. per ton; Swedes, 16s. to 25s. do.; Onions, English, 180s. to 180s. per ton; do., Dutch, 6s. to 7s. per bag; do., Bordeaux, 7s. to 7s. 6d. per case; Apples, English, 5s. 6d. to 10s. per bushel; Celery, 8s. to 11s. 6d. per dozen rolls; Cress, hot and cold, 2s. per dozen baskets.

POTATOS.

BOROUGH AND SPITALFIELDS: March 3.—Quotations:—Hebrons, 100s. to 120s.; Magnums, 100s. to 110s.; Bruce's, 105s. to 135s.; Imperators, 100s. to 115s. per ton.

SPITALFIELDS: March 4.—Quotations:—Imperators, 100s. to 130s.; Hebrons, 80s. to 120s.; Champions, 80s. to 110s.; Magnums, 75s. to 125s.; Regents, 95s. to 135s. per ton.

STRATFORD: March 3.—Quotations:—Magnums, 100s. to 120s.; Imperators, 100s. to 120s.; Hebrons, 100s. to 120s.; Scotch Bruce's, 110s. to 115s.; Main Crop, 110s. to 130s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior do., 48s. to 75s.; hay, best, 60s. to 75s.; inferior do., 25s. to 50s.; and straw, 20s. to 37s. per load.

THE WEATHER.

By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	ACCUMULATED.									
	Above (+) or below (—) the Mean for the week ending Feb. 28.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.	More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inch.				
1 7 +	40	13	+ 67	- 38	2	40	10.1	25	17	
2 4 +	43	25	+ 48	- 2	6	19	1.8	37	28	
3 Oaver.	19	46	+ 22	+ 57	4	18	1.0	47	27	
4 Oaver.	29	63	+ 7	+ 124	4	21	1.8	67	34	
5 1 +	35	62	+ 24	+ 84	5	16	1.9	59	34	
6 Oaver.	27	48	- 16	+ 132	5	19	2.6	62	35	
7 3 +	37	19	+ 41	- 24	7	29	5.0	25	23	
8 4 +	45	19	+ 43	+ 24	5	18	2.3	59	31	
9 3 +	45	17	Oaver.	+ 83	8	18	3.6	66	39	
10 5 +	43	8	+ 12	- 8	5	27	2.3	24	29	
11 4 +	46	3	+ 28	+ 11	7	23	2.7	30	32	
12 3 +	46	6	- 2	+ 45	6	20	2.3	89	51	

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending February 28, is furnished from the Meteorological Office:—

"The weather has continued fine and generally mild over Ireland and Scotland, while over England fine, bright days have alternated with cold and foggy nights and early mornings. At some stations during the earlier days of the week the fog and cold continued throughout the day; in the metropolis and its neighbourhood this was especially the case.

"Temperature has varied greatly, and the diurnal range has been unusually large. The average of the week has exceeded the mean for the time of year in Ireland, Scotland, and all the western and north-western parts of England, and has about equalled the normal over eastern, southern, and central England. In 'Scotland, N.,' the excess has been as much as 7°. The highest of the minima, which were recorded on the 24th, in the north, and on the 27th in most other localities, varied from 67° in 'England, E.,' and 'N.W.' (at Cambridge and Llandudno), and 66° in 'England, S.,' and 'S.W.,' to 60° in 'Scotland, W.' The lowest of the minima were registered on irregular dates, and ranged from 19° in 'Scotland, E.,' and 20° over eastern, central, and north-eastern England, to 29° in 'Ireland, S.,' and 34° in the 'Channel Islands.'

"The rainfall has again been entirely absent in almost all parts of the kingdom; in the extreme north and north-west of Scotland, however, some rather heavy falls occurred both at the beginning and end of the week.

"Bright sunshine has again been very abundant generally, but it has varied considerably in different localities, and in some places has been nearly absent. The percentage of the possible duration varied from 24 in 'Ireland, N.' and 25 in the north and west of Scotland, to 62 in 'England, S.,' 66 in 'England, S.W.,' 67 in 'England, E.,' and to 89 in the 'Channel Islands.' In London the percentage was only 18, while at Glasgow it was no more than 3."

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

Can any of the readers of the *Gardeners' Chronicle* inform M. E. what kind of vegetables, if any, were consumed by the inhabitants of these islands, between the departure of the Romans and the invasion of Duke William?

ANDREW MURRAY.—A gardener of this name (not the former Secretary of the Royal Horticultural Society), was Curator of the Botanic Garden, Cambridge, for some years. What authentic testimony is forthcoming as to the correctness of the allegation that he was previously gardener to Sir Walter Scott? D. D.

NOTICES TO CORRESPONDENTS.

ADMISSION OF GARDENERS TO KEW: D. V. Seeing that you require information about Kew, it should have occurred to you that the Kew authorities are the proper persons to whom you should apply.

AMERICAN BLIGHT: F. S. The woolly aphid or American blight differs from the Apple aphid, which injures only the leaves, in having different lines of veins on the wings. It was thought at one time that the aphid on the roots differed from those on the branches, but it is now believed to be the same. In place of the soap-suds, use stable-manure-water diluted with five or six times its bulk of clear water. If the trees are so large that you cannot economically deal with them in the manner advised, cut them back hard, and smear the cuts with tar, keeping a sharp look-out for the insects in the neighbourhood of the infolding edges of new bark that forms around the wounds made by the pruning-saw. Rub the emulsion into the crevices as before advised, or even to paint the trees over with clay, soft-soap, soot, and sulphur would be of great use. The grease band placed round the trees near the ground would be of use. See *Gardeners' Chronicle* for a list of insecticides.

CEDAR: C. E. S. The foliage is more like the Atlantic than the Lebanon Cedar, and the photograph also suggests *Atlantica*; but that species is said to have been introduced only in 1843. The presumption, therefore, is that your tree is the Lebanon Cedar. The Deodar is out of the question. When it produces cones or catkins, kindly send some.

CHRYSANTHEMUM CUTTINGS: Foreman. The soil should be of moderate richness, and made porous by the liberal use of fine sharp sand; and if the drainage be made perfect, the soil may be made moderately firm by hand pressure, and after the cuttings are inserted, it will be sufficient if it is slightly pressed against them with the dibble. It is im-

portant that the end of the cutting touch the bottom of the hole. Some gardeners surface the cutting pot with sand to the depth of $\frac{1}{2}$ -inch, others do not. It is good practice, as it tends to lessen the probability of the decay of the cutting at the ground level.

CELOGYNE: J. M. The house is kept too damp, and perhaps too warm for the plants while in bloom.

DARJEELING: J. C. By making application to the Curator at Kew, you would be informed of all that you require to know.—P. R. Apply in the first instance to the Curator of the Royal Gardens, Kew.

EUCHARIS, WITH NINE FLOWERS ON A SPIKE: R. Dover. There is nothing very unusual in a spike having nine flowers, nor in twelve plants having seventy-six flower spikes.

EUCHARIS AMAZONICA: L. M. In our next number we hope to be able to give a short article treating of the management of this plant. There does not exist any book on the subject.

FLUTED OR CORRUGATED GLASS: R. C. It is suitable for the roofs of Fern houses, propagating pits, or houses used for retarding of growth or bloom, or the winter storage of half-hardy evergreen and deciduous plants. Owing to the light being much subdued where it is employed as the covering for the roof, its use near smoky towns is inadvisable. Clear glass, using shading when necessary, is the best.

GRAPES IN AN UNHEATED NURSERY: J. M. A. Of those you mention, only Lady Downes, Black Hamburg, Foster's Seedling, and other Sweet-water varieties; and Fontignan White, Grizzly, are better still.

GYMNASIUMS IN PUBLIC PARKS: Parks. In London these are found at Finsbury, Southwark, Victoria, and Battersea Parks. In Newcastle-on-Tyne, The Leazes Park is well found in bowling and quoit grounds; and that at Jesmond Deen is elaborately fitted up with gymnastic appliances and playing places. Many of the other great towns in the north are well provided; Leeds has spacious bowling-greens, which can be flooded in winter to form skating-rinks; and other means of recreation and exercise are provided at the Arboretum. As a floor for the gymnastic ground, sand or "shell gravel" is better than asphalt, as falls will occur, and a soft alighting place has distinct advantages over a hard one; and dust in summer-time can be laid by the use of the hose or water-cart.

INDIARUBBER SYNDICATE: Ceara. We know of none.

LINDENIA: Ceara. Apply to M. Lucien Linden, Rue Belliard, Brussels.

MANURE FOR SEAKALE: S. K. In your sandy soil, nitrogenous manures in the form of Peruvian guano (containing also about 30 per cent. phosphate of lime), might be supplemented by a dressing of phosphate of lime, the former having one part, and the latter three parts of the whole. It may be applied broadcast during the growing season, at the rate of 5 cwt. per acre, this amount being, by preference, given at intervals of four weeks, instead of all at one time; and as a supplementary dressing for the crop, salt may be given at the rate of 3 cwt. per acre. In your district, sea-weed should be obtainable in quantity, and this, when ploughed in, in large quantities in early winter, is a good manure for Seakale.

MOSS ON TREE FERN: C. R. 1, is a Liver-wort or *Marchantia*, very common in damp greenhouses; 2, is a moss which we cannot name with certainty. So long as they do not come into contact with the growing parts they are not likely to do harm, but we should keep them in check.

MUSHROOM SPAWN: J. H. Perhaps for the want of sufficient time, or from its being kept too dry and cool, the horse-dung is not well permeated with Mushroom spawn. It is the true kind, and is worth a trial, at least. Spawn to keep for a year should be made of horse droppings two-thirds, loam one-third, and a little cow dung—for home use the last-named may be omitted.

NAMES OF PLANTS: Florist. The plant that you mean is the Gueldres Rose, or Snowball tree, *Viburnum opulus*. It is a large shrub, of an upright habit of growth, having globose heads of white flower, which appear in May, and last until June. The flower is succeeded by bunches of crimson berries. —*Matfen*. *Cypripedium Sedeni*.—H. M. 1, *Picea polita*; 2, *Picea obovata*; 3, *Abies Lowi*; 5, *Juniperus excelsa*.—F. H. 1, *Juniperus chinensis*; 2,

Cupressus Lawsona erecta viridis; 4, *Pinus insignis*; 5, *Pinus muricata*; 6, *Pinus excelsa*.—B. (see ante, p. 250) 1, *Abies Nordmanniana*; 4, *Pinus cembra*.—A. H. B. 5, *Abies balsamea* (probably); 6, *Picea nigra*.—[?] in cardboard roll, *Cupressus Goveniana*.—W. Fisher. *Iris fimbriata* (Chinense).—J. W. 1, *Blechnum occidentale*; 2, *Polystichum angulare proliferum*; 3, *Adiantum assimile*; 4, *A. Capillus-veneris*; 5, *Correa alba*.—T. C. *Epidendrum odoratissimum*.—J. W. H. Next week.—X. O. T. 1, *Aloe socotrina*; 2, *Bambusa Fortunei variegata*; 3, *Calacia ficoides*; 4, *Bambusa gracilis variegata*.—H. B. 1, *Tricopillia coccinea*; 2, *Oncidium abortivum*.—H. M. 1, *Lachenalia tricolor*; 2, 3, next week; 4, *Nephradium molle var. cristata*; 5, *Pteris longifolia*; 6, *Doryopteris palmata*.

PERSIMMONS: A. M. Botanical name, *Diospyro Kaki*. The fruit is not much known in English gardens, although it is hardy enough in our warmer counties, and ripens its fruit with us in special localities in exceptionally dry and warm summers. See *Gardeners' Chronicle* for Feb. 7 and 21 this year, where will be found figures of the fruits and a good deal of information respecting this plant and its varieties.

POISONING BY PRIMULA OBCONICA: E. S. The matter has been frequently mentioned of late in these columns.

SCARLET RUNNER BEANS: Histon. Not always sown in straight lines, but sometimes in circles of 6 feet in diameter, the bean-sticks being made fast at top to a small hoop made of a stout Hazel or Ash rod. These circles are ornamental, and much more steady than long lines, which are apt to suffer much in windy weather. The flowers come to the outside, so that all the pods are easily reached, and there is no shading of one circle by another, as is the case with contiguous lines.

STEPHANOTIS LEAVES: *Stephanotis*. The leaves appear to be old leaves, which have long dropped from the plant.

VEGETABLE PATHOLOGY: A. T. *Timber and some of its Diseases* (by H. Marshall Ward), *Diseases of Field and Garden Crops* (by W. G. Smith), both published by Macmillan; *Diseases of Plants* (by H. Marshall Ward), published by the Society for Promoting Christian Knowledge. Prof. Plowright's Lectures will be published in our columns.

WORM EATEN APPLES: Pomona. Your apple trees have been infested with the Codin moth, *carpocapsa pomonana*, the caterpillars of which gnaw a passage from the outside to the middle of the fruit. The moth lays one egg, usually in the eye of each fruit early in summer, the maggot hatches, and gnaws its way downwards, but so as not to injure the core. This hole is continued downwards to the outside, and forms a channel for the passage of the maggot's pellets. After having made this hole, the maggot returns towards the centre, puncturing the core in the now full-grown fruit. They usually descend to the ground before the fruits fall. Some good might be done by shaking the trees slightly before the fruit is fit for gathering, and this would have the effect of bringing down the maggoty fruits, which should be collected and burnt or given to pigs. The grubs late in the year crawl up the trees and hide in crevices of the bark; and this habit affords a means of trapping them on their passage up the bole, which may be done, wrapping around it pieces of carpet or sacking to serve as hiding places. These should be examined in late autumn, and all insects found therein killed. The grease band might be found of use if put on the stems in early October.

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DIED.—On February 26, at Tadema Road, Chelsea, SUSAN, the devoted wife of the late John Dominy, aged 77.

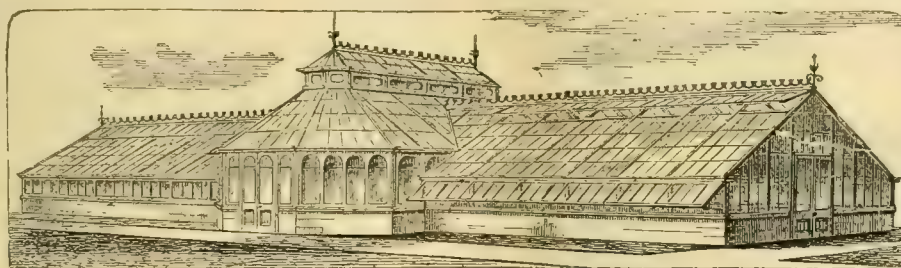
COMMUNICATIONS RECEIVED.—J. H.—P. MacOwan.—F. R.—W. B. H.—R. H. P.—J. N.—J. D.—T. W.—G. R.—H. W. W.—G. W. E.—T. H. K.—R. D.—W. A. C.—G. W.—W. E.—A. D.—W. R.—O. J. W.—H. M.—J. A. K.—J. H.—G. B. L.—D. T. F.—W. S.—A. P.—J. G. B.—Dr. T. Kränzin.—J. J. W.—E. F.—G. W. H.—Alexander McDougal (next week).—B. F.—J. J.—W. W.—F. W. B.—H. H. D'O.—J. I.—D. D.—H. A. B. (New York).

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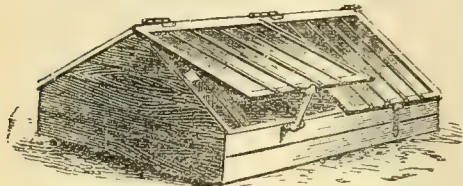
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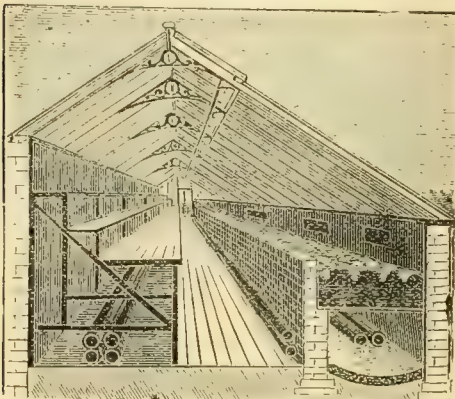
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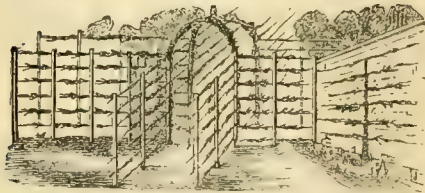
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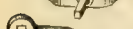
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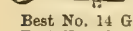
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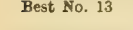
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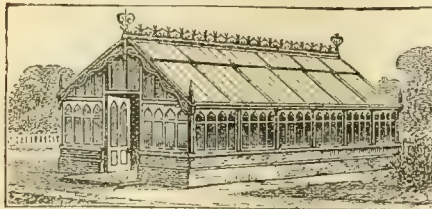
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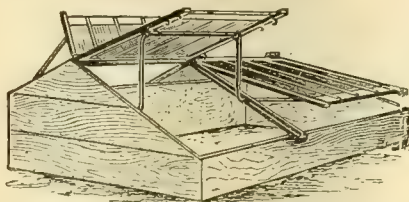
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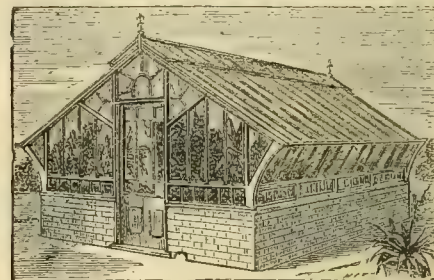
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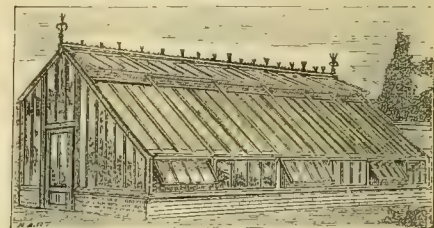
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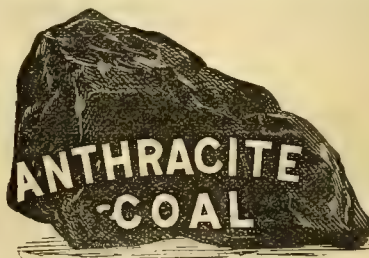
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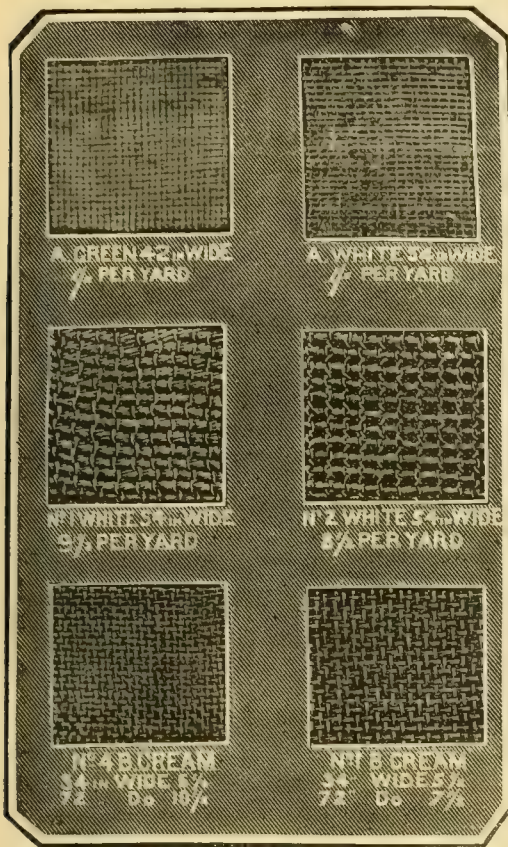


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NATIVE GUANO for ROSES, TOMATOS, &c.—W. G. BAILEY, Nurseries, Bexley, used it for Roses, Tomatoes, and Cucumbers, and says:—"I find it a good and cheap article."

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Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials, &c., may be obtained. Agents wanted.

GISHURST COMPOUND used since 1859 for Red Spider, Mildew, Thrips, Greenfly and other blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a winter dressing for Vines and Orchard-house trees, in lather from cake for American blight, and as an emulsion when paraffin is used. Has outlived many preparations intended to supercede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY Limited, London.

THE PATENT SILICATE MANURE FOR VINES. THE MANURE OF THE FUTURE. FOR TOMATOS.

Eight-page Circular of First-class Testimonials, free on application.

Ashford Vineyard, Fordingbridge, Hants, November 20, 1890
DEAR SIRS,—You will be pleased to hear that I was 1st at Portsmouth for three bunches of Alicante, seven entries, weight 7½ lb.; 2nd, close 2nd, at the Royal Aquarium, Westminster, for three bunches of Alicante, ten entries, weight 8½ lb.; 3rd at Bourne-mouth for three bunches of Alicante, six entries, weight 6½ lb. ALL FED ON SILICATE ALONE. Those who see my ALICANTE say they never saw or tasted such quality; the finish is superb, and flavour and firm flesh excellent.—Yours truly,
(Signed) STEPHEN CASTLE.

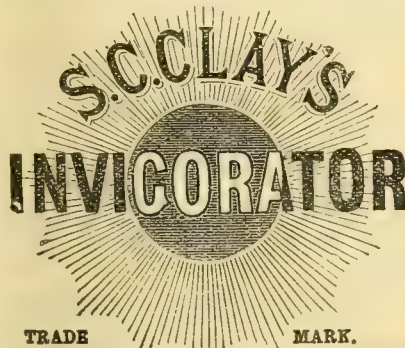
The Gardens, Hardwick Hall, Chesterfield, November 6, 1890.
SIRS,—I find your Patent Silicate Manure a most valuable manure for Tomatos, increasing them both in size and productiveness in a most marked manner.—I remain, yours truly,
(Signed) E. WILSON,
Gardener to the Marquis of Hartington.

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GENTLEMEN,—I have tried your Patent Silicate Manure, and am quite sure it is the best I have used for Vines. I may say that many of the Vines here are very old, and I had decided to cut them out; but as your Manure has produced much good results, I shall certainly try them again, and continue to use your valuable Manure, which only requires to be known to be appreciated.
(Signed) CHARLES J. MEE,
Gardener to Lord Middleton.

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PRICES in Sacks, free on Rail:—
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Chemical Works,
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QUICK. LASTING. ECONOMICAL.

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To Mr. S. C. Clay. J. & J. HAYES, F.R.H.S.

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7 lb. 14 lb. 28 lb. 56 lb. 112 lb.
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The above Trade Mark is printed on every Packet and Bag, and also impressed on the Lead Seal attached to the mouth of each Bag.

A SAMPLE PACKET will be sent post-free on receipt of ONE SHILLING by the MANUFACTURER—

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Strongly recommend Private Owners, Gardeners, Secretaries of Cricket and Lawn Tennis Clubs, and Proprietors of Bowling Greens, to AT ONCE SEND (without waiting till they are actually required for use), their LAWN MOWERS to be made practically EQUAL TO NEW.

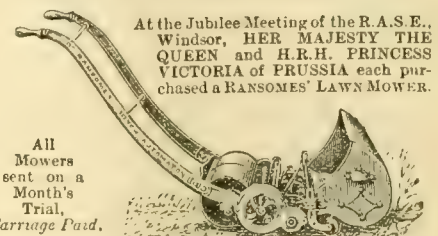
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LAWN MOWERS,

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In all sizes to meet every requirement.
"NEW AUTOMATON," the Best Gear Machine.
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"EDGE CUTTER," the only one of real service.
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Orders executed promptly by all Ironmongers.
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In Bottles, 2/- and 3/6; ½ gallon Tins, 5/-
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To be had of the Trade, or direct of the Sole Manufacturer,

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EPPS'S selected PEAT.

EPPS AND CO. having now in store from their new grounds a good stock of FIRST-CLASS PEAT, in good condition, are prepared to execute orders forthwith. They invite their numerous patrons to place their orders with them as soon as possible, in order to receive the same in good condition. First-class LOAM, very superior LEAF-MOULD, SAND (coarse and fine), SPHAGNUM, CHARCOAL, &c., &c. Special Railway Rates. The Old-established Peat Dépôt, RINGWOOD, HANTS.

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VERY SUPERIOR.
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For PRICE LIST, and Particulars, write to—
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Supersedes all Others.

FOR SHADING GLASS ROOFS OF ALL KINDS.
Is the Cheapest. Goes four times as far
as the old preparations. Note its merits
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Messrs. CARLTON, Contractors for the painting
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"By order of the Directors we applied this Shading to
the glass roofing of the Glasgow Exhibition, and found it
possessed great advantages over all other preparations we
had met with. Being applied cold it was most convenient
to use, and while it resisted the action of the rain the whole
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1 lb. (cost 1s.) makes half a gallon for use.

THE "PERFECT" WEED KILLER

Trial sample post free.

Maintains its Superiority over all Rivals
for permanently destroying vegetation on Walks, Carriage
Drives, Ash Tennis Courts, Stonework grown green, etc.

Saves many times its cost in labour, and will keep
Walks, etc., clear of Weeds for a year or more.

Used in the proportion of 1 gallon to 2½ gallons of Water.

THE BEST TESTIMONIAL IS
A GUARANTEE OF COMPLETE EFFICIENCY.
And we hereby Guarantee all Weed Killer bearing our Trade
Mark to be thoroughly efficient, and to give satisfaction.

SPECIAL QUOTATIONS FOR TRADERS.

Carriage paid on 10 gallons and upwards.

The GARDENERS' MAGAZINE, of
21st June 1890, says:

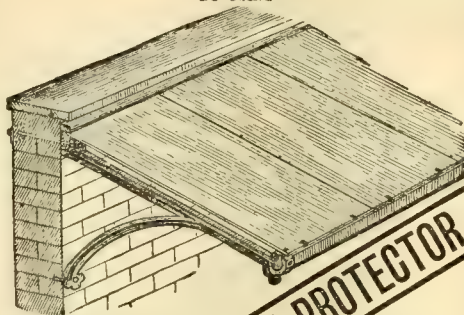
Observations in several quarters in the past two years have
convinced us that the "Perfect" Weed Killer of the Horti-
cultural and Agricultural Chemical Company, 97 Mile
Street, Glasgow, is the very thing that has long been wanted.
This is at once simple, cheap, and effective, and requires
only reasonable care to ensure perfect action and lasting
results. At the Royal Gardens, Kew, the R.H.S. Gardens
at Chiswick, and other public places near London, the
"Perfect" Weed Killer is trusted for making a clean sweep
of the road weeds, and, therefore, plays an important part
in the keeping of the roads."

SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97 MILTON ST., GLASGOW.

CAUTION.—Please carefully note our name, address, and
trade mark, and do not be deceived by imitations.

SOLD BY SEEDSMEN, ETC.

SAVE YOUR FRUIT CROP BY USING



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THE
CHEAPEST MADE
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2 feet wide, 1s. 10d. per foot run.
3 feet wide, 2s. 6d. per foot run.
Carriage paid for Orders over £5.

PRICE LISTS OF WALL-TREE PROTECTORS,
GLASSHOUSES, HEATING APPARATUS, &c., free.

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HORTICULTURAL BUILDERS AND HOT-WATER ENGINEER,
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CELEBRATED WESTON
FLOWER POTS
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HORTICULTURAL
POTTERY.

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Best quality and workmanship, 2 inches thick, 6 ft. by 4 ft.,
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CUCUMBER HOUSES.

Timber sufficient to build 100 ft. by 12 ft. house, lights, door,
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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),
40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.

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YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
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SPHAGNUM MOSS, 8s. 6d. per sack.

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CLOTH, RUSSIA MATS, &c. Write for Price LIST.—
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Lane (lately called 17A, Coal Yard), W.C.

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sack. SPHAGNUM MOSS, 7s. 6d. per sack. Horticultural
CHARCOAL, 8s. per sack. BONES, 4-inch, 10s. per cwt.;
DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER,
10d. per lb.; 28 lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 26s.;
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Coarse SILVER SAND, 1s. 6d. per bushel, 14s. per ½ ton, 25s.
per ton. LEAF MOULD, PEAT MOULD, FIBROUS LOAM,
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sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches
by 4 feet 6 inches, 16s. per dozen. PETERSBURG MATS,
12s. and 10s. per dozen. BAMBOO CANES, STICKS, and
SUNDRIES. List free.—W. HERBERT AND CO., Hop
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new, and well heated, glazed with 21 oz. glass; also
contents of same, about 150 dozen Geraniums in 48 and 32-pots,
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FIBROUS PEAT for Stove and Greenhouse use. RHO-
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WALKER AND CO., Farnborough, Hants.

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Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo
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WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

100,000 yards to select from.
EXTRA STOUT strong-tanned NET, 2 yards
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Beds, 21s. per Ton, or £4 4s. per Truck of 4 tons.
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PEAT, of first-class quality, for Ferns and
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HAWKINS'S FLUE. It is easily fixed; cannot rust or
smoke; does not get out of order; ensures a good, regular
draught; needs no hot-water apparatus; is very economical;
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The Leading County Paper. Extensive circulation among the upper and middle classes in Worcestershire and adjoining counties. Advertisers would do well to forward for reference and distribution plans and particulars of Estates, Catalogues of Machinery, Furniture, Books, and other Property advertised in the Columns of the "HERALD."

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Mr. J. MACDONALD, late of Angeston, Dursley, as Gardener to Capt. MARLING, Clanna, Lydney, Gloucestershire.

Mr. JAMES SMART, recently Head Gardener at Thirkleby Park, Thirsk, Yorks, as Head Gardener to T. H. WATT, Esq., Bishop Burton Hall, Beverley, Yorks.

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WANTED, several young MEN, used to Fruit, Flower, and Plant Growing under Glass.—Apply, stating wages, to FOREMAN, Turnford Hall Nurseries, Broxbourne, Herts.

WANTED, THREE or FOUR young MEN used to growing Cucumbers and Tomatoes. Apply with references and wages required, to 35, Queen Street, Cardiff.

WANTED, an UNDER GARDENER, must understand Cows and Poultry, as well as Glass and Kitchen Garden, not under 23 years of age. Wages 20s.—Full particulars to Mr. BIRTS, Ashted Grange, Ashted, Epsom, Surrey.

WANTED, at ONCE, a Young Man, quick at potting, tying and watering. One used to Nursery work. Wages 18s. Write, stating age, experience, and reference, to C. H. GORRINGE, Roseland Nursery, Eastbourne.

WANTED a young MAN with some knowledge of the nursery trade, his work would be principally in the office. He would be expected to fill up spare time in the glass department. Excellent references required.—MARSHALL BROS. & CO., Nurserymen, Barnham, Bognor.

WANTED, young MAN (from Market Nursery preferred) accustomed to Ferns, Fuchsias, Pelargoniums, &c. Give particulars. Permanency.—T. HAMP, The Nurseries, Aylesbury, Bucks.

WANTED, a steady MAN, well up in growing Grapes for Market.—Apply, after 7 P.M., J. PURROTT, Brookhill Road, New Barnet.

WANTED, a strong, willing young MAN, for Garden, age 17 or 18. Abstainer preferred.—Apply, between 1 and 2 o'clock, at 32, New Croxted Road, West Dulwich.

WANTED, a GARDEN LABOURER, to live in the Lodge. Wife to open gate. Wages 13s. per week.—Hon. Mrs. A. PENNANT, Lillingstone Dayrell, Buckinghamshire.

WANTED, a young MAN, to take sole charge of Houses in country Nursery; well up in Growing and Propagating in all its branches; from neighbourhood of London preferred.—Apply, stating Wages, and all particulars, to THEODORE J. K. CHALICE, Nurseryman, &c., Plympton, Devon.

WANTED, an active young MAN, used to potting, watering, and tying for Market.—Mr. W. ORPWOOD, The Nursery, Cowley Mill Road, Uxbridge, Middlesex.

WANTED, a young MAN for Florists and Seedsman's. Must be quick, good Salesman, and have good knowledge of Plants.—Apply by letter, Mr. F. SILLICK, Mr. Monro, Tavistock Street, Covent Garden.

WANTED, a young MAN for Fruit and Plants. 18s. per week and bothy.—Apply by letter only, R. LOVELESS, Arnot Hill, Nottingham.

WANTED, a Youth (nursery-trained), as ASSISTANT under Glass; well up in Watering, Potting, &c. Wages to start at 15s.; no bothy.—STOWIE AND STOWIE, Florists, Dundee, N.B.

WANTED, INVOICE CLERK.—Good Writer, Quick at Figures, and Industrious.—Apply, stating age, salary required, and where previously employed. WATKINS AND SIMPSON, Exeter Street, Strand, W.C.

WANTED, a young LADY to assist in Shop and learn the Floral and Seed Business. Small premium.—E. D. BRISTOW & Co., Barnes, S.W.

WANT PLACES.

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SANDERS, St. Albans, can thoroughly RECOMMEND several first-class HEAD GARDENERS.

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, Liverpool, are in a position to recommend a first-rate man as HEAD GARDENER, or GARDENER and BAILIFF; also a thoroughly competent man as HEAD GARDENER, who has a good knowledge of Orchids; unexceptional references in each case.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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MESSRS. WOOD AND SON, Wood Green, London, N., can strongly recommend Robert Nelson (age 36), to the notice of those requiring the services of a trustworthy, practical man as HEAD GARDENER. Particulars on application.

GARDENER (HEAD); age 32; married.—Good practical experience in all branches; six years as Head. Good references.—G. KNIGHT, care of Mr. Knight, Bond End, Knaresborough, Yorks.

GARDENER (HEAD); married when suited.—Eighteen years' practical experience in all branches of Gardening at large Establishments; three years in last situation, as Foreman, at Downton Castle. Can produce first-class testimonials.—R. SUPPLE, 135, Poolstock Lane, Wigan, Lancs.

GARDENER (HEAD); age 35; married.—Several years practical experience in all branches—Vines, Orchids, Ferns, Hardy Fruits, &c. First-class references.—J. T. Messrs. Carter, Page, & Co., Seed Merchants, 52 and 53, London Wall, E.C.

GARDENER (HEAD).—Age 30, single. Fifteen years' experience; three years in present situation. Good references.—E. RUSSELL, Moray Lodge Gardens, Campden Hill, Kensington, W.

GARDENER (HEAD), where two or more are kept, or as FOREMAN; age 26; abstainer.—W. MONK, Moor Hall Gardens, Harlow, Essex, will be pleased to recommend A. J. Searle as above. Has been with him four years.

GARDENER (HEAD); age 30.—G. W. CUMMINS, Gardener to A. H. Smee, Esq., The Grange, Wallington, can recommend to any Lady or Gentleman, a man thoroughly qualified to Manage a large Garden. He has had considerable experience in Orchard Growing, Fruit Culture, &c., and possesses a good practical knowledge of the profession in all its branches.

GARDENER (HEAD).—Situation wanted by a man of exceptional references and ability; where there is scope for energy and skill.—H. THOMPSON, Seed Merchant, 5 and 6, Market Place, Rochdale.

GARDENER (HEAD), where two or three are kept. Situation wanted by a good all-round man. Age 34, married.—A. B. C., 7, Trenholme Road, Anerley, London, S.E.

GARDENER (HEAD), where two or three are kept; single.—Mr. E. BLAND, Bsbworth Hall, Retford, can with every confidence recommend a Man as above. First-class references.

GARDENER (HEAD).—H. MARKHAM, Mere-worth Castle, Maidstone, would be pleased to forward particulars to any Gentleman requiring a first class gardener with not less than eight under.

GARDENER (HEAD), age 32.—G. CURTIS, six years Head Gardener to Hon. R. H. Dutton, seeks re-engagement. Practical experience in all branches: Forcing, Hardy Fruit Culture, and requirements of good establishment. Married. Abstainer. Excellent references.—Timsbury Manor, Romsey, Hampshire.

GARDENER (HEAD), where two or three are kept (or good SINGLE-HANDED).—F. W. RUSSELL, Head Gardener to E. T. Daxat, Esq., Woodgreen Park, Cheshunt, would be pleased to recommend E. Jenner, who has been here for the last two and a half years, as a thoroughly efficient and reliable man.—For particulars, please reply as above.

GARDENER (HEAD), where two or three more are kept.—Age 35, married, one child, age 5. Nineteen years' practical experience in first-class establishments. Highest references.—A. HUGHES, The Mount, Waverton, Chester.

GARDENER (HEAD).—Age 40, married, no family; twenty-five years' experience. Fruits, Flowers, and Vegetables. Indoor and Out. Seven years in present situation.—T. ATKEN, 3, Boston Street, Darlington.

GARDENER (HEAD).—A Lady can highly recommend a superior and conscientious man for the routine of establishment. Most excellent Fruit, Orchid, and Exotic Plant grower. Has served her over ten years; unimpeachable testimonials, and prizes may be seen.—M., 20, Pelham Terrace, New Eltham.

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GARDENER, ORCHID GROWER, or MANAGEMENT of Fruit Farm, or similar place of trust.—A situation wanted at home or abroad as above. Thoroughly proficient in all branches. Good testimonials and references. C. J. CATT, Old Place, Landhurst, Hawkhurst, Kent.

GARDENER (HEAD), and ORCHID GROWER, in good general place.—Married; upwards of twenty years' experience. Twelve years' character.—X. W., Gower, Tooting Graveney.

GARDENER (HEAD) and BAILIFF.—Thoroughly experienced in every branch of high-class Gardening, and Management of Dairy and other Stock, Land, &c.—X. Y. Z., 41, Wellington Street, Strand, W.C.

GARDENER (HEAD WORKING), where two or three are kept.—Age 28; well up in all branches. Very highly recommended.—R. HINARY, The Gardens, Roke Manor, Romsey.

GARDENER (HEAD WORKING).—Age 44, married, no family; thoroughly experienced in all branches. No objection to Land. Eight years' good recommendation.—J. PENFORD, Thruxton, Andover, Hants.

GARDENER (HEAD WORKING); age 31, married.—F. KING, Gardener to A. F. Perkins, Esq., Oak Dene, Holmwood, Surrey, can with confidence recommend his Foreman (E. Fitzwater) to any Lady or Gentleman requiring a thorough practical man as Gardener. Four and a half years' good character.

GARDENER (HEAD WORKING).—Age 37, married, no family; good practical experience. Can be well recommended. Four years in last situation, three years and a half in former one.—T. REED, Pitsford, Northamptonshire.

GARDENER (HEAD WORKING), where three or four are kept. Age 28; single; thoroughly experienced in all branches. Good references. Seven years with present employer, and three years with previous employer.—H. O., Mr. Maher, Yattendon Court, Newbury.

GARDENER (HEAD-WORKING), where one or more are kept.—Age 50; left through a death, estate being given up. Nineteen and a half years' character.—N. E., Kingscroft, Eltham.

GARDENER (HEAD WORKING); age 30, married, three children.—C. J. GOLDSMITH, Gardener to W. B. Waterlow, Esq., High Trees, Redhill, can with confidence recommend a reliable man, where three or more are kept.

GARDENER (HEAD WORKING), where two or three are kept.—The recent Bishop of WINCHESTER wishes to recommend highly his Gardener as above. Thoroughly experienced in all branches. Left through breaking up of establishment.—W. S., 25, Castle Street, Farnham, Surrey.

GARDENER (HEAD WORKING); age 35; married.—Practical experience in all branches. Two and a half years in present situation, and eleven years previous as Head; excellent recommendations from both.—J. HOLMES, Prattsam, Holmbury St. Mary, Dorking.

GARDENER (HEAD WORKING), where not less than four are employed; age 24; fourteen years' experience.—Mr. J. FRIEND, Gardener to the Hon. P. C. Glyn, Rooksnest, Godstone, can with every confidence recommend his Foreman (W. Penton) as above.

GARDENER (HEAD WORKING); just past middle age; married; no family.—Thorough in all branches. Six years' excellent character.—JOHN TOVEY, Gardener, Fernhurst, Ashford, Middlesex.

GARDENER (HEAD WORKING, or SINGLE-HANDED).—Thoroughly practical all-round. Married, no encumbrance. Death cause of leaving.—W. HOUSE, Tenchley Park, Limpsfield, Surrey.

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GARDENER (good HEAD WORKING), seeks re-engagement; was twelve years with the Earl of Strafford, and can have first-class reference from same.—E. LOVELOCK, near Lake House, Byfleet, Surrey.

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GARDENER (good SINGLE-HANDED), or where help is given.—Middle age; married; no family. Cows objected to. Good character.—Please state terms, to GARDENER, 20, Ulverscroft Road, Dulwich, S.E.

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GARDENER (SINGLE-HANDED or otherwise).—Age 30, married, one child. Sixteen years' experience in all branches. Good references.—M. L., 99, Delafield Road, Charlton, London, S.E.

GARDENER (UNDER or SINGLE-HANDED).—Age 23. Four years' reference; eight years' experience. Abstainer.—A. UPEX, 48, South Street, Wandsworth, S.W.

GARDENER (SECOND or SINGLE-HANDED).—Age 24, married. Well experienced in Vines, Peaches, and the general routine of a Flower garden. Two years in present situation; can be highly recommended.—J. KEEN, 14, Vincent Street, Leamington.

GARDENER (SINGLE-HANDED or SECOND)—Age 25, single. Good experience in all branches Good character.—J. E., Mr. Smith, boot-maker, Wormley, Herts

GARDENER (good SINGLE-HANDED).—Age 24, single. Eight years' experience in all branches. Good references.—G. P., Mr. Kingsley, Blizewood Park, Warringham, Surrey.

GARDENER (SINGLE-HANDED), or otherwise.—Age 22; five years' experience. Good testimonials from previous employers.—H. YOUNG, Ridley Road, Winton, Bournemouth, Hants.

GARDENER.—Age 28, married; abstainer. Church of England. Twelve years' experience.—GARDENER, 23, Balconie Street, South Hackney, N.E.

GARDENER (SECOND), or SINGLE-HANDED, where help is given.—Good references.—W. MALDMENT, Tilt, Cobham, Surrey.

GARDENER (SECOND), where four or more are kept; age 23.—Mr. HUNT, Gardener, Ashted Park, Epsom, would be pleased to recommend a strong active Man as above. Has had six years experience in Plants and Fruit. Please state wages.

GARDENER (good SECOND), in the Houses.—Age 25; nine years' good character.—S. LEPPARD, High Elms, Farnborough, R.S.O., Kent.

GARDENER (SECOND), in a good establishment.—Age 27; twelve years' experience, both indoors and Out. Good character.—A. SMITH, 4, Park Terrace, St. Leonard's Road, Eastbourne, Sussex.

GARDENER (good SECOND), or FOREMAN.—Age between 20 and 30, single; over eight years' good character; single. Abstainer.—H. TUPPEN, Ropley Dean, Alresford, Hants.

GARDENER (SECOND), or JOURNEYMAN, in good establishment.—Age 24; over three years in present situation. Can be well recommended.—E. HENEAGE, Elsham Hall Gardens, Brigg, Lincolnshire.

GARDENER.—Age 25, single. Four years' experience in Greenhouses, Flower, and Kitchen garden work.—D. TAYLOR, Chalfont, St. Giles.

GARDENER (THIRD, or UNDER).—Age 21. Has very good knowledge of Vines, Kitchen Garden, &c. Steady and industrious. Two years, and three years eight months previous good characters.—W. HARDY, Whitacre, Coleshill, Birmingham.

GARDENER (UNDER).—Age 25; nine years' experience. Well up in Hard and Soft-wooded Plants and Out-door Work. Seven years' character from present situation.—G. P., 22, West Green Road, Tottenham, London.

GARDENER (UNDER); age 21.—The Rev. E. D. WICKHAM recommends his well-trained Under Gardener.—The Holmwood Vicarage, Dorking.

GARDENER (UNDER), Inside and Out.—Age 24; ten years' experience. Can be well recommended. Disengaged.—H. RUMGAY, Wootton Hall, Ulceby, Lincoln.

GARDENER (UNDER), in a Gentleman's establishment.—Age 19. Strong and willing. Two years in present situation. Abstainer.—W. JONES, Middle Road, Roxeth, Harrow, Middlesex.

GARDENER (UNDER).—Age 24; good knowledge of Gardening, both Inside and Out. Experienced with Roses.—G. GARDENERS' Chronicle Office, 41, Wellington Street, Strand, W.C.

GARDENER (UNDER); age 23.—Eight years' good character. Experienced Inside and Out. Near London preferred.—H. T., Arbourfield Hall, Reading, Berks.

GARDENER (UNDER), in a large Establishment.—A GARDENER wishes to recommend a young Man (age 19), with a fair knowledge of Kitchen Garden Work, and anxious to improve.—GARDENER, Glenwood, Westcombe Park, Blackheath, S.E.

FOREMAN, in good Garden.—H. HATTO, age 25, after several good places, is now leaving at own request, desiring appointment as above.—H. HATTO, South Lodge Gardens, Horsham.

FOREMAN, or FIRST JOURNEYMAN in the Houses.—Age 25. Ten years' experience under Glass in first-class establishments.—PALMS, 39, Marlborough Place, Brighton.

FOREMAN, in good establishment; age 27.—W. PETERS, Gardener, Givons Grove, can thoroughly recommend Charles Cole as above. Five and a half years' character, two as Foreman. Twelve years' experience.—CHARLES COLE, Leatherhead.

FOREMAN, in the Houses; age 26.—Mr. A. YOUNG, Pendley Manor, Tring, can confidently recommend a young Man as above, to any Gardener requiring a practical, energetic, and trustworthy man. Eleven years' experience in various large places, and a thorough knowledge of all indoor work.

FOREMAN, or ORCHID GROWER.—Mr. GILKS, Gardener to A. Borwick, Esq., will recommend a young man as above. Eleven years' experience; five and a half in present place.—G. MORRIS, Glenholme, Stanmore, Middlesex.

FOREMAN (Houses or General).—Age 28. Fourteen years' good all-round experience. Nine and a half years in present situation. Well recommended.—C. HARRISON, Meriden, Coventry.

To Nurserymen.
FOREMAN and PROPAGATOR.—Twelve years' experience. Able to produce in quantity, Cut Flowers, Palms, Dracenas, Ferns, and general plants, for Market or otherwise. Good references and testimonials.—P. S., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

FOREMAN.—Age 25. Eleven years' experience in first-class places. Mr. F. HARRISON, Knowsley Gardens, Prescott, can confidently recommend a young man as above.

FOREMAN, in the Houses; age 26.—Mr. TEGG, Bearwood Gardens, Wokingham, Berks, can with confidence thoroughly recommend W. Hammond, who has lived with him six years, two years as Foreman.

FOREMAN.—Age 24; ten years' experience in Orchids, Fruit, Stove, and Greenhouse Plants.—Mr. WANT, the Gardens, Clare Lawn, East Sheen, will be pleased to recommend his First Journeyman as above.

FOREMAN, in good Establishment; age 27.—Mr. SQUIRES, Gardener, Quorn Hall, Loughborough, Leicestershire, can thoroughly recommend J. Searle, as above, who has been with him three and a half years. Ten years' experience.

FOREMAN, in the Houses; age 30.—F. PERRY, Spyre Park Gardens, Chippenham, wishes to recommend J. Wiltshire, who has lived with him two years as First Journeyman.

FOREMAN; age 26.—Mr. BEAMISH, Head Gardener, Gorse Hall, Staleybridge, would be pleased to recommend his Foreman, Harry Lee, to any Head Gardener requiring a good practical, energetic, trustworthy man.—Address as above.

FOREMAN, PROPAGATOR, or GROWER.—Age 27; thirteen years' experience, principally in Market Nurseries. Excellent references.—DAVID BOLRHILL, Baberton Avenue, Juniper Green, Midlothian.

FOREMAN PROPAGATOR, and SALESMAN if required. Grapes, Cucumbers, Tomatoes, Mushrooms, and Flowers, for Market. Thirty years' experience. Good references.—W. J. B. Marsh, seedman, Market Place, Kingston-on-Thames.

NURSERY FOREMAN, or FOREMAN in Houses.—A Nurseryman's son seeks situation as above. Can grow Orchids and Make up. Married; abstainer. Life experience for testimonials.—H. A. BICK, The Nursery, Acoc's Green, Birmingham.

FOREMAN and PROPAGATOR.—Age 30; seventeen years' experience in Market Nurseries, Cut Flowers, Ferns, Soft-wooded Plants, Tomatoes, &c. Good references.—HORTUS, Mr. Cabot, Grice, &c., Stopford Road, Jersey.

FOREMAN, Inside.—Age 25; twelve years' experience. Good character and references.—J. J. A. 43, Newark Road, South Croydon.

FOREMAN; age 24.—S. DAVIES, the Gardens, Weybridge Park, Surrey, would be pleased to recommend a strong and active man as above. Seven years' experience in good places.

FRUIT or GENERAL FOREMAN, in the Houses; age 27.—Mr. HORTON, Head Gardener to his Grace the Duke of Portland, can highly recommend a young man as above.—The Gardens, Welbeck Abbey, Worksop, Notts.

PROPAGATOR and GROWER.—Age 29; thirteen years' sound practical experience in the Trade. Please state wages.—G. ARCHER, 14, Stamford Terrace, Stoke Newington, N.

To Nurserymen.

MANAGER, or GENERAL FOREMAN.—Well acquainted with the general routine of the Hardy Outdoor Nursery trade, Cultivation, and Value of Stock. Thirty years' experience.—GEORGE CALLANDER, 41, Larkfield Road, Richmond, Surrey.

ROSE GROWER.—Situation required by a thorough practical Rose Grower. Has had large experience in a first-class firm; capable of growing Roses in all branches, Indoors and Out. Highest references.—A. B. C., Mr. Clarke, Sutton Cottage, near Hounslow, Middlesex.

ORCHID GROWER, &c.—Good experience. Three and half years' present situation. Four years' previous good references.—T. COLES, A. J. Hollington, Esq., Forty Hill, Enfield, N.

GROWER and PROPAGATOR.—Age 22; accustomed to Chrysanthemums, Palms, Dracenas, &c. Also Soft-wooded and General Market Stuff. Good references.—Y. 2, Cyprus Terrace, Underhill Road, S.E.

JOURNEYMAN (FIRST), or FOREMAN.—Age 25. Eleven years' experience in the general routine of gardening, Inside and Out. Twelve months Foreman in present situation. Good character.—T. FRY, Wharton Grange, Framfield, Sussex.

JOURNEYMAN (Inside), in good establishment.—Age 22; six years in present place; four years Inside. Good character.—G. PEACH, Tapton Gardens, Chesterfield, Derbyshire.

JOURNEYMAN, in the Houses.—Age 20.—Mr. BEST, Head Gardener to His Grace the Duke of Hamilton, Easton Park, Suffolk, can thoroughly recommend A. Hammond as above, who has been with him seven years.

JOURNEYMAN, or GARDENER.—Age 21; two years at Oulton Park, two years Knowsley, and now at Burghley.—Application to be made to R. GILBERT, Burghley, Stamford.

JOURNEYMAN or IMPROVER; age 18. Abstainer.—I can with confidence recommend, E. Guile, as above.—HEAD GARDENER, Cowesfield House, Whiteparish.

JOURNEYMAN, in the Houses, in good establishment.—Age 21; two years' good character, five previous.—HOLDEN, The Gardens, Hill House, Esher, Surrey.

JOURNEYMAN, Inside, under a Foreman.—Age 19; three and a half years' good character. Bothy preferred.—WALTER SURMAN, Singleton Gardens, Swansea.

JOURNEYMAN (FIRST), where he could get a good knowledge of Kitchen Garden; age 21; six years' experience.—A. CHAPMAN, Westonbirt, Tetbury, Gloucester, would be pleased to recommend Wm. Saywood as above.

JOURNEYMAN, Inside or Inside and Out.—Age 22. Good character; abstainer.—W. N., The Cottage, Hertford Lodge, Church End, Finchley, N.

JOURNEYMAN, in the Houses.—H. J. PONTING, The Gardens, Wood Norton Hall, E. Dereham, Norfolk, can strongly recommend a young man (age 20) who has been with him two years.—Address, as above.

JOURNEYMAN, in the Houses, or Inside and Out.—Age 19; good character. Leaving through lowering establishment.—G. A. O., 81, Catford Hill, Catford.

JOURNEYMAN in the Houses.—Age 22; five and a half years' experience. Can be well recommended by present and previous employers. Abstainer.—J. CARTER, The Gardens, Catton Park, Norwich.

JOURNEYMAN (FIRST), or SECOND in a good establishment; age 27.—Has been accustomed to Vines, Peaches, Strawberries, Cucumbers, Melons, Tomatoes, Plants, &c. Four and a half years' good character.—J. NICHOLS, Thornham Hall, Eye.

JOURNEYMAN, in the Houses.—Age 21. Two years' good character from present place, four and a half years' in previous one. Abstainer.—G. COOPER, Hackwood Park, Basingstoke, Hants.

JOURNEYMAN (Inside and Out), in a good gentleman's garden.—Age 20. Good character. HEAD GARDENER, J. Bunney, Danny Park, Haslemere, Sussex.

JOURNEYMAN, in the Houses.—Age 20; three years' good character. Bothy preferred.—C. GOODCHILD, High Elm Gardens, Farnborough, R.S.O., Kent.

JOURNEYMAN, in the Houses, in good establishment; age 21; two years' good character, five previous; bothy preferred.—A. LANGRIDGE, The Gardens, Nuneham Park, Abingdon, Berks.

JOURNEYMAN, in the Houses.—Age 25. Three years in last situation; several in previous.—R. NOTLEY, Stoke Holy Cross, Norwich.

JOURNEYMAN, in the Houses or otherwise.—Age 21. Five years' good character. Can be well recommended. Active and willing.—A. THOMPSON, Hershams Road, Walton-on-Thames.

To Nurserymen.

JOURNEYMAN, in the houses.—Ten years' experience. Good character.—W. MILLS, Gravel Hill, Henley-on-Thames.

IMPROVER, Inside and Out.—Age 20; fifteen months' good character, three and a half years' previous.—W. BYE, Biay's Lane, Englefield Green, Staines.

IMPROVER.—A young man, age 20, wishes to improve himself in Market Garden, where Fruit, Flowers, and Vegetables are grown. Would give a small premium. Can be well recommended.—W. WREN, The Firs, Normandy Park, Guildford.

IMPROVER, Inside; age 20.—G. EUINTON, Gardener to Lieut.-General Marsack, Elstead Lodge, Godalming, Surrey, wishes to recommend H. Kishinbury to any Gardener requiring a good industrious young man. Five years' experience. Bothy preferred.

IMPROVER, in the Garden, under Glass; age 18. Five years' good character from last employers.—ERNEST GARDINER, Brandfold, Goudhurst, Kent.

IMPROVER, in a large Garden.—Age 21; steady. Has a very good knowledge. Four years' excellent character.—E. REES, Glanhelig, Boncath, R.S.O., South Wales.

IMPROVER; age 20.—Good knowledge of Work Inside and Out. Three years' excellent references.—W. FORD, Netherseal, Ashby-de-la-Zouch, Leicestershire.

IMPROVER, in a Gentleman's garden.—Age 18. Can be highly recommended. Three years' good character.—J. SMITH, 194, Kilburn Lane, Queen's Park, N.W.

IMPROVER, Inside or Out.—Age 19; six years' experience. Good reference from Head Gardener. Anxious to get on.—J. WELLER, Gardener, Longstock House, Stockbridge, Hants.

IMPROVER, in the Houses.—Age 19; four years' experience, two Inside, and two Outside. Excellent character.—T. BEESON, Sanderstead, Croydon, Surrey.

IMPROVER, Inside, or Inside and Out, where four or six are kept.—Age 19. Bothy. Five years' experience. Abstainer; strong and willing.—WM. KITCHEN, Gloddaeth, Llandudno.

TO GARDENERS, &c.—Advertiser, waiting for situation as Head Gardener, requires TEMPORARY EMPLOYMENT. Practical experience in all branches. First-class testimonials.—CARR, Fern Villa, Weybridge.

TO GARDENERS, &c.—A Head Gardener wishes to recommend a respectable young man as In-door and Outdoor Gardener (age 20), to anyone requiring a reliable young man; disengaged.—H. DOLMAN, Myrtle Cottage, Bathampton, Bath.

TO GARDENERS.—A young Man, age 23, wants a constant situation in a Gentleman's Garden as odd man, and be useful, strong, and willing. Abstainer. Nine months' experience. Country preferred. Excellent reference. Wages less object than constancy.—CHARLES SMITH, 23, Longfield Street, Merton Road, Wandsworth, Surrey.

TO NURSERYMEN.—Situation wanted, in a Market Nursery. Ten years' experience in Palms, Ferns, Vines, Soft-wooded Stuff, &c. Good references.—A. E. B., Mr. Bennett, 44, Upper Manor Street, Chelsea, S.W.

TO NURSERYMEN.—Situation wanted as IMPROVER, or UNDER GARDENER. Total abstainer.—M., 88, High Street, St. John's Wood, N.W.

TO NURSERYMEN.—A young man, age 24; nine years' experience in Vines, Tomatoes, Ferns, Palms, Carnations, &c.; well up in bunching, thinning, and tying.—M. A., Turnford, near Broxbourne, Herts.

TO NURSERYMEN.—Wanted by April 1 or later, in a Nursery, a situation under the Foreman. Understands the cultivation of Plants for Market. First-class hand at Wreaths, Crosses, &c. Age 26.—F. O., Carus-Strasse 10 I, Dresden, Germany.

TO NURSERYMEN.—Situation wanted by a young Man (age 23), as Soft-wooded PROPAGATOR or GROWER. Seven years in London nurseries.—ELLEMENT, Florist, Church End, Finchley.

TO NURSERYMEN.—Situation wanted by Advertiser (age 23), in a Market Nursery. Experienced in Soft and Hard-wooded Stuff.—B., 33, Avenue Road, North Finchley.

TO SEEDSMEN.—Situation wanted, in a Seeds Office or Warehouse. English, German, French Correspondence. Shorthand. Thorough knowledge of Horticulture and Book-keeping. Good references. Wages moderate.—S., 2, Cyprus Terrace, Underhill Road, S.E.

SALESMAN.—Age 24; well up in the treatment of Flowers. Employed last at Manchester. Had a life experience.—H. R., Mrs. Beech, 31, Garden Lane, Salford, Manchester.

TO FLORISTS.—Young Man (age 26), thoroughly experienced in Making-up of Flowers and Fancy Designs. Had experience in France and Germany, and three years in the most fashionable shop in London.—D., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

SEED TRADE.—Advertiser seeks situation in either Office or Shop. Good references.—T. W. COBURN, 37, Falmouth Road, New Kent Road, S.E.

TRAVELLER or MANAGER.—Twenty-three years' experience in all branches; first-class references from past and present employers. Salary £3 per week.—H. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

SHOPMAN (ASSISTANT).—Age 20; six years' experience in Seeds, Bulbs, Cut Flowers, and choice Fruits. Good references.—R. P., 9, Wilson Street, Kendal.

ASSISTANT, either in Shop or Warehouse.—Age 27.—H. WRIGHT, 4, Livingstone Street, Dereham Road, Norwich.

Seed Trade.

ASSISTANT.—Age 24; nine years' experience, including three years in a Wholesale House, requires situation as above. Good references.—T. H., 34, Derby Street, Norwich.

SHOPMAN or SALESMAN.—Age 26; general knowledge of the Nursery, Seed, and Plant Trade; Wreaths, Bouquets, &c. Good references.—W. D., Yarnall Station, Lansdown, Bournemouth.

COWMAN, wants situation in private Gentleman's service; married, no family. Thoroughly understands Management, Breeding Stock, Poultry, &c. Nine years' character.—G. J., Mrs. R. Greenwood, New Road, Ham Common, Surrey.

COWMAN.—Age 25; understands all kinds of Stock and Poultry. Married.—W. FORD, 4, Jessamine Terrace, New Street, Old Hampton, Middlesex.

COWMAN.—Age 22, single; willing to assist in Garden. Good references.—T. SEWARD, West Bank Road, New Hampton, Middlesex.

HOLLOWAY'S PILLS.—Impurities of the Blood.—To ensure health, it is absolutely necessary that the fluids and solids of the human body should be kept free from those impurities which are continually getting admission into the system by erroneous living, unwholesome atmosphere, or disordered stomach. The only safe and certain way to expel all impurities is to take Holloway's Pills, which have the power of cleansing the blood from all noxious matters, and at the same time removing any irregularities which their presence may have already produced in any organ. Holloway's Pills expel all humours which taint or impoverish the blood, which they purify and invigorate, and give general tone. They are applicable to all alike—young or old, robust or delicate.

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Two First Prizes, Liverpool (open to all the World), Trials, 1886.

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FOR ALL REQUIREMENTS.



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12-inch	4 2 6	20-inch	7 10 0

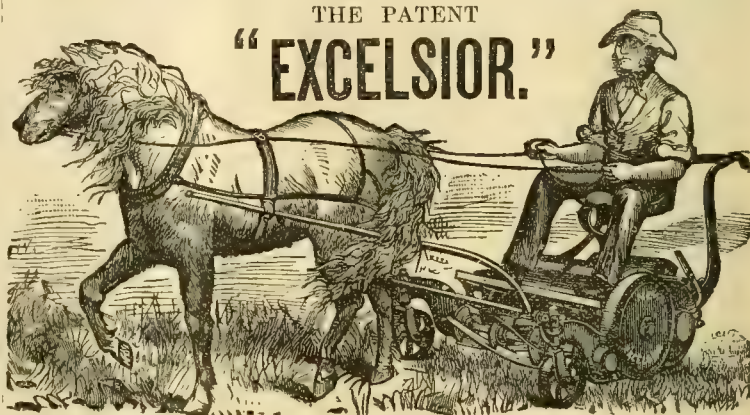
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10-inch	2 15 0	18-inch	4 15 0
12-inch	3 5 0	20-inch	5 5 0

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SIMPLE. STRONG. EASY TO WORK. EFFICIENT.

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ROYAL BOTANICAL SOCIETY

Gardens, Regent's Park, W.
The FIRST EXHIBITION OF SPRING FLOWERS will take place on WEDNESDAY NEXT, MARCH 18.

Schedules of Prizes, and all information, to be obtained at the Gardens.

CRYSTAL PALACE.

SPRING EXHIBITION OF PLANTS, SATURDAY, MARCH 21, 1891.

Last day for Entries, Saturday, March 14. Schedules and Entry Forms, post-free, on application to Mr. W. G. Head, Superintendent, Gardens Department, Crystal Palace. The Exhibition of Horticultural Appliances and Specialties will be open on the day of the Spring Flower Show. No extra charge. Admission to Palace, 2s. 6d. before 5 o'clock, 1s. after.

LIVERPOOL HORTICULTURAL ASSOCIATION.

The EIGHTH SPRING SHOW OF HYACINTHS, TULIPS, AZALEAS, &c., will be held in St. George's Hall, on TUESDAY and WEDNESDAY, April 7 and 8.

The TWELFTH GRAND SUMMER EXHIBITION OF PLANTS, FLOWERS, FRUIT and VEGETABLES, will be held in Sefton Park, on SATURDAY and MONDAY, August 1 and 2; and

The GREAT CHRYSANTHEMUM and FRUIT SHOW in St. George's Hall, on TUESDAY and WEDNESDAY, November 17 and 18, 1891.

SPECIAL PRIZES and CUPS are offered for CUT BLOOMS of CHRYSANTHEMUMS. Schedules on application to

EDWARD BRIDGE, Secretary, Tarbock Road, Huyton, near Liverpool.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

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COOPER, TABER, AND CO., Limited, have Posted a Copy of their New CATALOGUE of AGRICULTURAL SEEDS to all their Customers. If not received, another copy will be sent on application. 90, Southwark Street, London, S.E.

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JOHN H. HANDY, Florist, Manningham, Bradford.

ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE. JAMES CYPHER, Exotic Nurseries, Cheltenham.

CHOICE FRUIT—CHOICE FRUIT. Highest Market Prices guaranteed. Prompt cash. HENRY RIDES, Covent Garden, W.C.

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B. S. WILLIAMS AND SON'S PRIZE STRAINS OF FLORIST FLOWER SEEDS: BEGONIA, CALCEOLARIA, CINERARIA, CYCLAMEN, GLOXINIA, and PRIMULA—per packet, 1s. 6d. and 2s. 6d. Victoria and Paradise Nurseries, Upper Holloway, London, N.

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RUPICOLA from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on Application. Inspection invited.

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HENRY SQUELCH, North Row, Covent Garden, FRUIT SALESMAN and COMMISSION AGENT. Importer of Bananas, and all kinds of Madeira and Canary Island Produce.

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J. W. BARNHAM Receives on Commission, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.

Long Market, Covent Garden, W.C.

WANTED, WHITE VERBENAS, sorts. Samples and price to—WM. TAYLOR, Bentley Priory Gardens, Stanmore.

WANTED, Regal Decorative PELARGONIUMS, small rooted, a few hundreds.—Also named Border CARNATIONS, Pride of Penshurst, Germania, Reynolds Hole, and various small STOVE and GREENHOUSE PLANTS, and named HOLLYHOCKS. Cheap for cash. W. PLUMMER, Gardener, Catton, Norwich.

WANTED, RHAMIE or RHEA GRASS. State price per cwt. to—J. KENT, Cemetery Road, Hailey, Staffordshire.

WANTED, TO BUY, "GARDENERS' CHRONICLE" Volumes for 1866, 1869, 1870, 1871. G. BUCKLE, 60, Stanhope Street, Newcastle Street, W.C.

WANTED, a second-hand Dictionary of Gardening. State whom it is by, date, and lowest price, to J. HARVEY, Woodland, Blandford, Dorset. Advertiser will sell Gardener's Chronicle from Jan. 1, 1887, to June 29, 1889.

SUTTON'S FLOWERS ARE GROWN FROM SEED.

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CELERY, Standard Bearer, red, 1s. per pkt.

CUCUMBER, Lookie's Perfection, 1s. and 1s. 6d. per pkt.

MELON, The Countess (new), 1s. 6d. and 2s. 6d. per pkt.

TOMATO, Early Ruby (new), 1s. per pkt.

And all other Seeds of undoubted excellence.

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Seed Warehouse, 12, Old Millgate, Manchester.

ASPARAGUS, 3-yrs. old for planting, 25s. per 1000. Cash with order. My Asparagus always makes top price at Covent Garden.

J. J. CLARK, Market Gardener, Goldstone, Brighton.

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JOHN BATH, 32 and 34, Wellington Street, Covent Garden.

LOVEL'S YORKSHIRE STRAWBERRIES, for Spring Planting.—100 strong plants, in four good varieties, 3s., carriage paid for cash. Select Descriptive LIST, free.

W. LOVEL AND SON, Strawberry Growers, Driffield.

BEGONIA TUBERS.—Seedlings from a private grower's choice collection of named and selected upright flowering kinds. Double, 6s., 6s., 7s. dozen; single, 3s., 4s. per dozen.

G. RANDALL, Exbridge, Exeter.

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SECRETARY, People's Palace, Mile End Road, E.

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BARR & SON, 12 and 13, King Street, Covent Garden, London; and Nurseries, Long Ditton, Surrey.

Laurels, 2 feet to 6 feet. H. LANE AND SON have a large Stock to offer, Stout and well-rooted, of CAUCASIAN, ROTUNDIFOLIA, COMMON, &c.

CATALOGUE free on application.

The Nurseries, Berkhamsted, Herts.

Hollies.—Remove from November till June. PAUL AND SON'S Stock, from 2 feet to 12 feet high, is now in finest order at High Beech, Chingford Station.

Catalogues at the Old Nurseries, Cheshunt.

CHEAP TO CLEAR. 50,000 English OAK, 1½ to 2 ft., and 2 to 3 ft.

50,000 ASH, common, 2 to 3 ft., and 3 to 4 ft.

All transplanted, well-rooted.

THOS. MATHESON'S Nurseries, Morpeth.

Seed Potatoes. H. AND F. SHARPE'S WHOLESALE LIST OF SEED POTATOS comprises all the best varieties under cultivation. They have been grown from selected stocks expressly for seed purposes, and the quality this season is exceptionally good.

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THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsman, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 11, Victoria Road, Putney.

W. THOMSON AND SONS, Covenfords, Gala-hiel, N.B.

SALES BY AUCTION.

Monday Next.

CARNATIONS, PÆONIES, LILIES, and PERENNIALS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, March 16, at half-past 12 o'clock, a large collection of named CARNATIONS, PÆONIES, PYRETHRUMS, PHLOXES, IRIS, English-grown LILIES, PERENNIALS, and a great variety of HARDY PLANTS and RUBES. On view morning of Sale, and Catalogues had.

Tuesday Next.

The Rawdon Hill collection of established ORCHIDS for sale, without reserve, the whole of the plants being unusually well grown, and in splendid condition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. on TUESDAY NEXT, March 17, at half-past 12 o'clock, entirely without reserve, the above exceedingly well-grown collection of established ORCHIDS, including fine healthy plants of

Cattleya Sanderiana	Cecylogene cristata alba
" crispa superba	" Chatsworth variety
" Do wiana	Cymbidium eburneum
" chrysotoxa	Cypripedium Druryi
" Gaskelliana, special varieties	" Harrisianum
" albescens odorata	" Leeannum superbum, grand form
" gigas Sanderiana	" onanthum superbum
" labiata (autumn-flowering)	" vexillarium superbum
" maxima	Dendrobium Ainsworthii
" Mendelii	Laelia anceps Dawsoni
" massive delicata	" alba
" Percivelliana	" Hili
" Lawrenceana	Laelia elegans
" Trianae, special fine varieties	" purpurata, fine pieces
" alba	Masdevallia Veitchi grandiflora
" magnifica	Odontoglossum crispum, many fine forms
" Doligsonii	" guttatum
Vanda Sanderiana	" Halli
" Amesiana	Oncidium macranthum, fine pieces
" cerulea	Agrostis esquipedale
" tricolor	Angulosa Sanderiana
" suavis	Acerides Sanderianum
Grammatophyllum Meisnerianum	
Dendrobium Dearei	

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIES, PLANTS, ROSES, PALM SEEDS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 18, at half-past 12 o'clock, 8000 Bulbs of LILIUM AURATUM, including very large roots, some in cases as received; 2000 LILIUM LONGIFLORUM, also L. RUBRUM and ALBUM, and TREE PÆONIES, from Japan; 35,000 seeds of COCOA WEDDELLIANA, 2000 American PEARL TUBEROSES, 2000 GLADIOLI LEMOINEI, BRENCHELEY-ENSIS, and others, 1000 assorted ANEMONES, 400 Standard and Dwarf ROSES and Herbaceous Plants, English-grown LILIES, in variety, CARNATIONS; also 50 lots of FERNS and GREENHOUSE PLANTS, NYMPHÆA LOTUS, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

NYMPHÆA LOTUS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on WEDNESDAY NEXT, March 18, about 100 extra strong Tubers of the above.

On view morning of Sale, and Catalogues had.

Thursday Next.—Barcombe, Sussex.

UNRESERVED SALE OF STOVE and GREENHOUSE PLANTS, the residence having been sold.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Woodside, Barcombe, 5 minutes' walk from Barcombe Station, and 25 from Barcombe Mills and Cooksbridge Station, on THURSDAY NEXT, March 19, at half-past 12 o'clock, the whole of the STOVE and GREENHOUSE PLANTS, 1200 Double White Primulas, 200 Arum Lilies, 600 Maidenhair Ferns, 200 Eucharis, Begonias, 500 Geraniums, and other plants, LAWN MOWER, &c.

On view day prior and morning of Sale. Catalogues of Mr. HEWETT, the Gardener on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next.

BY ORDER OF L'HORTICULTURE INTERNATIONALE (LINDEN).

A Consignment of the beautiful CYPRIPEIDIUM VOLONTANUM, just received in fine condition, well-leaved, and ready to start into growth. Many of the plants show great distinction in the foliage, and buyers may probably expect other new and distinct forms.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of ORCHIDS on FRIDAY NEXT, March 20.

On view morning of Sale, and Catalogues had.

Friday Next.

The COLTBRIDGE HALL (Murrayfield, N.B.), COLLECTION of ESTABLISHED ORCHIDS, by order of Henry H. Norie, Esq., who is giving up their cultivation. For Sale entirely without reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above at their Rooms, on FRIDAY NEXT, March 20, at half-past 12 o'clock, including 250 ODONTOGLOSSUM ALEXANDRE, 50 very fine PHALÆNOPSIS, CATTLEYAS, LÆLIAS, ONCIDIUMS, LYCASTES, &c., the whole of the plants being in splendid condition.

On view morning of Sale, and Catalogues had.

Orchids in Flower.

SPECIAL SALE, TUESDAY March 24.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive entries as soon as possible.

2500 Cycas revoluta stems from Japan.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have just received the above, which will be INCLUDED in their SALE on WEDNESDAY, March 25.

The Celebrated Fernside Collection of Established ORCHIDS.—WITHOUT THE LEAST RESERVE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from H. M. Pollett, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, April 7 and 8, at half-past 12 o'clock precisely each day, a Portion of the celebrated FERNSIDE COLLECTION of ESTABLISHED ORCHIDS, in splendid health. First-class Certificates have been awarded by the Royal Horticultural Society to many of the plants, and the names of several will be found in the *Gardeners' Chronicle* for February 21.

Catalogues with Coloured Plates of some of the principal Odontoglossums will be ready in a few days (price 1s. each), and can be had of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers and Valuers, Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Wednesday and Saturday Next.

2000 Choice-named Standard, Half-standard, and Dwarf ROSES, including many of the finest sorts from well-known Growers; several hundred Pyramid and Trained FRUIT TREES; a grand collection of BORDER PLANTS, comprising some fine sorts of CARNATIONS, PINKS, PICO-TES, French PÆONIES, DAHLIAS, PHLOXES, &c.; 2000 RASPBERRY CANES, 1000 MOSS ROSES, LILIUM AURATUM, and L. LONGIFLORUM, from Japan; TUBEROSES, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, March 18 and 21, at half-past 12 precisely.

On view mornings of Sale, and Catalogues had.

Wednesday Next.

5,000 Grand Bulbs of LILIUM AURATUM and L. LONGIFLORUM, received from Japan in splendid condition; Pearl and South African TUBEROSES; 20,000 Fresh Seeds of KENTIA BELMORIANA and FOSTERIANA, &c.

MR. J. C. STEVENS will include the above in his Sale by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, March 18.

On view morning of Sale, and Catalogues had.

Thursday Next.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, March 19, at half-past 12 o'clock precisely, a choice collection of ORCHIDS in flower and bud, comprising fine forms of Odontoglossum Edwardii, O. citrosum, Dendrobium Wardianum, D. Ainsworthii, D. Dominiannum, Cattleya Trianae, Cypripedium Bauthierii, C. Humeanum, Masdevallia Leontoglossum, M. racemosa Crossii, with 60 leaves. Also the small collection of ESTABLISHED ORCHIDS formed by the late Rev. H. Temple Freer, a fine lot of HARDY TERRESTRIAL ORCHIDS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

200 fine established plants of the marvellous new CATTLEYA WAROCQUEANA, R. A. Rolfe. The finest winter-flowering Cattleya. By order of Mr. M. M. Linden (L'Horticulture Internationale), Brussels.

MR. J. C. STEVENS will include in his SALE, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 19, 200 lots of CATTLEYA WAROCQUEANA, including the following grand varieties:—

CATTLEYA WAROCQUEANA VICTORIE, C. WAROCQUEANA FLAMMÉE (First class Certificate Royal Horticultural Society, Oct. 14, 1890), a portion of the plant Certificated.

CATTLEYA WAROCQUEANA AMETHYSTINA (figured in the *Lindens*, English edition, Part I., (First-class Certificate Royal Horticultural Society, Oct. 14, 1890), a portion of the plant Certificated.

CATTLEYA WAROCQUEANA FORMOSA, CATTLEYA WAROCQUEANA ALBA, a portion of the only plant of this virginial variety which flowered in Europe. The flowers are of the purest white, and of unsurpassing beauty.

Two First-class Certificates were granted at the meeting of the Royal Horticultural Society on October 14, 1890, to this grand Cattleya; the Silver Floral Medal was awarded for a group of C. Warocqueana at the meeting of the Royal Horticultural Society on Oct. 28 last. *The Gardeners' Chronicle*, Nov. 15, 1890, p. 560, states:—"Among recent introductions, Cattleya Warocqueana is one of the most extraordinary." &c. All the plants offered are in splendid health and condition, and well established. It is well known that some grand and magnificent varieties have flowered in England, as well as on the Continent.

On view morning of Sale, and Catalogues had.

The Bankfield Collection of Orchids.

MR. J. C. STEVENS has received instructions from H. Gordon-Smith, Esq., of Bankfield, Ulverston, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 9, his Collection of ESTABLISHED ORCHIDS, including fine plants of—

Cattleya eldorado	Dendrobium Brymerianum
" Gaskelliana	" superbum
" gigas	" Wardianum
" labiata	Laelia anceps vars.
" Trianae marginata	" Dormaniana
" Warocqueana	" purpurata alba [flora]
Cymbidium Lowianum	" Miltonia candida grandiflora
Cypripedium caracianum	" Moreliana
" caudatum	" Russelliana
" Curtisii	Odontoglossum crispum
" Dominianum	" vexillarium
" Spicerianum	Oncidium splendens
Peristeria elata	" varicosum Rogersi
Vanda Amesiana	Sobralia macrantha
" gigantea	Vanda Denisoniana

N.B.—Most of the plants in this Collection were purchased in flower, and are known to be fine varieties.

On view morning of Sale, and Catalogues had.

Sale of the "Ghyllbank" Collection of Orchids.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, are pleased to state that they have received instructions from W. J. Thomson, Esq., of "Ghyllbank," St. Helens, to sell his entire Collection of Orchids, consisting of about 2000 Plants, in great variety, and in the very finest condition.

Mr. Thomson has, for many years, been an ardent collector of Orchids, and has got together a large and select collection, including many unique specimens. He is compelled to part with his collection, owing to the erection of large brickworks, which will shortly be in operation close to his Orchid houses.

It has been thought advisable not to remove the collection from "Ghyllbank" to Garston; it will, therefore, be on view at "Ghyllbank" (which is about 15 minutes walk from St. Helens or Thatch Heath Stations, London & North Western Railway), from March 16, and on Sale from March 23.

Descriptive and Priced Catalogues are being prepared, and will be sent, post-free on application, to all who will send their name and address for that purpose, to THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool.

Without Reserve.—Anerley Nursery, Station Road.

Anerley (close to the Railway Station and Crystal Palace).

MESSRS. WALFORD AND WILSHIN are

favoured with instructions from Mr. Solly (who is giving up business), to SELL by AUCTION, on THURSDAY, March 19, 1891, at 2 o'clock precisely, the whole of the NURSEY STOCK, comprising Aucubas, Roses, Kuonyunus, Hollies, Laurels, Junipers, Cupressus, and other Shrubs and Trees; GREENHOUSE PLANTS, including Latania borbonica, 9 feet across; Palms, Rhododendrons, Camellias, Azaleas, Eucharis, Maidenhair and other Ferns; Garden Frames and Tools, Wreaths and Crosses, Seeds, &c.

Viewed Day Prior and Morning of Sale, and Catalogues had of the Auctioneers, Anerley, S.E.

Nursery Ground, &c., at Holloway.

MESSRS. BALL, NORRIS AND HADLEY

will SELL by AUCTION at The Mart, E.C., on FRIDAY, March 20, at 2 o'clock precisely, the following compact property, HOLLOWAY.—The Good Intent Beerhouse, No. 52, Wedmore Street, with four-stall Stable and Van sheds in rear, also large Plot of Ground, with Greenhouses, Forcing Pits and Frames, Boilers, Hot-water pipes, &c., in good working order. Lease over nineteen years, at £33; part let on lease for the full term; the whole moderately estimated at £118 a year. Possession of Garden ground, Greenhouses, &c., on completion.

May be viewed, and particulars and conditions of Sale had at The Mart, E.C.; of Messrs. MEAD AND SONS, Solicitors, 6, Arundell Street, Piccadilly Circus, W.; and at the Auctioneers, Offices, 5, Argyll Place, Regent Street, W.

To Nurserymen.

FOR SALE, cheap, 18 well-built GREENHOUSES, nearly new; 120 feet long, stocked with a growing crop of Cucumbers, &c.; standing on 6 Acres of Land, at Enfield Highway, ½ miles from Covent Garden; also 60 Lights, Packing Shed, Stables, Office, Horse and Van, large Stack of Turf ready for use, 4 Wells, with plenty of Water; the whole in perfect working order. Lease, 99 years; rent, £12 per annum; price, £1600; part can remain, at 5 per cent. per annum. Apply to—

H. MOORE, 59, Bishopsgate Street Within, E.C.

FOR SALE, a NURSERY and SEED

BUSINESS, old-established, and well-known all over England. In complete Working Order, comprising about 25 Acres of first-class saleable Nursery Stock, consisting of well-grown Forest and Ornamental Trees, Conifers, and Shrubs, in great variety; Fruit Trees, Roses, &c., in saleable sizes. Commodious seven-roomed House and Steading, Shop, Office, and Warehouse attached, all in splendid order. Horse, Wagonette, and Gig; Carts and Van, Harness; Working Implements; Dairy for supplying Manure on the ground; Cottage for Foreman; moderate rent. Capital opening for young man with connection. Satisfactory reasons for selling.

Apply, J. G. E., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR SALE, a FREEHOLD NURSERY

and BUSINESS.—Good opportunity for a Syndicate or Company. This Valuable Nursery to be Sold as a going concern, situated 4 miles from the West End. It contains over 3 acres of Land (with subsoil of fine sand), twenty-eight well-built Greenhouses, two Coach-houses, large Office, four Sheds, three Vans, two Horses, and other requisites; the whole being in substantial repair. Part of the purchase-money can remain on mortgage. This offers an opportunity seldom met with for the formation of a Syndicate or Company, and there is every convenience for carrying on an extensive business.

For further particulars, apply to Messrs. W. EYDMANN AND SONS, Auctioneers, Acton, W.

Great Yarmouth.

Span-roof Greenhouse with Hot-water Apparatus.

TO BE SOLD, a span-roof GREENHOUSE, 57 feet 6 inches by 15 feet, fitted with 4-inch hot-water pipes, in excellent condition. Also a few well-grown SPECIMEN PLANTS, FERNS, CAMELIAS, &c.

SAMUEL ALDRED, Auctioneer, Yarmouth.

FOR DISPOSAL, a NURSERY and SEEDS-

MAN'S BUSINESS, in a Borough Town in Essex. It embraces a respectable House, Shop 25 by 16 feet, close to the Market-place. The Nursery Grounds, near, contain not quite 2 acres. Incoming for Stock, Glass Houses, Fixtures, and Utensils, £250. House Rent, £30. Nursery Ground, £5 5s. Owner going abroad.

Address, S. X., Messrs. Dawson & Sons, 121, Cannon Street, E.C.

South of England.

MATURED GARDEN, 16 acres, with 20 Hot Houses and Vineries; 2 Cottages; rent, £200; Valuation, £500.—ELDRIDGE, 2, Western Parade, Southsea.

Landscape Gardening.

B. MALLER AND SONS are prepared to Furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

MESSRS. POPE & SONS, HORTICULTURAL AUCTIONEERS and VALUERS, 6, Phillip's Street, Birmingham, hold SALES at their Rooms as follows:—
CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday.)
MISCELLANEOUS PLANTS and BULBS every THURSDAY.
NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

THE TOWER FURNISHING COMPANY (Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.
Address, SECRETARY, 43, Great Tower Street, E.C.

LANDSCAPE GARDENING.—JAMES RICHARDSON, 25 years Manager and now Successor to the late Mr. Edward Kemp, of Birkenhead Park, Landscape Gardener, is prepared to FURNISH PLANS, and to carry out all kinds of above work.—9, Rose Mount, Oxtou, Birkenhead.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense Stock of Orchids, And they are constantly receiving Importations from various parts of the world.

NEW DESCRIPTIVE PRICED CATALOGUE

Post-free on application to

THE VINEYARD AND NURSERIES, GARSTON near LIVERPOOL.

ASPARAGUS.—True Giant, 2-year, good Sample and price on application.
JAMES BIRD, American Nurseries, Downham Market.

FOR SALE, 500 SOUVENIR DE LA MAISON. good strong plants. What offers?
R. A. SMITH, Gardener, Catton, Norwich.

SPECIAL OFFER for Cash.—SPRUCE FIR, 1 to 14 ft., 10s. per 1000; do. 13 to 2 ft., 12s. per 1000. THORN or QUICK, 2 to 3 ft., 12s. per 1000. LAURELS, BAY, 2 ft., 10s. per 100. LAURELS, PORTUGAL, 2 ft., 20s. per 100. Sample 100 at 1000 rate.
D. MCMISH, Nurseryman, Chieff.

PINE PLANTS for SALE, CHEAP. For want of room, a gentleman wishes to dispose of about four dozen Fruiting and Succession plants, very clean and healthy; or would exchange for ORCHIDS.
E. MARTIN, Gardener, Harbledown, Canterbury.

Rhododendrons, 2 feet to 6 feet.

H. LANE AND SON have a Splendid Stock of Healthy, Well-Budded Plants, uninjured by frost, of the best named Sorts; also PONTICUM and HYBRID SEEDLINGS, in all Sizes. CATALOGUE on application.
The Nurseries, Berkhamsted, Herts.

"GOLD IN HARVEST."—If you want a bit of the richest Gold colour in your garden at Harvest-time, order "Plants" of Hartland's Golden Quilled Double Sunflower, "Soleil d'Or." 15 Stamps will cover box and postage for a single plant, or 12s. for a dozen, post-free. It is the finest Hardy Border Plant extant. No doubt of this fact. "Year-book" of Rare Seeds, for 1891, free. Cut Daffodil Blooms in any quantity.
WM. BAYLOR HARTLAND, F.R.H.S., 24, Patrick St., Cork

To Nurserymen, Builders, Local Boards, Vestries, and others who intend planting Trees and Shrubs this season.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to offer an extensive stock of FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c., which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine SEAKALE and RHUBARB for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

FERNs!! FERNs!!!—Trade offer. Twenty most saleable sorts, 12s. per 100; stores, 6s. per 100; 50s. per 1000. Adiantum cuneatum, for potting on at once, 16s. and 20s. per 100. Large Ferns, in 48's, 50s. per 100; out of pots, 45s. All packed free. Cash with order.
J. SMITH, London Fern Nursery, Loughboro' Junction, S.W.

ORCHIDS A SPECIALTY.—CYPRIPEDIUM LONGIFOLIUM, 2s. 6d. to 10s. 6d.; C. LAWRENCEANUM, 2s. 6d. to 7s. 6d., some showing spike; DENDROBIUM BENSONI, flower shortly, 5s., 7s. 6d., 10s. 6d.; D. JAMESIANUM, strong growths, 5s., 7s. 6d., 10s. 6d. Please write for LIST of cheap, healthy plants. Cash with order.
W. L. LEWIS, F.R.H.S., Chaseside, Southgate, London, N.

FORBES' EAST LOTHIAN STOCKS.

My superior strain of these, in 5 distinct sorts—Crimson, Purple, Scarlet, White, and Wallflower-leaved White—each sort, 1s., 2s. 6d., and 5s. per packet.

The best and most comprehensive CATALOGUE (124 pages) ever issued on all sections of Florists' Flowers; free on application.

JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

Tea Roses in Pots.

PAUL AND SON have thousands in 48's, and of extra size in 24's. Housed during winter in cool Rose-houses, for present planting.
The Old Nurseries, Cheshunt.

ASPARAGUS.—This delicious Vegetable does not require half the expense often incurred. For directions see Illustrated Seed List, free. Strong Roots, 2s. 6d. per 100.

RICHARD SMITH AND CO., Worcester.

SPECIAL OFFER.—PRIMULA ROSEA. For Spring bedding; in quantity only. Brilliant pink Himalayan Cowslip.
"F. E." Messrs. Street & Co., 30, Cornhill, E.C.

SEEDS! SEEDS! SEEDS!—Select Stocks of Vegetable and Flower Seeds at Wholesale Prices. Everyone with a garden, and every market gardener, should send for a Catalogue before ordering elsewhere.—B. L. COLEMAN, Seed Merchant and Grower, Sandwich, Kent.

PINES TO OFFER. 30 Fruiting SMOOTH CAYENNE Pines. 12 Fruiting C. RUTHSCHILD; also 35 Succession QUEENS.

Splendid plants, in perfect health and clean. For particulars and prices, apply to IRELAND and THOMSON, Nurserymen, Edinburgh.

THE CHINESE ARTICHOKE (Stachys tuberosa).—JAMES CARTER AND CO. have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers.
Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

SIX Choice Hardy HERBACEOUS PLANTS, 2s. 6d., viz.:—ALSTREMERIA AUREA, orange-yellow, spotted; CENTAUREA MACROCEPHALA, yellow tassel flowers; LYCHNIS VESPERTINA, double white, sweet-scented; MONARDIA DIDYMA, brilliant scarlet, sweet-scented; PRIMULA JAPONICA, red; SPIRÆA PALMATA ALBA, new white. Twelve choice varieties (including the above), 4s. 6d.; 12 cheaper kinds, 3s.; 25 choice varieties, 7s. 6d.; 50 do., 12s. 6d.; 100 do., 21s. and 25s. Guaranteed true to name, and carriage paid. Catalogue free.—M. CUTBERTSON, Florist, Rothesay.

PANSIES TRIMARDEAU or GIANT PANSIES, a distinct and splendid new race, which caused quite a sensation during the past season. Mine are a special fine strain. Plants extra strong. Prices per dozen, hundred, or thousand on application.
GEORGE SMITH, 6, Portland Place, Lower Clapton, N.E.

TREE FERNS for SALE.—1 CIBOTIUM PRINCEPS, 10 feet stem, 12 feet spread. 1 CYATHEA MEDULLARIS, 10 feet stem, 18 feet spread. 1 " " 9 feet stem, 18 feet spread. The above are in Tubs. CALANTHE, Veitchii, Oculata, and Rubra, 12s. per doz. CARNATION, Marchioness of Londonderry, White Glove, 10s. per 100. Packed, and put on Rails free.
The Gardens, Luton Hoo Park, Luton, Beds.

70,000 STANDARD FRUIT TREES.—My Head Gardener will dispose of the superb collection of Apples, Pears, Cherries, Filberts, Plums, including 20,000 remarkably fine Victoria Plums, and 8000 magnificent Prune Damsons. The Standards are beautifully cultivated without blemish, 4 and 5-yr. old, twice transplanted, splendidly rooted, and guaranteed true to name, intended for the estate tenants, at half their value; 10,000 grand trees of Black Currants, 4-yr. old; the Hardy Flowers, 1s. per dozen; many cost 5s. per dozen. See printed lists. Removing.—Hon. GERTRUDE JONES, Churchfield, Cradley near Malvern

OWEN'S IMPERIAL BEGONIAS.—New and distinct strain. The result of many years careful selection and hybridising. Habit dwarf, vigorous, and erect. Blooms of great size and bright colours. Awarded many Prizes and Certificates. Ten First Prizes by one Exhibitor. Price of Tubers—Single for pots, 6s., 9s., 12s., and 18s. per doz.; Double for pots, 9s., 12s., 18s., and 24s. per dozen. Seed, Single or Double, 1s. 6d., 2s. 6d., and 3s. 6d., per packet.
R. OWEN, Floral Nursery, Maidenhead.

HARDY AZALEAS.—A selection of the most beautiful, many of which were raised in this Nursery, well furnished plants, covered with buds, from 1½ to 3 feet high.

AZALEA MOLLIS.—Very fine plants up to 2½ feet, well budded.

AZALEA OCCIDENTALIS × MOLLIS.—White, with lemon blotch—very beautiful, offered for the first time.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

ROSES. ROSES.

12 acres of Roses, 100,000 magnificent plants to select from. All have been kept moved back, and will plant now with safety. 23 Choice Standards, 21s.; 26 Half-Standards, 21s.; 12 Standards, 12s. 6d.; 12 Half-Standards, 10s. 6d.; 50 Choice Dwarfs, 50 sorts, 21s.; 24 choice dwarf Teas and Noisettes, 12s. 6d.; 12 choice climbing, 8s.; 12 beautiful Teas and Noisettes, 9s.; 6 lovely yellow Roses, 4s. 6d.; 6 Maréchal Niel, 4s. 6d.; 6 Gloire de Dijon, 4s.; 6 choice Moss Roses, 3s. 6d.; 6 old Cabbage Roses, 3s. 6d.; 6 Old-fashioned Roses, 3s. 6d.; 6 pink Monthly Roses, 2s. 6d.; 6 quick-growing Climbing Roses, 2s. 6d.; 12 Sweet Briars, 3s. My selection, cash with order. Thousands of Testimonials. Catalogues free.
JAMES WALTERS, Rose Grower, Exeter.

Special Cheap Offer of

DAY LILIES and PLANTAIN LILIES, grand hardy plants, for naturalising in grass, orchards, woodland walks, wild gardens, &c. Special Cheap Offer, to clear ground, 500 PLANTAIN and DAY LILIES, in variety, for 6s.; 100 do. for 15s.
BARR AND SON, 12 and 13, King Street, Covent Garden, London, W.C.

1000 flowering bulbs of GALANTHUS ELWENI, CRONODON LUCILLE, and C. SARDENSI, will be sent on receipt of 10s. Orders are requested to be sent not later than the beginning of May. Cut flowers gratis, post paid.
FRANZ SCHLOSSER, Kunst und Handelsgärtner, Smyrna, Asia Minor.

Gladioli.

KELWAY'S GOLD MEDAL COLLECTION. Grand Bulbs, selected from a Stock of 25 Acres. Twenty large Exhibition sorts, in good variety, for 10s.; twenty good Border sorts for 5s.; or, select your own sorts (all prices), from a List of 400 varieties, gratis upon application.
Gold Medal, Paris, 1889.
KELWAY AND SON, Langport, Somerset.

Always Sow the Best.

J. E. DIXON'S President Carnot BRUSSELS SPROUTS. Hundreds of Testimonials. Lord Scarbrough's Gardener says:—"It is the hardiest and best variety grown."
Price 6d. and 1s. per packet; per oz., 1s. 6d.; per lb., on application.
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Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to give Special quotations for their fine selected Stocks of Home-grown TURNIP and MANGEL WURZEL SEEDS of 1890 growth, and raised on their own farms from picked Bulbs. The quality is fine, and the prices will be found exceptionally low.—Seed Growing Establishment, Wisbech.

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VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 5s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

Many Acres of Lilies of the Valley!

T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.

BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.

BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.

DESCRIPTIVE CATALOGUE free on application.

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BEGONIAS A SPECIALTY.—Awarded Four Gold Medals, and Gold Cup, and all First Prizes. Seed saved from Prize plants. In beautifully illustrated packets, choice mixed, single or double variety, 1s., 2s. 6d., and 5s. per packet. Collections—single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, named singles, from 12s. to 42s. per dozen; unnamed seedlings, 12s. to 21s. per dozen; bedding, choicest, 6s. and 9s. per dozen; choicest named doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Catalogues gratis.

JOHN LAING AND SONS, Begonia Growers, &c., Forest Hill, London.

Trade Offer.

W. ICETON begs to offer the following

PALMS:—

Strong ARECA LUTESCENS, in 60s. at 60s. per 100;

COCOS WEDDELLIANA, in thumbs, at 20s. and 40s.;

SEAFORTHIA ELEAGANS, in thumbs, 20s. and 30s.;

KENTIAS, BELMOREANA and FOSTERIANA, in thumbs, 40s. and 75s.

SEEDLINGS in Stores, at 30s. per 100.

ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.

Extra fine PANDANUS VEITCHII, in all Sizes.

Putney Park Lane, S.W.

CABBAGE PLANTS, Autumn Sown, Extra Early Etampes, fine plants, parcel-post free, 1s. 6d. sample 100. Strongest forcing Crowns SEAKALE, 1s. 6d. per dozen sample, 10s. 6d. 100, free. New Robinson's Telegraph CUCUMBER SEEDS, 100, 1s. 3d.; 1000, 7s. 6d. free. LIST, with copy of testimonials, of

EDWARD LEIGH, Cranleigh, Surrey.

PALMS (large) and ORNAMENTAL FOLIAGE PLANTS, for decorative purposes, PURCHASED for cash. State full particulars, and lowest price to SIMMONDS BROS., Ltd., Floral Decorators, Temporary Ball Room buildings, and Contractors for supplying up in here every description of goods, 3a, Sloane Street, S.W., and 6, Newton Street, Holborn, London.

LILUM AURATUM.—Heavy consignments in the finest possible condition. Bulbs usually from 6d. to 9d. each, to clear them out, 25s. and 30s. per 100; sample dozen, 5s. Special price per 1000 and 10,000.

PEARL TUBEROSES, 12s. per 100.
F. ROSS AND CO., Import and Commission Agents, Bletchingley, Red Hill.

STANDARD PLUMS, DAMSONS, and Single ALMONDS, per 100 or 1000. Price on application. Also **AUCUBAS**, 1 to 3 feet, per 100 or 1000. **FLETCHER BROS.**, Ottershaw Nurseries, Chertsey, Surrey.

AGENCE GÉNÉRALE HORTICOLE, BELGE, De HERDT and STRECKER, ANTWERP.

Branch House and Plant Houses, **Ghent, 74, Rue de la Forge.**
Cablegrams—STRECKER, Antwerp and Ghent.

Special Trade Offer.

ARECA LUTESCENS,
Splendid Seedlings for Potting—Very large size
(1½ YEAR).

PRICE, 12s. 6d. PER 100.

SAMPLES FREE ON APPLICATION.

ISAAC DAVIES & SON

Can supply the following cheap, which will flower in succession until July.

DAPHNE MEZEREUM, red, 3s. doz.; do. white, 4s. doz. **AZALEA MOLLE**, 18s. doz.; do. **PONTICA**, 6s. doz.; do. **GHEENT** and their **NEW SWEET-SCENTED**, 18s. to 24s. doz. **RHODODENDRON PRÆCOX** and **RUBRUM**, 12s. per dozen; **SWEET-SCENTED** and other Greenhouse varieties, 2s. 6d. to 3s. 6d. each, including their new kinds; the above are all covered with flower buds. The hardy **CAUCASICUM ALBUM** with buds, 6s. per dozen; and over 200 best late varieties, from 18s. to 36s. per dozen. Hybrid Seedlings, mixed varieties, including **Scarlets**, 7s. to 9s. per dozen, good bushes. **LILIUM AURATUM**, fine home-grown flowering bulbs, 9s. per dozen.

General CATALOGUE free, on application.

BROOK LANE NURSERY, ORMSKIRK, LANCASHIRE.

S E E D S.

THE BEST PROCURABLE.

LISTS FREE ON APPLICATION.

RICHARD SMITH & CO.,

Seed Merchants, WORCESTER.

LILY OF THE VALLEY,

Very Strong Flowerable Pipes.

OFFERS for the AUTUMN, in LARGE QUANTITY.

JULIUS HANSEN, PINNEBERG (GERMANY).

Lily of the Valley Nursery.

Large Silver Medal, Berlin, 1890; Bronze Medal, Hamburg, 1889

"LOUIS BËHMER" CHRYSANTHEMUM.

Having the finest Stock in Europe of this most beautiful Novelty of the present Season, we can now supply good rooted plants at the remarkable low price of 2s. 6d. each, 25s. per doz. See our Chrysanthemum Catalogue for Special Prizes, offered by us for 6 blooms of this variety. Post-free on application to—

PITCHER & MANDA,

The United States Nurseries,
HEXTABLE, SWANLEY, KENT.

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At a Meeting, held by requisition, in the rooms of the Royal Horticultural Society, on December 9, 1890, Sir TREVOR LAWRENCE, Bart, M.P., President, in the chair, a Committee was formed to obtain funds for the establishment of a Memorial to the late SHIRLEY HIBBERD, who earnestly devoted himself to the interests of horticulture in all its branches, and even sacrificed his life in the cause. It was decided that the Memorial should take the form:—

- (1) Of a portrait to be placed in the Lindley Library, under the charge of the Trustees of that Institution.
- (2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned. The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds, and amount in the aggregate to £205 12s. 6d. (March 11, 1891).

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WILLIAM WILKS (Rev.), Secretary,
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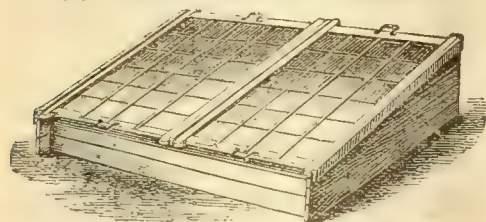
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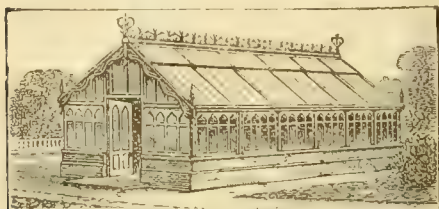
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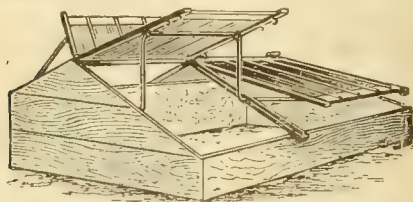
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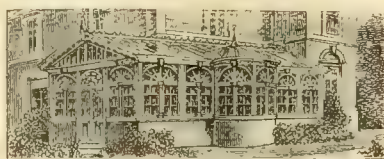
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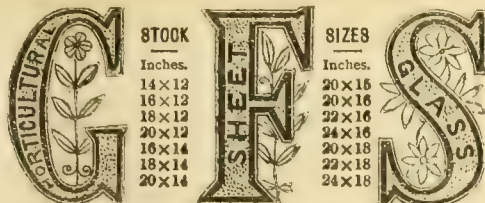
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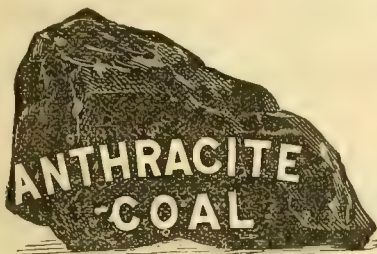
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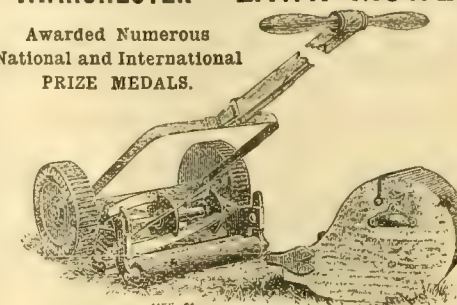
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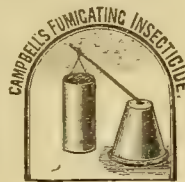
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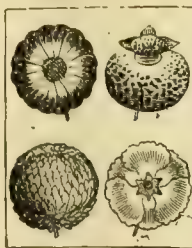


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THE

Gardeners' Chronicle.

SATURDAY, MARCH 14, 1891.

THE BIRDS AND THE WEATHER.

SEVERAL kinds of wild birds have undoubtedly been great sufferers in the late hard winter. A correspondent who resides in the game-preserving district writes that in his neighbourhood the birds have suffered terribly, and at the melting of the snow their dead bodies were seen in large numbers at the outskirts of the woods and by the sides of the hedges. Even the game birds, though half domesticated, and fed by their owners as a rule, suffered great privations, and pheasants, partridges, rooks, and other birds actually frequented farmyards, and struggled for food with the domestic poultry. On the lawn of a country house, on New Year's Day, when nearly four weeks of frost were still in store, thirteen species of birds assembled to share the accustomed distribution of broken meat and bread crumbs from the dining-room windows. Starlings, blackbirds, thrushes, tits, sparrows, hedge-sparrows, chaffinches, robins, wrens, a woodpecker, and other members of a hungry family, came every morning to be fed, and in the rear of the twittering crowd stalked three rooks, stately and shy, but rendered comparatively tame by hunger. A still greater departure from the natural habits of the staid rook is reported to have taken place in the parish of West Stratton, Dorchester, when a small flock of starlings was pursued by some starving rooks, torn to pieces and devoured, nothing remaining of them but their feathers, which strewed the ground.

In many parts of England the feathered races, like some other two-legged creatures, have found that "misfortunes travel in a train," and that "one woe doth tread upon another's heels." All through the winter their cupboard has been locked by frost, and they have suffered the additional affliction of the sparrow clubs. It is unfortunate for the birds which happen to be harmless, that sparrow clubs do not discriminate. All is grist that comes to their mill; a bird is a bird, and they string up the heads of all

alike. The conduct of the sparrow may be indefensible, but that is no reason why the fruit farmers of Kent should have poisoned lately by the bushel yellowhammers, thrushes, larks, wagtails, and other birds which feed almost entirely on the pests of the farm.

But although the number of birds must have been considerably reduced, the numerous survivors are again on the move. It is not, perhaps, generally known that many of our commonest birds are migrants. Blackbirds, thrushes, robins, and others are in the habit of moving from one part of the country to another in search of food, according to the exigencies of the season. If necessary they cross the Channel, and in that case the early-nesting birds it may be asserted returned in time for pairing on St. Valentine's Day, February 14. Many kinds of birds are now scarce which will soon become abundant, as, for example, the wagtails, among which the white species is an unfailing migrant, while the common pied wagtail is only partial in that respect; some depart, some stay behind. The away-going wagtails return again in March, drifting down on the south-east wind, and uttering their call-notes, which are heard long before they come in sight, and dropping at length upon the beach, feeble little long-tailed travellers as they are. Others arrive, and then, after short lingering to recover their strength, they disperse inland, finding their way to their old haunts, so that, almost suddenly, they are observed to abound in situations where, for some months, they had been missed. It seems to observers of their habits almost mysterious, that these small and delicately-formed birds should be found scattered one day over a parish, where, twenty-four hours previously, not one was to be seen.

The white wagtail—feeble flier as it seems—travels far, ranging in fact over the whole of Europe, during the several seasons of the year, and penetrating in its southern journeys far into the heart of Africa. The grey wagtail is a winter visitor of our southern counties, and a summer visitor in the north of England.

The chaffinch is another of those numerous birds which, in this and several other countries, are only partial migrants. Several specimens joined the assemblage of birds on the lawn on New Year's Day, as before mentioned, and even if the weather and the sparrow clubs should have since destroyed these home-keeping birds, it does not follow that chaffinches will be scarce in that neighbourhood next month, since a large contingent of migrants may by that time have returned. The chaffinch, permanent or otherwise, is common in three continents, in all parts of Europe, in Asia Minor, and in the north of Africa. In the northern parts of England, the hen birds are usually absent in winter, while the males are plentiful, and pairing commences on the return of the hen birds in March. In the south of England, the migration of the hens is arrested, and they become more numerous from November till March than at any other season. Gilbert White remarked that at Selborne vast flocks of hen birds only appeared in the fields at Christmas; and Selby mentions, on the contrary, that in Northumberland few females were seen from the month of November till the opening of spring, while the males still remained in immense flocks.

In Yorkshire, Waterton noted February 16 as the earliest day in the year 1835 when he heard and saw a chaffinch singing. In the same year he entered in his note-book the "rare occurrence" of a chaffinch singing as late as November 30, and this was the first occasion when he had heard a wild chaffinch sing later than the middle of July. This sprightly and hardy little bird, therefore, cannot compare with the lark or thrush as a winter songster, since the lark mounts and sings in January, and the thrush—welcome herald of sunshine—makes its robust song heard from the tree-tops during every month in the year.

The personal appearance of this characteristic bird of passage is somewhat pert, owing, perhaps, in a measure, to that habit of elevating the feathers of

the sinciput which he shares with all his genus. His loud voice, confident manners, and undulating flight like that of the finches generally, are familiar to most persons. Insects are his chief support, and he earns in summer, by their destruction, and by that of the seeds of weeds in autumn, the corn which he takes from field or stack when pressed sometimes by hunger. All the finches build remarkably neat nests. That of our little friend is a pre-eminently well constructed, compact, round and closely woven structure of wool, moss, and lichens of various colours, set in a forked bough seldom higher from the ground than 12 or 13 feet, or lower than 5 or 6 feet.

In Germany the chaffinch has been selected for his excellent qualities, as the favourite cage bird of the country, taking the place which in England has been assigned to the canary. Besides singing a very good song of its own, it possesses an extraordinary faculty for imitating the songs of other birds, learning a lesson of this kind in a month, or less. Other matters relating to the chaffinch, such as the rearing of the young birds, hard-boiled eggs and Rape-seed soaked in water, would no doubt prove attractive, but these seem unnecessary details to include here, since all such particulars may be found duly elaborated in any good work on the management of cage birds. It may be added, however, that both the books and the birds may be seen to advantage at one of the annual exhibitions of cage birds at the Crystal Palace. Those who object to the restraint of birds in cages will do well to remember that they are protected under such circumstances from many risks attendant upon liberty, especially in hard winters, and in an epoch of revived sparrow clubs. Birds will live too in cages fifteen or sixteen years, attaining a happy old age—better far than liberty and starvation—and remaining, in some cases, cheerful and merry though blind in both eyes.

It is satisfactory to know from what has now been stated, that many of our commonest birds are occasional migrants. They have their feeding grounds in foreign countries, and when they feel the necessity for resorting to these places they depart; at other times they stay at home. Those birds which have wandered, so as to have escaped the dangers of the past winter, may be expected presently to return and to take their share in the singing of songs and the prevention of pests. In spite of the efforts of the sparrow clubs, the farmers' feathered friends have not been diminished in their numbers so seriously as might have been imagined. *H. E.*

NEW OR NOTEWORTHY PLANTS.

ODONTOGLOSSUM ANDERSONIANUM IMPERIALE \times , n. var.*

THE whole inflorescence of what I regard as the most beautiful form of what has been known as *O. Andersonianum* in gardens for many years, but which the late Professor Reichenbach wisely joined with the others of its group resulting from the supposed crossing of *O. odoratum* and *O. crispum* under *O. lanceans*, comes from W. J. Thomson, Esq., of Ghyllbank, St. Helens, Lancashire, who has flowered it out of some plants imported by the Liverpool Horticultural Company. It is in the way of, but far more beautiful than, the richly coloured *O. Andersonianum pictum*, which I saw some years ago in Sir

* *Odontoglossum Andersonianum imperiale \times , n. var.—Flowers 2½ inches across, segments nearly equal in breadth, ¾ inch wide, the upper sepal being slightly the broader. Colour clear pale yellow, with heavy chestnut-red approaching blood-red blotches. The upper sepal has one large bluntly-triangular blotch just above the column, and about five merging blotches towards the middle. Petals with five to seven blotches toward the centre, and three or four purple lines at the base. Lower sepals with five to seven blotches, similar to those on the other segments. Lip broader than in most other forms, approaching the triangular form, but with a slight crimped continuation at the apex, as in *O. crispum*; it bears a large blotch of colour similar to that on the other segments in its centre. *James O'Brien.**

Trevor Lawrence's garden, and the spotting of whose flowers was the nearest approach to blood-red which I had seen either then or since, until the present variety came. The flowers of Mr. Thomson's specimen are equal in size and breadth of petal to an ordinary *O. crispum*, and doubtless might be thought by some to be a form of that species, but the shape of the lip determines it otherwise. A very attractive feature in Mr. Thomson's plant is, that the rich colouring of the blotches is distinctly set on the clear yellow ground, and not tinged or shaded in any way. *James O'Brien.*

TULIPA SINTENESII, Baker, n. sp.*

This new Tulip comes in midway between *T. montana* and *T. Didieri*. It has much more hair inside the bulb tunics than is usual in the Gesneriana section, but this hair is not soft and wool-like, as in *præcox* and *montana*. The scape is very short. The flower is as large as in *Gesneriana*, bright red inside. It was collected by Sintenis at Schuschnass, near Erzeroum, and sent by him, with many other interesting novelties, to Herr Leichtlin, at whose request I have named it after its discoverer. My description is made from a plant which has just flowered at Kew, the bulb of which was presented to the garden by Leichtlin.

Bulb globose, 1 inch in diameter; tunics brown, very hairy inside; hairs straight and adpressed. Leaves 4, crowded, glaucous, not at all undulated, ascending, not ciliated on the edge; outer oblong-lanceolate, ½ foot long, above an inch broad at the middle; inner narrower. Peduncle 2 inches long, stiffly erect, glabrous. Perianth oblong, 2 inches long; segments uniform, oblong, subacute, glaucous red outside, bright scarlet inside, with a black blotch at the base, not encircled by a yellow band. Stamens 8 inch long; anthers black, pollen yellow, filament short, black, flattened, glabrous. Ovary ¾ inch long; stigmas small. *J. G. Baker.*

THE FERTILISATION OF FLOWERS BY BIRDS.

MR. E. E. GALPIN read recently, before the Scientific and Literary Society of Barberton, an excellent lecture on this subject, in the course of which he gave a general summary of the subject as treated of by Müller, Darwin, Delpino, and others, and added some original observations of his own, which we here reproduce:—

"The Kafirboom (*Erythrina Caffra*) is fertilised exclusively by honeybirds (*Nectariniidæ*). The stigma is longer than the stamens, and both are much exerted. The alæ, and the carina, which is dipetalous, are of small size, and loosely sheathe the upper part of the column. The basal half of the large and showy scarlet vexillum loosely hangs over these again, and gradually recurving, its upper portion stands out at a salient angle. The flowers are in dense racemes, and were the peduncles erect, it would be impossible for the honeybirds to get under the vexillum to obtain the honey at the base of the column; but in almost every case they are either completely inverted or horizontal, so that the bird is able to insert its long curved beak in the base of the column without difficulty. The flowers being inverted, the honey would be liable to be spoilt by the rain; but this is obviated by the column being bent almost at right angles at a short distance from its base, and it and the petals are very firmly bound by a strong and tight calyx. The pedicels or flower-stalks are very elastic, and permit of the flower being freely moved up and down, and the honeybird, in order to get its beak down to the bottom of the sharp bend in the column, which at this part is tightly bound by the calyx, tilts the whole flower up, and forces first the stigma and then

* *Tulipa Sintenesii*, Baker, n. sp.—Bulbo magno globoso, tunicis intus dense pilosis; foliis 4 ascenduntibus confertis glaucis haud undulatis exteriori oblongo lanceolato interioribus angustioribus; scapo brevissimo; perianthio oblongo splendido rubro segmentis conformibus oblongis subacutis basi intus nigro maculatis; staminibus perianthio triplo brevioribus filamentis nigris glabris; stigmatibus parvis.

the anthers against the under part of its head or throat, which, being already dusted with the pollen from other flowers, must cause cross-fertilisation. When in Grahamstown last year, I searched in vain for seed on the fine trees in High Street, which had flowered freely enough, and used formerly to bear seed in abundance. Their sterility I put down to the extermination of the honeybirds, principally by boys with catapults, for I afterwards found seeds on trees outside the town, where I had watched the honeybirds fertilise the flowers.

"The *Erythrina* common in this neighbourhood is fertilised in the same way. In this species the carina and alae have become almost obsolete, whilst

described. His movements were very rapid, and he never missed his aim. Once in tilting up a flower he overstrained the pedicel, and it broke off, and the flower dropped to the ground.

"Amongst other Cape flowers fertilised by honeybirds are *Tecoma capensis*, *Leonotis leonurus* (wild dagga), *Halleria lucida*, *Antholyza aethiopica*, and many of the arborescent *Aloes*.

"*Leucadendron adscendens*, a curious under-shrub, belonging to the same genus as the Silver-tree, and growing on the mountain tops around Grahamstown, is fertilised by an *Anisonyx*, one of a genus of beetles which are highly developed fertilisers, and most important agents in the fertilisation of flowers in

The flowers borne by the female heads consist of a single style, having an oblique face, which is parallel to the plane of the head, and varies in angle according to its position on the head. On this oblique face are the stigmatic papillae, and the beetle, which is a very hairy one, in crawling over the cone-shaped head, must crawl over these stigmatic faces, and so rub them with the pollen which it has brought with it from a male head. At Coldstream almost every head I examined had an *Anisonyx* in it."

DISEASES OF PLANTS.*

(Continued from p. 299.)

HYMENOMYCETOUS PARASITES.—There are a host of other fungi belonging to the Hymenomycetes, whose parasitic nature has only recently been recognised. Many of these occur upon the woody tissues of trees, and by the action of their mycelium not only cause injury and death to the trees upon which they grow, but also their decay and disintegration. Entering through a wound, such as that caused by the breaking off a branch, the mycelium penetrates deeper and deeper towards the centre of the trunk.

Of such wound-parasites, *Trametes pini*, *Polyporus sulphureus*, *P. igniarius*, *P. dryadeus*, constitute well-recognised examples. There can, however, be no doubt that a great number of species which we, from long habit, have come to regard in the light only of saprophytes, are really parasitic. For example, *Polyporus squamosus* (fig. 72), growing as it often does, upon the wood of an Ash or Elm tree, its stem emerging through a circular opening, the circumference of which is formed by the callus thrown out from the bark surrounding the stump of an amputated limb. For a number of years the pileus will be found protruding through this opening, probably twice a year—spring and autumn. After a time, more than one pileus will be produced.

An examination of the wood inside this opening shows it to be moist, soft, and rotten. It has, in point of fact, passed into a condition of caries. The forester, when called to a case of this description, treats it upon surgical principles; he enlarges the wound, scoops or gouges out the carious tissue, being careful to remove every trace of softened wood, swabs the cavity with crude carbolic acid, and to prevent the reintroduction of fresh fungus spores—like a dentist, he fills up the cavity with cement.

Agaricus ulmarius on Elm, *A. adiposus* on Ash and Beech, *A. ostreatus* on Laburnum, and several others familiar to mycologists, may be classed in the same category.

Gangrene.—*Agaricus melleus* (fig. 73), is an exceedingly dangerous parasite upon Fir trees; its mycelium, like that of *Polyporus annosus*, is capable of entering the roots, the hyphae forcing their way between the bark scales. Once inside, it rapidly passes upwards, secretly and silently sapping the vitality from the wood by permeating and disintegrating its structure. If an affected tree be cut down, the centre of the lower part of the stem will be found soft and rotten, so that a stick can be thrust into it for a considerable distance. The wood has lost its vitality, and passed into a state of gangrene. It is a mere matter of time how long an attacked tree will last, but before long either a gale of wind or the axe of the woodman finishes its story. From the action of the hymenomycetal mycelia, the rotten wood may be abnormally dry or moist, which conditions are analogous to dry and wet gangrene respectively.

Atrophy of the host plant is a condition sometimes met with as the result of parasitic fungoid disease. A good example is afforded by the branches of those Fir trees which are affected with the *Uredo pinitorquum*, and is well shown in the figures of Hartig and Rostrup. The last-named gentleman showed me some trees near Copenhagen in the autumn of 1889, which had been attacked by the *Uredo* in the previous spring; the starved and diminutive condition of their shoots was observable at a considerable distance. Atrophy of the grains of Wheat,

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.



FIG. 72.—POLYPORUS SQUAMOSUS, PARASITIC ON TREES.

the vexillum, instead of recurving, is almost straight, a little longer than the stamens, and involute. I had a capital opportunity of observing its fertilisation during one of my rambles a short time ago. Arriving at a lovely wooded ravine on the south-eastern slope of the Saddle Back, I selected for my mid-day halt a spot beneath a large *Erythrina* in full bloom. Having chosen the most suitable spot for observation, I had no sooner partaken of my frugal lunch and started the soothing pipe, than I was rewarded by the appearance of a honeybird, who lost no time in setting to work. It was a pretty sight to watch him just over my head, all unconscious of my presence, hopping from branch to branch, and tilting up flower after flower in the manner

this country. It is a dioecious plant, bearing flowers in terminal, cone-like heads, which are completely hidden by the upper leaves of the stem, which curl over them, and are of a beautiful pink colour—for beetles are greatly attracted by bright colours, and are hardly known to visit dull yellowish flowers. These leaves are linear and rather rigid, and tipped with a short spine. They imbricate closely, and it requires some force to separate them; however, the beetles are very flat and pretty tough, and manage in some way to get in, attracted probably by a sweet gummy matter exuded by the cone-like involucre. On the male heads the stamens, borne in the apex of the calyx segments, are dotted about in little tufts like the 'Pepper-kornetjes Kop' of a Hottentot.

the straw of which is affected with *Puccinia graminis*, is a condition well known to agriculturists. The farmers of East Anglia speak of these dwarfed and impoverished kernels as "shapes." *Epiclloe typhina* also produces complete atrophy of the flowering spike of the grasses attacked by it. In all these cases the cause is the same, namely, the fungus cuts off more or less completely the supply of sap which should go to the parts of the plant beyond it.

Anæmia and Plethora.—The adjective anæmic has been applied to those conditions of plant life in which the individual exhibits a pale sickly appearance, arising from imperfect development of the chlorophyll. Such specimens contrast strikingly with healthy plants. It is, however, more an outward resemblance than a really pathological parallel, although at first sight the suggestion is apt to occur to one's mind. Such a state is produced in those plants of the common Thistle, and continues for a considerable time after they have appeared above the level of the ground, which contain the perennial mycelium of *Puccinia suaveolens*; it is the more noticeable by their growing in close proximity with healthy plants of the same size and age—the action of the mycelium, in this instance, being to retard the development of the chlorophyll.

The opposite condition to plethora, if we may apply the term to an excessive chlorophyll production, is found in the Wheat plants in which the mycelium, *Puccinia graminis* is present. It is a condition well known to farmers, who can by it foretell when any particular field, or part of a field, will become mildewed. It would appear that the action of the mycelium is to retard the ripening of the Wheat-plant, the foliage is dark bluish-green, and remains so. The farmer says, the Wheat is "not dying" as it should do.

Sterility.—The frequency with which parasitic fungi produce sterility in their host-plants is a curious and remarkable fact. It is not altogether easy to account for its occurrence, for one would have thought that, by so doing, the parasite would destroy its own chance of existence in destroying the generation of its host, without which it cannot exist. The *Ustilaginæ* have long been noted for the frequency with which they destroy the reproductive organs of their host. Some species as *U. violacea* confine their attacks to the male organs; others, as *Thecaphora hyalina*, to the female; more frequently they attack both, and many species are content with nothing less than the destruction of the whole of the flowering parts, as *U. carbo*. The ergotisation of the *Graminæ*, while it causes the total loss to the plant of the affected ovules, has yet this peculiarity—that in those species, as *Triticum repens* and *Phragmites communis*, in which the ovaries are usually abortive, yet when attacked by ergot, the ovule becomes hypertrophied by the presence of the fungus into an ergot. But even those plants of *Glyceria aquatica* and *fluitans*, which are permeated by the mycelium of *Ustilago longissima*, a fungus attacking the foliage, seldom if ever develop their inflorescence.

The tendency to attack the reproductive organs is not a feature of the *Uredinæ*, yet we found that those host-plants which contain perennial mycelium, seldom blossom; for example, *Æcidium leucospermum*, *Puccinia fusca*, *Endophyllum euphorbiæ*—or if they do blossom, do not produce perfect fruit, as *Æ. tragopogonis*.

In a few instances, the *Æcidiospores* have a special tendency to occur on the fruit, as *Æcidium berberidis* on Mahonia, the affected berries, of which Mr. W. G. Smith found were not capable of germination. *Æ. grossulariæ*, to a less extent attacks the berries of Gooseberry (fig. 74), and *Gymnosporangium confusum* is sometimes confined to the fruit of the Hawthorn. In this instance, the spores have probably been carried by insects. Some of the *Exoasci* are prone to attack the fruit of their hosts.

No organ, however, is exempt from the attack of fungous parasites, while there is a vast number which confine their depredations to the leaves and their appendages; yet there are almost as many which

attack the stems and harder portions. Some are specially prone to affect the roots and underground parts of the plant, as the form of *Polyporus annosus*, that Hartig has called *Trametes radiciperda*, which is so destructive to young Fir trees. *Agaricus melleus* is another root parasite of great importance, as is also *Polyporus Schweinitzii*, as Magnus has shown. To these may be added *Ag. squarrosus*, *Ustilago hypogæa*, *Entorrhiza cypericola*, *Schinzia alni*, and above all, the Potato disease.

most variable: it may on the one hand, like the Potato or Coffee plant, be threatened with extinction; on the other, it may suffer no more than the disfigurement which a few microscopic spots on its leaves causes.

Parasitism is not confined to any special group of fungi; certain families are entirely parasitic, such as the *Peronosporæ*, *Uredinæ*, and *Ustilaginæ*; but from the *Hymenomycetes*, on the one hand, to the *Pyrenomycetes*, on the other, all the principal orders,



FIG. 73.—*AGARICUS MELLEUS*, CAUSING ROT IN TIMBER TREES. (SEE P. 331.)

From what has been said respecting the various parasitic fungi, and the diseases produced by them, we may fairly draw the following three conclusions, namely, that the mycelium of the parasite injures the host plants either (1), by depriving them of nourishment; (2), or by impairing the power of assimilation; (3), or by abnormally accelerating or retarding growth, thereby causing distortion.

With regard to the extent of injury which a host plant may suffer from the various parasites, this is

with one or two exceptions, afford instances of parasitism.

Unlike the animal kingdom, Bacteria and the allied *Schizomycetes* have but little to do with inducing disease in the vegetable world. The wet rot of Potatoes, the rot of Hyacinth bulbs, of Onions, the gummosis of Tomatoes, the pink decay of Wheat, and the "Peach yellows," with one or two other affections, to which attention has been recently called in America, constitute the principal vegetable diseases due to Bacteria.

(To be continued.)

FLORISTS' FLOWERS.

SPECULATIONS ABOUT THE CARNATION.

In the sixth annual report of the Carnation and Picotee Union issued by Mr. E. S. Dodwell, a portion of which is occupied by reports on the best flowers of last year, and also by notes on the incidents of the season, one or two points of considerable importance are touched upon. One of these deals with the matter as to the self being the normal character of the *Dianthus* genus, as has recently been asserted by a writer in one of the gardening papers. Mr. Dodwell, having been appealed to on the point as to the correctness of this assertion, states as his opinion that there is no evidence that can be held conclusive on this point; and he further states that, "regarding the reversion of seedlings to ancestral forms as the surest key to those forms in their earlier condition, my experience certainly does not point to the self as the primary stage of the Carnation. No batch of seedlings has come under my notice wherein, even among those which receded furthest from existing developments, the narrow, angular shaped, and ragged edged singles, there has not been a large proportion of variegated flowers, and this ability to variegate has been the testimony of all who have written of the flower from its earliest history."

From whence comes the yellow-ground among the Carnations, is another matter that engages attention, and Mr. Dodwell admits he is no wiser than any one else, and that he cannot answer. But he states, going back to "that key, the seed, I cannot doubt that white and yellow have a common origin. When or where the yellow form was first obtained I know not, but whatever may have been the care and supposed success of fertilisation, every batch of seedlings found yellow-ground parents, has given a very large proportion of flowers of similar characteristics with those from white-ground seed." It appears to be an undeniable fact that yellows throw white grounds in profusion; but Mr. Dodwell remarks, "in my experience no white, unaided with yellow pollen, has thrown a yellow."

There are some who assert that the Carnation and Pink are of one common origin. Certainly a batch of seedling Pinks throws a good many plants having broad leaves like those of a Carnation. I have never heard of a Carnation throwing a Pink, or *vice versa*, though I do not think it probable. I have never heard of a yellow pink, though there is a tint of yellowish-green in some of the white forms of the Mrs. Sinkins' type. *R. D.*

ORCHID NOTES AND GLEANINGS.

THE BRIARS, REIGATE.

THE somewhat rare plant, *Cyrtopodium cardiochilum*, is now finely flowering in the East Indian-house at the Briars, Reigate. It is well known that *Cyrtopodiums* must attain to considerable age and size before they flower freely, as is the case with this plant, it having flowered regularly for several years past. The pseudobulbs, which are erect, stout, and from 3 to 4 feet long, are in the case of those of the previous year covered with narrow, pointed, plicate leaves, which in part serve to hide the gaunt appearance of the older growths. The inflorescence is borne on a tall scape, which springs from the base of the pseudobulbs, and overtops them by 1 or more feet. The raceme is forked, the central branch having two dozen flowers on it, and the laterals about fifteen flowers each. The flowers are about 2 inches across, and of a bright yellow, occasionally tinged with green. The lip is, as the specific name implies, connate but also recurved, the front lobe being deeply concave and large. There would appear to be some doubt as to the native country of the plant, which is to be regretted, as apart from the

interesting fact of the nativity of a plant, the information is useful to collectors. Possibly Java is not far removed from its native habitat. However generally refractory *Cyrtopodiums* may be, managed as they are by Mr. Bailey, they are attractive subjects.

In the same house with the subject of this note was found a pretty display of *Dendrobium Wardianum*, showing considerable variety in form and colour, and many of the pseudobulbs are flowering amazingly. A plant of *D. aggregatum* had more than fifty racemes of blooms. There were also some fine shows of flowers on a fine old plant of *Lælia superbiens*.

Coslogyne Lemoniana was covered with its white flowers, which have lemon-stained lips. The racemes are more compact than those of *C. cristata*, but the flowers lack the size of most varieties of that type.

In the *Odontoglossum*-house were observed many plants of *O. crispum*, more or less in flower, and particularly noticeable was the soft peach-bloom-coloured variety of *Cervantesii* var. *morada*; *Onci-*



FIG. 74.—DISEASE OF GOOSEBERRIES, CAUSED BY *ACIDIUM GROSSULARIE*. (SEE P. 332.)

dium insculptum was just developing its inflorescence, and some fine forms of *Zygopetalum crinitum* and *Lycaste Skinneri*. *F. R.*

CLARENDON PARK.

At the present time a plant of *Dendrobium densiflorum* growing in an 8-inch pot at Clarendon Park is, I think, worthy of a notice in these columns. The pot hangs a few inches distant from the glass roof, and contains about a hundred bulbs, which are showing from twenty-five to thirty flower-spikes; but Mr. Warden, the gardener, rubbed off some of them in my presence, he being of opinion that the plant, now in the best of health, would suffer if allowed to develop so many flowers. The flowers of a plant of *D. crassinode Barberianum* grown in the same house have done good service for button-holes, &c., during the two or three weeks previous to my visit; and a fine pan of *Coslogyne cristata*, which was a mass of white flowers a few weeks ago, is now showing a second lot of flower-spikes. When done flowering, this fine plant will be shifted into a larger pan. *W. H. W.*

DENDROBIUMS FROM CHELTENHAM.

A set of blooms of the different varieties of *Dendrobium nobile* and *D. Ainsworthii*, from Mr. J. Cypher, Royal Exotic Nurseries, Queen's Road, Cheltenham, well represent these favourite flowers. The handsomest of the *D. nobile* is *D. n. Cypheri* with blush-white flowers, the petals and lip being tipped with mauve, and the throat of the labellum is richly coloured with purplish-maroon. The old *D. n. pendulum* is still one of the largest and showiest varieties; and of the *D. Ainsworthii* class the Veitchian hybrid, *D. splendidissimum grandiflorum*, is by far the best. It is also a very free grower, the pseudobulbs often reaching a height of more than 2 feet. We would remind our readers that certain varieties of *D. Ainsworthii* are very difficult to cultivate.

DIPODIUM PALUDOSUM.

This is an erect-growing plant, with two-ranked leaves, which are ligulate, acute, thin, and membranaceous in texture, pale green, or with just a tinge of bluish metallic-green. Spike axillary, erect, bearing a raceme of six to twelve flowers, which measure individually about 1½ inch across, and are of a soft creamy-white, dotted with purplish-magenta. It is a plant that grows freely, but it requires a closer atmosphere than the Orchid-house affords. We have grown it in a large Fern-case in the East Indian-house, but we have seen it doing fairly well in Sir Trevor Lawrence's collection at Burford Lodge, Dorking, where many difficult plants to grow are successfully treated by Mr. White, the gardener. We have found this plant thrive best in small pots, well drained, using for it a mixture of peat and sphagnum moss; it likes a very moist atmosphere all the year round, but in less proportion in the winter months. *Orchid Album*, vol. ix., part 106.

CATTLEYA MOSSIE DECORA.

This is an evergreen, a compact-growing plant, and, like all the varieties of *C. Mossie*, very free-flowering if properly grown and managed, a proper season of rest being essentially necessary to the proper development of good flowers. Under the old system of growing *Cattleyas*, an excessive heat was maintained, with very little ventilation and with drenchings of water, the latter meant to imitate the annual rainfalls, which are excessive in their native countries; but this was found not to be tolerated under cultivation, and we now find the best system to adopt is to cease the drenchings of water, for with the present system of ventilation, even in the best constructed houses, air cannot be admitted in anything like the volume the plants are subjected to in a state of nature, and consequently the water does not dry up, but it lies about the plants, and causes destruction to the young growths. *Cattleyas* are spread over a vast extent of territory, and need a variety of temperatures and conditions to suit them; but taking *C. Mossie*, which has a somewhat restricted range in the mountains of Venezuela, which lie near the coast, we can meet its requirements pretty accurately, and the same conditions suit most of the group known as the *labiata* section. Naturally they grow upon trees and rocks, having little or no moss about their roots, nothing but a few fallen leaves of the trees upon which they grow; consequently they have nothing to rot or decompose their roots, and hence the necessity of good drainage is well exemplified. Growth upon blocks of wood would, therefore, appear to be the best style of growth under cultivation; but under artificial treatment we find sufficient moisture cannot be maintained, so that we are compelled to grow them in pots. These should be thoroughly drained, and some good fibrous peat, from which all the fine particles of soil have been beaten, should be used; to this may be added a little chopped sphagnum moss, as it tends to bind the fibre better together, and the soil is best suited to the plants when firm and hard. The soil should be elevated an inch or two above the pot's rim, and upon this cone-like

round the plants should be placed. Do not overpot, and do not repot too frequently, for this we consider is a great drawback to the successful growth of Cattleyas. During the summer season, which is their season of growth, water must be given cautiously. The roots will not require watering more than twice or thrice in the course of the week, but frequent waterings between the pots will be necessary, and also on the floor of the house, as great humidity in the air is absolutely necessary. When growth is completed, the watering must be discontinued gradually until the shoots are fully ripened and made up, and the watering between the pots and on the floor of the house may be entirely discontinued, saving only about once or twice in the week a little may be thrown about in order to prevent shrivelling; for we cannot believe it necessary to shrivel any plant to rest it in a legitimate manner. Ventilation should be free and ample, but it should be without draught; neither should there be any perceptible heating of the house after water has been poured down. Shading should be done without as much as possible in the cultivation of Cattleyas; but many people forget their plants are under glass, and are apt to become burnt with the sun. Thin shading should, however, be used, and it should not be allowed to cover the plants more than just during the few hours at midday. As the autumn comes on, it must be borne in mind that *C. Mossii* sheaths have to stand until the following spring, and that in the event of premature growth the flowers may be prevented from coming. Care should therefore be taken, by keeping the plants cool and dry, that the growth does not become excited. *Orchid Album*, vol. ix., p. 106.

CATTELEYA CRISPA DELICATISSIMA.

This is a strong, robust-growing plant, with much the habit and appearance of its near ally, *Lælia purpurata*, and like it, it commences to grow in the winter months, finishing up in spring and early summer, and flowering upon the new growth soon after it is finished. Some varieties of this plant are remarkable for the extent of colour developed, of which we have already depicted one example, *Buchananiana*, figured on t. 81 of this work; it is remarkable for the well-opened lip, and the richness of the purplish-crimson of its large flowers. Another fine variety is *purpurea*, figured in the second volume of Warner's *Select Orchilaceous Plants*, t. 9; but the present variety, which first flowered some years ago with Sir Trevor Lawrence, Bart., M.P., is noted for the extreme delicacy of its flowers and also its well-opened lip. The sepals and petals are pure white, the sepals lanceolate, entire at the margins, with recurved tips; petals much broader, ovate-lanceolate, crisp, and much undulated on the margins; lip three-lobed, the side lobes rolled over and enclosing the column, anterior lobe oblong, slightly recurved at the tip, much lobed and crisp on the margin, pure white, tinged with lemon-yellow on the inside; throat streaked with rosy-purple, and stained on the crisp edge with soft lilac. It requires the same treatment which has already been given for *Lælia purpurata*, care being taken during the winter months not to wet the young growths, and upon all possible occasions it should be allowed the full benefit of the sunshine. It should be potted in peat fibre and a little chopped sphagnum moss, and this should be made firm and hard, but the roots should not be overloaded with soil. *Orchid Album*, vol. ix., part 106.

ODONTOGLOSSUM GALEOTTIANUM.

A dwarf evergreen species, belonging to the group of which *O. Cervantesii* may be taken as the type; it has roundish ovate pseudobulbs, and it has hitherto produced but a two-flowered raceme, but as the plant becomes stronger, we may reasonably hope to see more flowers developed. The flowers measure some 2 inches across, and are pure white, saving a few spots and dots of purplish-magenta at the base; the lip also has a few yellow lines and streaks on the crest. We only know this plant as coming with *O. Cervantesii*, and as that plant is scattered over an

immense tract of country, we cannot at present determine where to look for it; but as we can grow *O. Cervantesii* well, so also *O. Galeottianum* should yield to the same treatment. *Orchid Album*, vol. ix., part 106.

VANDA CATHCARTII.

Amongst the numerous treasures in the Orchid-houses at The Dell, none are more remarkable than this *Vanda*, which Sir Joseph Hooker said was "by far the noblest species of the noble genus to which it belongs;" and Dr. Lindley, "No more remarkable Orchid has been found in Northern India." Indeed, it was discovered by Sir Joseph Hooker in the Eastern Himalaya, who says of it (*Bot. Mag.*, tab. 5845):—"It is a rare native of hot, damp, shady valleys. . . . delighting in the neighbourhood of waterfalls, where exposed to constant humidity." Mr. Ballantine had placed his plant in a shady part of the warmest house, and it is in capital condition, furnished with at least a dozen of its distinct-looking, fleshy flowers. *J. D.*

CONTINENTAL NOVELTIES.

BEGONIA PICTAVIENSIS ×.

A NEW hybrid, sent out by Mr. Bruant, of Poitiers, and described as a cross between *B. Schaffiana* and *B. metallica*. It is recommended for its hardiness and beauty. Its stems are reddish-purple, covered with white hairs; its leaves are intermediate between those of its parents—purple beneath, with prominent nerves, bronze coloured above, with silky-white hairs. It is recommended as suitable for bedding out.

AZALEA DIANTHIFLORA.

The *Revue Horticole* of February 1, gives a coloured illustration of a curious Japanese variety with semi-double lilac flowers arranged in umbels. The leaves are covered with a viscid exudation. The flowers show a tendency to proliferation, the central axis of the flower being prolonged sometimes to a length of 4 inches, and bearing a succession of flowers in a continuous row one above another.

The plant will be sent out by M. L. Paillet of Chateau de Sceaux (Seine), France.

PLANT NOTES.

ACACIA DEALBATA.

For covering tall pillars on columns, or for growing into a large bush in the conservatory, it would be difficult to find a more valuable subject than this *Acacia*. The fragrance and beauty of its flowers, which contrast so admirably with its beautiful silvery foliage, make it one of the most delightful of greenhouse plants in flower at the beginning of the year. It is very susceptible to the smoke-laden fogs of large towns; and in the temperate-house at Kew, where four large specimens are planted out, three have been almost denuded of their leaves and flower-buds, only one escaping to show the capabilities of the plant, but so strong is the sweet perfume during sunshine from this one, that it is perceptible in any part of the house. The flower-heads are bright yellow, and borne on long, branching, cylindrical racemes. On account of its not flowering when small, it is a species that is rather neglected; but it ought to be found in every large conservatory. It is worth growing for its foliage alone, which has a beautifully bright effect amongst the ordinary shades of green. When once it has attained to flowering size, it may be kept from getting too large by annually pruning it. In the neighbourhood of Cannes, this species is one of the most striking objects in the outdoor garden. It is remarkable, however, that the area in which it thrives is comparatively small, and it cannot be grown in the greater part of the Riviera. *W. E.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

PLEASURE GROUNDS.—A thorough inspection should now be made of all choice shrubs and specimen Conifers, and the nurse plants, if such have been planted, cut away, if they are found to be crowding the better plants. Sweet Bay, Laurels, Berberis aquifolium, Yew, and Box, will bear reducing in size, the latter perhaps least of all, if the pruning be done before growth begins. They will break freely after cutting them even into the old wood, and soon become clothed with shoots; large plants require this heading-in occasionally, and it is really an essential one if their transplanting is contemplated.

TRANSPLANTING EVERGREEN SHRUBS.—April being the best spring month for transplanting, anything that can be done to expedite the operation when it is taken in hand, should be carried out; such as trenching ground, taking out holes for the plants, wheeling fresh soil to spots where it will be wanted, and stakes sharpened, and got into order.

PRUNING CONIFERÆ.—Trees that are stiff and formal are, to some persons, objectionable, but regularity and symmetry in Conifers constitute much of their beauty, and these trees should be examined annually, and double leaders reduced to one, and branches that are unduly outstripping the others cut back, or, if very badly placed, cut entirely away, leaving a short snag—not cutting close to the boles. Conifers will sometimes lose their leaders, and that is a matter to be righted by selecting the best placed and most promising topmost branch, and fastening it erect to a stout stick bound to the stem some way down.

TOP-DRESSING CONIFERS.—The fallen needles of Conifers promote the growth of a species of fungus, which is destructive when it gets into the bark of the trees. So fatal is the attack of the fungus, that fine specimens soon suffer, and are not infrequently killed by it; and those, therefore, who value their plants should clear such matter away, and give the ground under the trees a top-dressing of fresh rich mould containing soot or short rotten manure, which will stimulate growth and render the spread of fungus abortive.

THE FERNERY AND WILD GARDEN.—These two may, and should be, blended in one, so that they may make an interesting and enjoyable adjunct to the garden, many kinds of plants being more at home in them than elsewhere, and the wild garden forms a receptacle for strong-growing perennials, and such bulbs as Scillas, Snowdrops, Crocus, and Daffodils, that cannot well be too abundantly planted. It need hardly be said that the more shaded parts, and those that are much broken up by mounds, banks, &c., should be planted with Ferns. Among species of Ferns which do well near to running water, *Osmunda regalis* stands first, and numerous varieties of *Athyrium*. The *Funkias*, *Hemerocallis fulva*, *H. Kwanoo* and *H. flava* are also fond of moisture, and when so favoured, are very fine. *F. Sieboldi* is a bold and striking object when it gets into full leaf. For prominent spots, where the soil is deep, *Rheum palmatum sanguineum*, *Seakale*, and *Gunnera scabra*, may be planted; while in sheltered nooks *Chamaerops Fortunei*, and the less hardy Ferns may be grouped together. Bamboos form very graceful objects, the handsomest being *B. gracilis*, or perhaps more correctly, *Arundinaria falcata*, which produces tall, arching rods, clothed with elegant foliage; *B. Metake* is as hardy as an Oak, and no weather seems to hurt it, for it is green and fresh after all the frost that we have had this year. For the wilder parts, masses of Foxgloves and Columbines should be naturalised, and in conspicuous positions, open to the sun and light, plants of Pampas-grass and *Arundo donax* should be placed. *J. Sheppard, Woolverstone Park, Ipswich.*

THE HARDY FRUIT GARDEN.

MULCHING.—As soon as the nailing and the staking of young newly-planted trees are brought to an end, the soil, if very dry, which is generally the case this year, should be well watered, and a top-dressing of old manure put over the roots. This will lessen the evil of drought, and afford some slight amount of plant food. Large fruiting trees should also be attended to in the same manner, except that for them the top-dressing should consist of rich manure. A top-dressing of turfy soil, crushed

bones, and burnt earth will also be of much benefit to old trees if applied forthwith. These remarks apply more to orchard trees, which, by long neglect, have grown yearly worse in condition.

PEACHES, PLUMS, AND CHERRIES.—If the soil be well drained, and the aspect warm and dry, the roots will be the better for the same kind of treatment as that afforded Apples and Pears. Where the soil is hard, and in its nature clayey, or retentive of water, it should be loosened with a fork before top-dressing it. On land that is cold and heavy, mulching is better deferred till after the fruit is set. Large trees may still be shifted, though this should be done only in cases of real necessity; and the trees should be kept in a growing state by applying some slight shading to them in bright weather; and overhead-syringing will be of assistance until a start in growth is made.

CORDONS AND BUSHES.—These little plants should not be overlooked, but top-dressed with the same kind of materials as the above. Trees that fruit heavily each year will need, if in poor soil, the top-dressing put to them before exhaustion sets in, otherwise it will take a long time to bring them round.

RASPBERRIES.—These, if the soil be light, should have a heavy dressing of cow-dung evenly spread over the soil—leaf-mould not too far decayed will suffice, failing anything better. On heavy land, old Mushroom-bed or hotbed manure forms a good dressing for the Raspberry. *H. Markham, Mereworth Castle, Maidstone.*

FRUITS UNDER GLASS.

STRAWBERRIES.—The weather having improved, plants will set their bloom better than hitherto. No time should be lost in weeding out weakly plants, and filling their places with others. I have in previous Calendars advised the starting of the early plants in beds of leaves in frames or pits. Plants treated in this way will now be ready to transfer to the shelves in forcing-houses, affording them weak liquid manure twice a week. I do not recommend standing the pots in saucers, as it operates against flavour, and more so with those that are early forced. It is a better plan to stand the pots on pieces of turf laid grass side downwards, the roots striking into the cool soil, and not into the stagnant water as in a saucer. Moss, or sphagnum moss, are good materials for covering the shelves if turf be not used. When the fruit is set, more heat and atmospheric moisture may be afforded the plants, or they may be placed in a house of 65°, and which is 10° higher by day. Clear water only should be afforded the plants after the fruits begin to colour. As the fruits ripen, remove the plants to a cooler house, having before ripening commenced placed a few twigs in the soil to support the fruits. The removal of the plants when in fruit is a point often neglected, and it is one that greatly improves the flavour.

The plants now put into heat will not require the assistance of a leaf-bed, and any shelves at work in the houses may be utilised if the warmth does not exceed 55° to 60° at night. Some of the larger fruited varieties, as *Auguste Nicaise* and *James Veitch*, will, at this season, force more readily than earlier in the year. I would advise the later and larger fruited varieties to be grown in cold frames for the latest supplies. We get our last supply chiefly in unheated pits, or with only a little heat applied if the weather be wet or dull, and get good fruit up to the time when the outside fruit is fit for use. These plants may now be stood in the open air, keeping them moist at the roots, or they may be put into frames, and slowly brought on.

Early forced plants of *Vicomtesse* or others, if placed in a cold house or frame after the fruit is gathered, will afford a nice supply of fruit in the early autumn months if planted out next month in a good soil in an open position. *G. Wythes, Sion, Brentford.*

THE KITCHEN GARDEN.

SPEAR-MINT.—At this season there usually is a great demand for Mint, and a succession should be kept up by putting the roots into boxes or pots, placing them in heat at short intervals. This is the general practice, but I find it much better to plant in boxes now for next year's forcing. These boxes are 8 inches deep, 2 feet long, and 15 inches wide. Of course, they are stood out-of-doors, and well attended to during the summer. Mint well established in boxes, as is this, when placed in gentle heat, produces shoots in abundance.

ASPARAGUS BEDS.—A slight dressing of salt may be afforded these with advantage, followed by a light forking over. Loosen the soil, so that the heads may shoot up without impediment. After the forking over, rake the beds evenly with a wooden rake, leaving all the manure possible upon them. When new plantations have to be made, the soil should be got in readiness for planting. Land, to grow the plants well, must be heavily dressed with manure, and trenched to a good depth, 2 feet, if the land will bear it, the manure being put at the bottom of the trenches, in the middle, and some may be dug into the surface after the trenching is finished. If the soil is retentive, charred refuse or burnt earth may be mixed into it at the same time. In cold, wet soil, raised beds 3 feet wide should be thrown up, and the plants put out on these in two lines, and inserted at 15 inches apart in the lines. It is time to plant when growth begins, which varies with the seasons. On light loamy soils, planting on the level is best, the lines being made 1 yard apart, and the plants standing at 15 inches apart in the lines, two-year-old plants being employed. If seed be sown, make a drill 1 inch deep, and drop in the seed in threes at 15 inches apart, and thin them out to one plant when they are 6 inches high. Lettuces, Radishes, or Early Turnips may be sparingly sown between the rows of Asparagus.

SEED TO SOW.—The main crop of Brussels Sprouts, Cabbage, Cauliflower, and a pinch of Savoy seed for raising plants for autumn cutting may be sown in very flat drills 9 inches apart, choosing a sunny position for the seed beds. Lettuces may be sown broadcast over these, and lightly raked in. Protect the seeds from birds by means of netting or the webber. [See our illustration of this in our last Ed.] Sow Early Milan or Snowball Turnips in drills made 1 foot apart.

Salsafy and *Scorzoner*a should now be sown in drills 15 inches apart and 1 inch deep, the seed being thinly put in, as large clean roots are the chief point with these. A deep well-tilled soil, with the manure at the bottom of it, and no fresh manure within 15 inches of the surface are essential points in the culture of these plants.

EARLY HORN AND OTHER SMALL CARROTS.—The main crop of these may be sown at the first opportunity on land properly prepared by being raked fine, and drills drawn at 9 inches apart and three quarters of an inch deep. Wood ashes may be sown in the drills before the seed, for the purpose of protecting the roots from wireworm and injurious insects. Sow evenly and thinly, closing the drills and making the surface smooth with a rake.

A few rows of Turnip-rooted Beet may be sown on a sunny border, drills being made 1 foot apart and 1 inch deep, the seed being dropped in threes about 8 inches apart, and the plants afterwards thinned out to one. Beet suffers from frost, and a little light litter or straw mats may be used when the plants come through the earth. Good roots may be obtained by the end of June. *C. J. Waite, Glenhurst, Esher.*

THE ORCHID HOUSES.

INTERMEDIATE-HOUSE.—The *Pleiones* are now growing fast, and but little water should be afforded them at the root until it is seen that the roots are attaching themselves to the sides of the pots, although a gentle dewing over with the syringe will assist them, if applied on bright mornings. *Dendrobium glumaceum* now coming into flower should be supplied with weak guano-water on each alternate watering, till the growths now flowering have matured.

Anguloas now pushing new growth should be examined, to ascertain if the roots and potting material are in good condition; if these are not as they should be, no time should be lost in putting them in good order. The young roots will have already started into growth, and the longer repotting is deferred, the greater will be the danger incurred of breaking them.

Autumn-imported pieces of *Oncidium Marshallianum* may now be taken from this house to the *Odontoglossum*-house, where established plants of this species do much better; the same remarks will apply to *Oncidium crispum*, and both do best on rafts stuck upright into a pot, and hung up near the roof, peat and sphagnum moss being placed around them, but not made firm; the roots being of a very fleshy nature, will run through all the sphagnum, and over the sides of the pots. This looks very nice, but I never saw bulbs swell, and continue in a good healthy state for any length of time, unless the roots become attached to some hard substance, pot, basket,

or raft, as the case may be. *Masdevallia tovarensis*, having been repotted, may be stood in the *Masdevallia*-house; some prefer to leave them in the cool house during the winter months, but I like to have them in a little more warmth from November to March. *M. chimera* and its varieties will be better for being taken into the cooler house, as if left here for any length of time, now that the sun is getting powerful, red-spider will be apt to appear on the leaves. If this has already occurred, sponge them with a strong mixture of soft-soap and tobacco, and this must be done every day for one week.

With March winds, the yellow aphid will make havoc with the spikes and young growths of *Orchids*, unless fumigation be resorted to. From this time forward it is advisable to fumigate the houses once, and during very warm weather twice a week, the *Odontoglossums* excepted, these last-named being kept clean by using the syringe freely.

With the rise of the outside temperature, the moisture should be increased in all the houses. Temperatures: East India-house, 65°; *Cattleya*-house, 60°; Intermediate house, 57°; *Masdevallia*-house, 53°; *Odontoglossum*-house, 48° to 50°, a rise of from 5° to 10° by sunheat being allowed. Air should be given day and night, but cold draughts must be avoided, especially during this month. *A. G. Catt, Parkfield Gardens, Hallow.*

PLANTS UNDER GLASS.

FINE-LEAVED ANTHURIUMS.—These plants are increased by division of the crowns, or by the growths thrown up from the collar, and which generally have independent roots. Much care is necessary in removing these suckers, so that as little injury as possible be done to the roots. Pot them in pots which are just large enough to hold them comfortably, using a mixture of fibrous peat, broken crocks, a few pieces of charcoal and coarse silver sand, and fasten each securely to a neat stick till the roots have taken well to the fresh soil. The proper time to repot established plants, is just before they commence to make fresh growth, and in doing it shake off most of the old potting soil; should the ordinary form of pot be used, it should be filled to half its depth with crocks, using the same kind of potting materials as for young plants, and keeping the plant as far as the point from whence roots emerge above the soil, and finish off with chopped sphagnum moss. Syringe them freely at closing time, and place them in as light a position as possible, but when the sun is bright they will require a slight shading.

NEPENTHES.—These plants may be grown in an ordinary stove, suspended from the rafters whilst growing. The best kind of soil for *Nepenthes* consists of good fibrous peat of good quality, sphagnum moss, and pieces of charcoal. Old plants which have grown to be too large for the accommodation at command, may be cut back, using the tops as cuttings. These tops may be cut into lengths of three or four joints, and potted in fibrous peat and silver-sand in small thumbs, one cutting in each, some fine sand being dropped into each hole in the soil before the cutting is placed in it. Tie each firmly to a neat stick, and place them in a propagating frame, shading them at such times as the sun is bright.

CLIVEAS.—Plants which require more root-space may be potted as soon as flowering is past, using three parts good loam, one of peat or leaf-soil, and one of sand; placing them in a close intermediate-house, and giving them a light position. Large specimens may be kept in good condition without repotting for several years by assisting them occasionally with some trustworthy artificial manure. When an increase is required, carefully divide the old plants, so that no more injury is done to the roots than possible, putting the pieces in pots according to their size, and keeping them close for a few days.

ROSES.—All plants showing for blooms may be assisted by frequent applications of liquid manure. Keep a sharp look-out for mildew, and carefully examine all plants before introducing them into the forcing-house, cleaning them thoroughly, and removing all the surface-soil, which may be replaced by fresh. For mildew, apply flowers-of-sulphur; and for greenfly, employ one of the liquid insecticides, otherwise fumigate lightly twice in succession. Another batch of *Roses* in pots may now be started, and plants which were taken up and potted in the autumn, may now be brought in, and will be found to give very good blooms. *R. Milner, Penrice Castle, Swansea.*

EDITORIAL NOTICE.

Advertisements should not be sent to the Editors but to the Publisher.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, MAR. 19—Linnean Society, at 8 P.M.

SHOWS.

TUESDAY, MAR. 17—Manchester Royal Botanic Society.
Torquay Society.

WEDNESDAY, MAR. 18—Royal Botanic Society.

SATURDAY, MAR. 21—Crystal Palace.

SALES.

MONDAY, MAR. 16—Lilies, Hardy Plants, and Bulbs, at Protheroe & Morris' Rooms.

TUESDAY, MAR. 17—Rawdon Hill Collection of Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, MAR. 18—Roses, Fruit Trees, and Border Plants, at Stevens' Rooms.
Lilies, Roses, and other Plants and Bulbs, at Protheroe & Morris' Rooms.

THURSDAY, MAR. 19—Orchids in Flower and Bud, at Stevens' Rooms.

FRIDAY, MAR. 20—Coltbridge Hall Collection of Orchids, at Protheroe & Morris' Rooms.

SATURDAY, MAR. 21—Roses, Fruit Trees, and Border Plants, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—42°·9

It is with no mere conventional expression of sorrow, that we announce the death of Mr. WILLIAM RICHARDS, for upwards of twenty years the publisher and business-manager of this Journal. Mr. Richards, who was in his 44th year, died on the 11th inst., from pulmonary consumption. The progress of the disease was for a time checked by a voyage to New Zealand, but for some weeks past it has been obvious that a fatal result must speedily happen. Mr. RICHARDS leaves a widow and four children. We have to mourn a straightforward, high-principled colleague, and an excellent man of business; whilst his horticultural friends, who are legion, will share our sense of the loss of a kind-hearted, right-minded friend, whose help and judgment could always be depended upon in case of need, and who never seemed to be better pleased than when he was helping forward some charity or other public object connected with horticulture. The funeral will take place at Kensal Green on Monday next, about noon.

To the Royal Horticultural Society nothing horticultural should come amiss. Individuals are entitled to indulge in their whims and fancies, and business men must concentrate their energies on what "will pay;" but the representative society, like the representative journal, should not be limited by any such restrictions, however legitimate they may otherwise be. Each flower, each tree, each fruit, in its turn, and as opportunity serves, should receive the attention that is its due, irrespective of the crazes of fashion, or of any commercial interests that may be involved. These matters may safely be left to adjust themselves, while the Society pursues a higher and purer aim. Accordingly, we find that while the papers are teeming with details as to the bouquets worn at the Drawing Room and similar celebrations, and some of which seem to have been monsters of bad taste, the Society appropriately devoted its meeting on Tuesday last to the consideration of the simple grace of the Snowdrop and its varieties.

The papers read on the occasion comprise one

from Mr. ALLEN, a well-known devotee of this lovely flower; and another from Mr. BURBIDGE, who ransacks old histories and modern "Floras" in quest of details concerning the flowers in whose cultivation he is an adept; and a third from our old correspondent, Mr. MELVILLE, of Dunrobin, whose name is inseparably connected with the flower he grows so well.

Mr. BURBIDGE's paper, which was illustrated by several original and useful diagrams, dealt with the history and botanical structure of the flowers. In discussing the classification of the species, he adopted the views of Mr. BAKER, who in his *Anmyllidaceæ*, admits six species classified according as the leaves are simply channelled in the centre of the upper surface, or more or less sharply folded at the edges, as in *Galanthus plicatus*. *G. Olgae* is an autumn-flowering species, as is also the variety of *nivalis* known as *octobrensis*. The six species admitted by Mr. BAKER are *G. nivalis*, *græcus*, *Elwesii*, *latifolius*, *Olgae*, and *plicatus*. To these must be added *G. Fosteri*, and *G. Alleni*, described by Mr. BAKER in our last number, p. 298. Of the common Snowdrop, *Galanthus nivalis*, there are enumerated, either as sub-species or varieties, the following forms:—*reflexus*, *lutescens*, *poculiformis*, *Scharlocki*, *coreyrensis* *alias præcox*, *octobrensis*, *Imperati* *alias Clusii* (and from which *G. Melvillei* scarcely differs), *caucasicus*, including *Redoutei*, *major*, *caspicus*, and *virescens*.

Figures and descriptions of many of these have been given in the *Gardeners' Chronicle*, as under:—*Galanthus nivalis*, *Imperati*, *plicatus*, *Elwesii*, *latifolius*, and *Scharlocki*, in our number for March 1, 1890. The publication of these figures was the occasion for some scepticism, the artist being charged with exaggerating the size of *G. Imperati*. Of course, a characteristic flower was chosen, but many larger have been noted, and those shown yesterday were as nearly as possible of the same size. Our artists have no interest in exaggerating anything, and carry out our instructions as faithfully as might be anticipated from gentlemen who are not only artists but botanists.

The points of distinction between the several forms above mentioned, are to be sought in the form of the bulbs, ovoid in *nivalis*; rhomboid, or spindle-shaped, as in *plicatus*; and globose, as in *Elwesii*, &c. As to the leaves, Mr. BURBIDGE recognises three types:—1, narrow, strap-shaped, and glaucous, as in *nivalis*, *Elwesii*, *græcus*, and *Olgae*; 2, broader, and plicate, as in *plicatus*; 3, broadly strap-shaped, shining green, as in *latifolius* and *Fosteri*. The last-named species Mr. BURBIDGE believes to be a natural hybrid between *latifolius* and *Elwesii*. Similarly, it is conjectured that the form known as "Valentine" is the result of a cross between *nivalis* and *plicatus*, a plant having sprung up in Mr. ALLEN's garden, where the two species named are growing side by side.

The "scape," or flower-stem, as pointed out by Mr. BURBIDGE, is nearly twice as thick in *G. plicatus*, *Imperati*, or *caucasicus*, as it is in *nivalis*. The way in which the erect, spear-shaped flower-bud, protected by its sheath, pushes its way through the ground, till all risk of obstruction is passed, was commented on. The floral "characters" afford points of distinction, some of which are indicated in the diagram (fig. 75); and, for further illustration, we may refer to the large illustrations of the species we gave in our volume for 1890, Vol. VII., pp. 268 and 269.

As to the cultivation of these lovely little plants, Mr. BURBIDGE says that, as a rule, the less they have the better. In Lincolnshire,

whence our markets are principally supplied, there are no special growers, as in the case of Hyacinths in Holland, or of Daffodils nearer home, but the dealers go round the county and purchase bulbs from the cottagers and farmers. Within the last few years, however, one farmer has devoted an acre or two of black moor-land soil to the culture of these bulbs by the million. Double Snowdrops will often thrive where single ones will not grow well, but the converse does not appear to be true.

One of the most fatal of all diseases to which the Snowdrop is liable, is the Snowdrop fungus (*Polyactis galanthina*, Berkeley and Broome, figured in *Gardeners' Chronicle*, March 2, 1889, p. 275). This fungus appears quite suddenly, often after a fall of snow, and affects leaves, scapes, and bulbs also, the latter becoming soft and pulpy. It is an ally of the Lily and Tulip fungus, and so far no preventive or remedy has been discovered. Iron sulphate, applied as a top-dressing mixed with sifted earth, might possibly prove beneficial, as it certainly has done in the case of the Potato disease. Practically, however, we know nothing of a remedy for this *Polyactis*, which has proved a great bane to successful Snowdrop culture in England and Scotland.

Mr. ALLEN's paper also dealt with the various species, varieties, and hybrids, giving the date of introduction of each; thus, *G. plicatus* was introduced at the time of the Crimean War; *G. Elwesii* in 1870, *G. Imperati* in 1874, the Atkins' variety being superior to that introduced by Messrs. BACKHOUSE.

The several kinds of Snowdrops were classified by Mr. Allen under the headings of yellow, white, green, and pink Snowdrops, respectively.

Leaving details aside, which will subsequently be published in the *Journal of the Royal Horticultural Society*, we may simply advert to a few of the points mentioned by Mr. ALLEN. *G. plicatus maximus*, a late grower, he considered to be the finest of all; *G. Elwesii* is very distinct, but does not succeed well in cultivation; *G. latifolius* has Scilla-like foliage, of a grass-green colour, and relatively small flowers. Of the merits of *G. Fosteri* it is too soon to speak.

Of the autumnal kinds, *G. octobrensis* was found on the Albanian mountains by Lord WALSHINGHAM; *Rachelæ* was discovered on Mount Hymettus, and flowers in October and November.

Yellow Snowdrops, so-called, have the ovary beneath the flower, of a yellow instead of a green colour. *G. lutescens* and *G. flavescens* are the two principal forms.

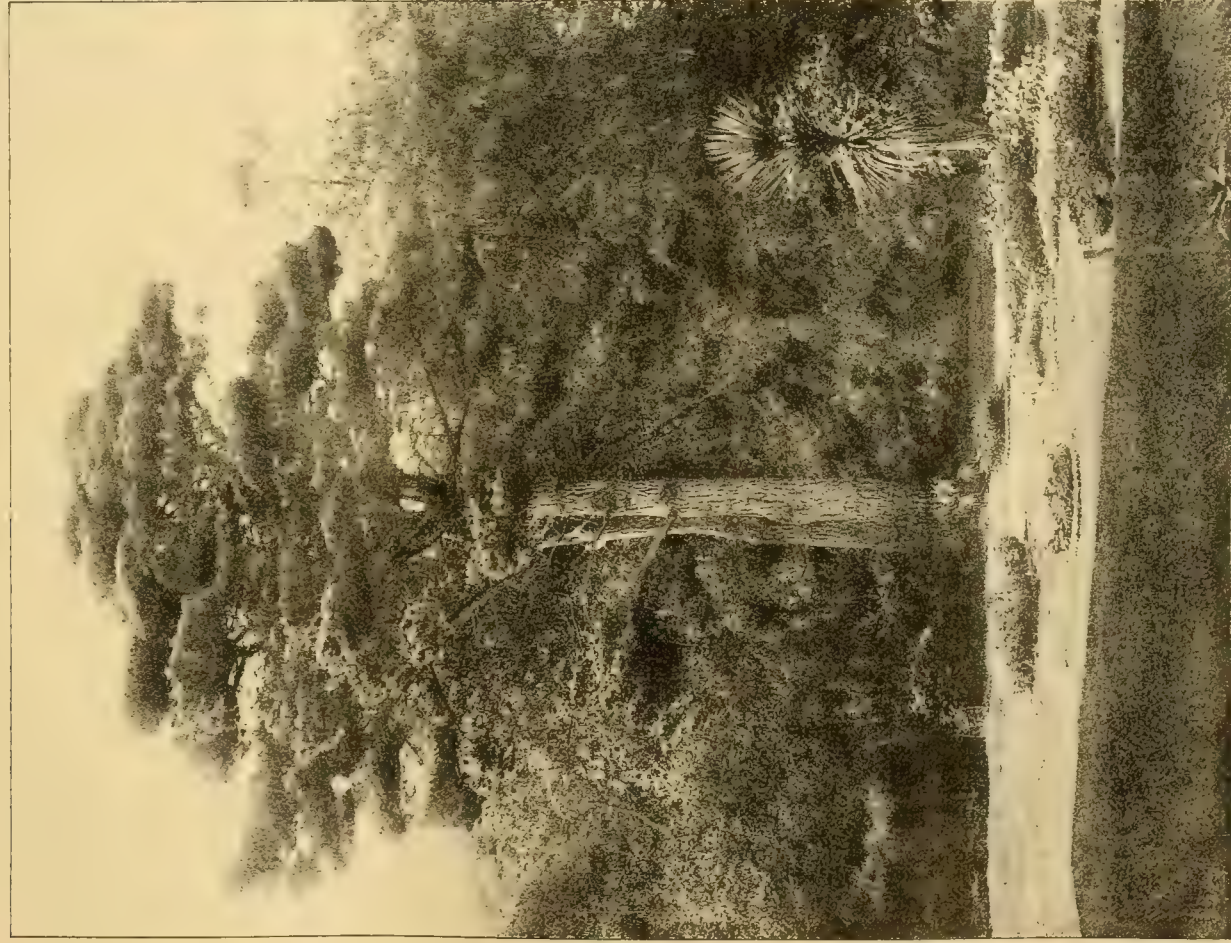
White Snowdrops, in which the petals are destitute of green spots, are represented by *poculiformis* and others.

In the green-flowered Snowdrops, on the other hand, the green colour is in excess, being present on the outer segments as well as on the inner, as in *Leucoium* or *Ornithogalum*. *G. virescens* is one of the best of this series.

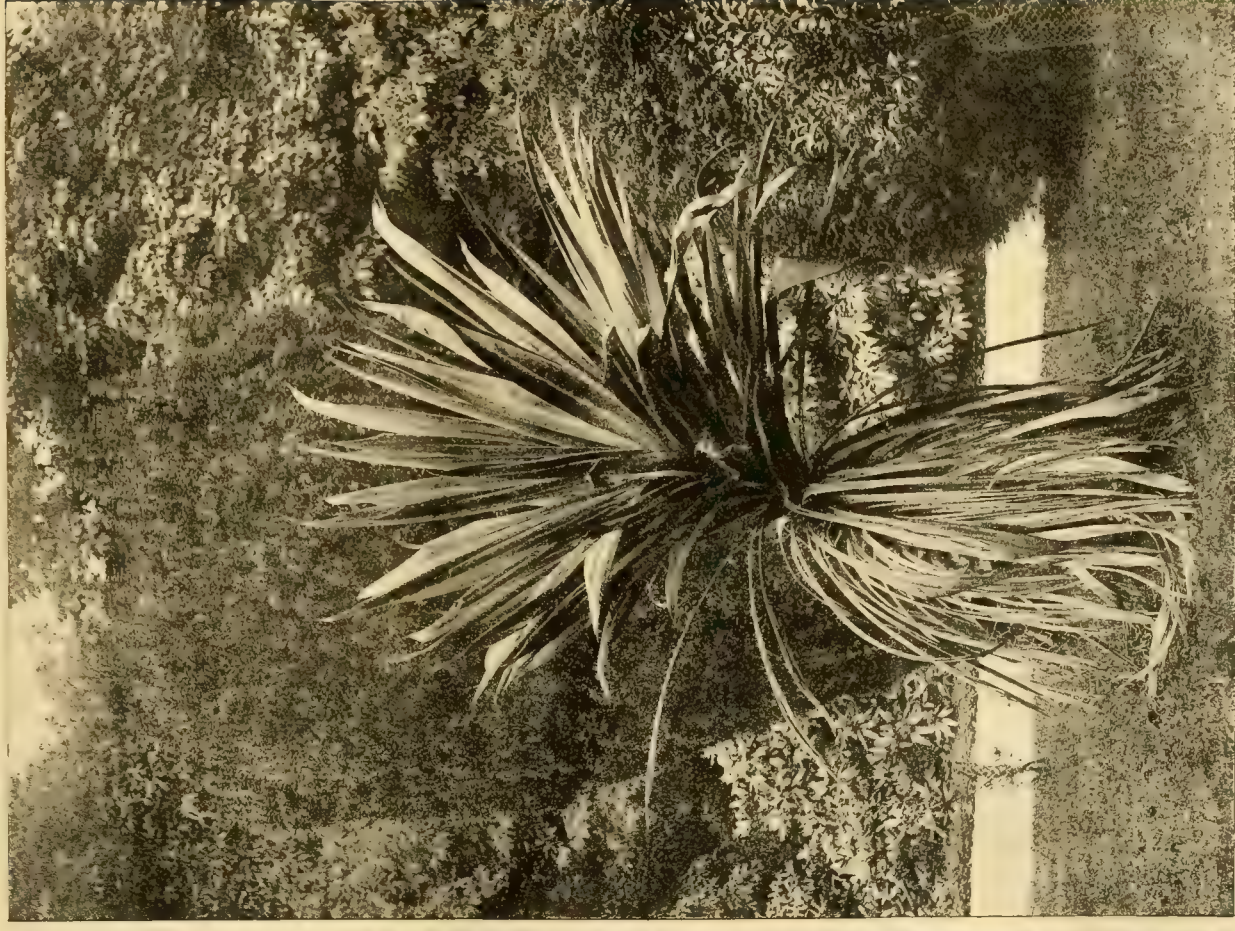
Pink Snowdrops are things to be dreamt of at present, though Mr. MAX LEICHTLIN states that one is known in Armenia, whence it will be no fault of Mr. LEICHTLIN's if it remains. Mr. A. D. WEBSTER also met with a pink-flowered Snowdrop in a garden in Wales. The bulb passed into the hands of a church dignitary, and has not been heard of since.

Another portion of Mr. ALLEN's paper was devoted to the mode of raising seedlings—an easy enough matter, but one demanding patience, as three or four seasons elapse before the bulbs flower.

Mr. MELVILLE's paper described the forms of



PINUS INSIGNIS.



CORDYLINE INDIVISA.

IN THE GARDENS OF J. RASHLEIGH ESQ. MENABLY.

nivalis, including Melvillei, poculiformis, præcox, and others, and advocated the method of planting on grass, a photograph being handed round, showing the beauty and profusion of flower obtained at Dunrobin by this method. The fertilisation of this flower, according to Mr. MELVILLE, is effected by a pollen-eating fly.

PINUS INSIGNIS (MONTEREY PINE).—The illustration (see Supplement), which, through the kindness of J. RASHLEIGH, Esq., of Menabilly, we are enabled to give, shows a tree which has assumed its adult character, and formed a rounded head, surmounting a now unbranched bole, thus presenting a very different appearance from the bushy habit which characterises younger trees. Although not thoroughly hardy in the midland districts, except where sheltered, there are few trees more valuable by the sea coast. The rich emerald-green of the foliage is especially beautiful. It is not particular as to soil, so long as there is no stagnant water in it. Naturally it grows on the sand-dunes of the coast of South California, and has but a limited distribution. It is apt to start into growth early in spring,

whether the much earlier name of *P. californica* should not have precedence; whilst if judgment be adverse to that name on account of the elements of doubt and confusion surrounding it, Don's name of *radiata* has a right of priority over insignis. But these are matters which may be left to the botanists to settle. It may be of interest to note that the seedling plants are distinct in character, and show forecasts of the future habit of the tree, its bushy habit when young being indicated by the numerous side-shoots that spring from the young plant just above the cotyledons, whilst the bare trunk of adult years is indicated by the long unbranched stem, which the seedling plant at first presents. The primordial leaves are very long and narrow, and at rather wide intervals finely toothed at the margins. As has been said, the young stem acquires considerable length (6 to 8 inches) before the primary leaves are replaced by the tufted leaves characteristic of the tree at a more advanced stage. The seedlings are strongly taprooted, with horizontally-spreading side branches. The photograph reproduced in our Supplementary sheet was executed by Mr. SHERRING.

CORDYLIN INDIVISA.—Near London we are accustomed to see this grown as a greenhouse plant,

and amateurs, and form a great centre of horticultural attraction. Mr. BRUCE FINDLAY is the Curator and Secretary of the Society.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a very full committee of the Gardeners' Royal Benevolent Institution, held at 50, Parliament Street, S.W., on March 5, 1891, the following resolutions were unanimously adopted:—"That this meeting desires to place on record its sense of the irreparable loss sustained by the Gardeners' Royal Benevolent Institution in consequence of the death of Mr. E. R. CUTLER, its Secretary during the long period of fifty years, and who, by his untiring energy and devotion to its best interests from its commencement, succeeded in leaving it in the gratifying position of having an invested capital of £25,000, while, at the same time, pensions amounting to £2,618, are being paid annually to 156 pensioners. It was unanimously resolved that the following resolution be forwarded to Mrs. CUTLER:—"That the Members of the Committee of the Gardeners' Royal Benevolent Institution desire to offer to Mrs. CUTLER their very warmest sympathy and condolence in the lamented death of her husband, a loss felt by each member to be that of a valued, personal friend, and of one whose memory will ever be affectionately cherished by all who had the gratification of knowing him." A sub-committee was also appointed to consider the best steps to at once obtain the services of a new secretary, and to carry on the general working of the office.

LINNEAN SOCIETY.—An evening meeting will be held on Thursday, March 19, at 8 P.M., when the following papers will be read:—1. "Researches on Earthworms of the Genus Lumbricus," by Rev. H. LUDERIC FRIEND, F.L.S.; 2. "On Hemiptera and Heteroptera of Ceylon," by W. F. KIRBY, F.L.S.; 3. "Life History of Two Species of Puccinia," by Surgeon-Major A. BARCLAY, F.L.S. Some very important alterations in the bye-laws will be discussed on this occasion, especially a proposal to limit the number of Fellows elected in any one year to thirty.

HORTICULTURAL CLUB.—At the monthly meeting of the above Club on Tuesday, 10th inst., the newly-elected President, Sir JOHN LEWELLYN, Bart. took the chair, and a paper was read by Mr. GEO. BUNYARD on the "Curiosities of Germination, Distribution, and Vitality in Seeds," which led to a very interesting discussion, in which the President, Rev. W. WILKS, and Messrs. D. MORRIS, COUSENS, G. PAUL, PEARSON, GIRDLESTONE, JAS. WALKER, and others took part; and a pleasant meeting was brought to a close with a hearty vote of thanks to the reader of the paper. We hear Mr. HARRY VEITCH was unanimously elected Vice-President by the committee at the same time.

BRITISH FRUIT GROWERS' ASSOCIATION.—A meeting of this Association was recently held in the Horticultural Club Room, Hotel Windsor, when the arrangements for the Conference to be held at Cardiff on August 12, at 4 P.M., and at Edinburgh on September 11, at 3 P.M., were discussed at some length. The correspondence which had passed between Mr. A. H. SMEE, the Right Hon. J. CHAMBERLAIN, M.P., and Mr. JESSE COLLINGS, M.P., relative to a great County Council grant for technical education, was also read. A sub-committee was appointed to prepare a syllabus of lectures appropriate to the required conditions. Several members and Vice-Presidents were elected.

A MEETING OF THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY was held on Monday, March 9, at 8 P.M., in the Caledonian Hotel, Adelphi, when eleven members were duly elected, and several others nominated. It was announced that one member had died. A balance-sheet, showing the liabilities and assets of the Society was presented by the Treasurer, Mr. HUDSON, and proved a highly satisfactory document, indicating

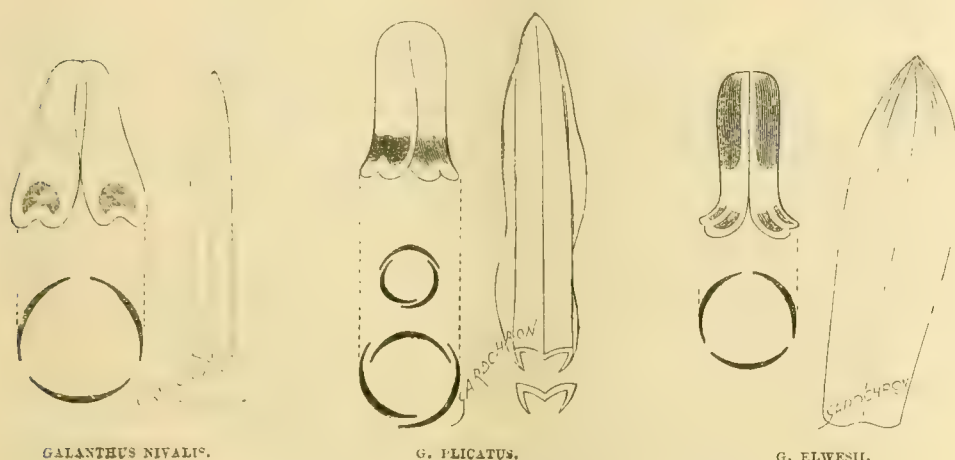


FIG. 75.—PETAL ARRANGEMENT OF SNOWDROPS. (SEE P. 336.)

which is an objectionable habit in this fickle climate. It is also of rapid growth, as may be judged from the following particulars: In 1862, at Bicton, it was noted as being 65 feet in height, and in the same year it had attained an equal altitude at Shannon, near Limerick (Lawson Pinetum). In 1866 a tree at Osborne, planted in 1847, when about 4 feet in height, was 50 feet high. This tree is figured in Lawson's Pinetum, and is shown as branched to the ground. At Dropmore, in 1872, trees of this species are noted as 60 to 80 feet in height (Gardeners' Chronicle, p. 1071, 1872). In 1878 a specimen at Eastnor Castle was noted in our columns as having attained a stature of 60 feet. In 1882 a correspondent registers a tree, near Bovey Tracey, as 59 feet in height, with a spread of 54 feet (Gardeners' Chronicle, October 7, 1882). We presume this to be the same tree that was subsequently figured in the Garden for July 20, 1889. In 1882, at Bodorgan, Anglesea, Mr. ELLAM showed us trees growing in close proximity to the sea which were 67 feet in height. The specimen figured in our illustration is forty-two years old, and in October, 1890, had a height of 70 feet. These measurements show that the tree has already in Britain reached the average stature that it does in its native country. This Pine was introduced in 1833 to the Horticultural Society by DOUGLAS, who gave it the manuscript name of insignis, which has been generally adopted, and which will certainly be retained in gardens. There is a doubt, however,

but in Devonshire and Cornwall it thrives out-of-doors, and fine avenues of it have been figured from time to time in our columns. It is a native of New Zealand, and is spoken of by Sir JOSEPH HOOKER as a magnificent plant, well distinguished by the broad, excessively thick leaves, glaucous below, and huge drooping panicle, covered with the large flowers. The tree represented in our Supplementary sheet is in the gardens of Mr. RASHLEIGH, at Menabilly, which was photographed by Mr. SHERRING. The nearly allied *C. australis* gives a Palm-like appearance to the landscape, which is very attractive. It is well figured in Kirk's Forest Flora of New Zealand.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY, MANCHESTER.—We have before us the schedule of the Grand National Horticultural Exhibition, to be held at Old Trafford, from May 15 to 22. The objects to be shown by amateurs and nurserymen include fruits and plants, hardy and tender, and are sufficiently comprehensive in their nature. The highest prizes in both classes are equal in amount, and they are given for precisely similar exhibits. A miscellaneous collection of plants may take £20 as the first prize, £12 as the second, and £8 as the third. Ten exotic Orchids carry a first prize of £8, a second of £6, and a third of £4; and similarly, the other competing classes are very well provided for. The show will doubtless, as in former years, be well patronised by gardeners, nurserymen,

a balance in favour of the Society of £180, the total assets being nearly £6000. It was resolved to invite members in distant districts to act as corresponding honorary secretaries, with a view to extending a knowledge of the Society, and the advantages it offers to members.

OPEN SPACES IN TOWNS.—In the new journal entitled *Physique* (BELL & SONS), Mr. C. ROBERTS descants upon the ill effects of over-crowding in towns, and the remedies that are available for it. Among these the abundant provision of open spaces is one of the most important. Some years since, when this subject was discussed in this journal, we made inquiries not only in London but also in many of our large manufacturing towns with this result, that whilst our towns were, speaking generally, adequately provided with large open spaces in their immediate vicinity, there existed a great need for the multiplication and diffusion of smaller areas in those quarters where the population is most dense, and where the need of recreation grounds for children and air spaces for adults is greatest. Mr. ROBERTS takes up the same question, and, by the aid of figures, is able to show conclusively the great need for town purification by the methods indicated. In carrying out schemes of practical utility for the general welfare, the question of who is to pay the cost often arises. The tendency now-a-days is to ask the "State," which may be the vestry in this case, to do things which a few years ago would have been done by private enterprise. In this question of town aeration the cost might well be shared, the "State" or the rate-payers undertaking the expense of securing and preparing and maintaining the site, whilst the decoration and planting might be left to the liberality and good feeling of private citizens. In any case, *quocunque modo rem*, let us have the open spaces.

THE LATE EDWARD KEMP.—We are indebted to Mr. PERRIN, gardener to Sir HENRY DOULTON, Knt., at Woolpits, Ewhurst, Surrey, for the information that KEMP, although he had retired from active work for some few years, undertook, as a mark of regard and friendship, to lay out the estate and plan the gardens at that place. This work was begun in 1884, and he came down to see the progress that had been made in 1887. This was his last visit.

THE SNOW STORM IN SOUTH WALES.—Our correspondent, Mr. MILNER, Penrice Castle Gardens, writing under date of March 10, says, that whilst he is writing one of the severest snowstorms of this season is raging in his district. "It commenced on the 9th inst at 4 P.M., with a biting north-east wind, and continued up to the present time without ceasing. In many places the roads are impassable, the snow lying in places where it had drifted 11 to 15 feet deep. This morning we registered 10° of frost on the south wall at 4 feet from the ground, and following the fine mild weather of last month, I fear our Apricots, Peaches, and Nectarines, which were looking so promising, will suffer greatly, as most of the blossoms were almost fully expanded."

NEWTON-LE-WILLOWS HORTICULTURAL.—This Society, which has 253 members, reports having had, says the *Liverpool Mercury*, a successful year. The receipts, including a balance brought forward from the previous year, of £31 7s., were £125 12s. 11d., and the expenditure was £85 11s. 4d., leaving a balance in hand of £40 1s. 7d. Mr. J. WILSON was on Tuesday, the 3rd inst., elected Chairman of the Committee; Mr. J. RANDALL was chosen Vice-chairman; and Messrs. R. BARTON and F. A. FORST were appointed Honorary Treasurer and Secretary.

STOCK-TAKING: FEBRUARY.—The Trade and Navigation Returns for the second month of the year are of perhaps more than the usual interest. They indicate in both imports and exports the anticipated effects of the new French tariff, the positive effects of the McKINLEY tariff, and the

figures are affected both by the Canadian elections and the unsettled conditions of people and things in South America. There will most likely be a rush of goods into France under the old tariff, and as our imports had of recent days decreased, so last month up they went in quantity and value, and under most headings, as indicated by the annexed table of extracts from the "Summary of Imports":—

	1890.	1891.	Difference.
	£.	£.	£.
Total value of imports	£31,018,842	£33,311,351	+£2,292,512
§ II.—(A.) Articles of food and drink—duty free ...	9,138,840	9,888,414	+749,574
(B.)—do., dutiable	2,155,372	2,283,582	+101,210
§ VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	7,138,890	8,227,299	+1,088,409
§ VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,119,543	2,180,652	+61,109
§ IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,135,908	1,008,787	-127,121
(B.)—Parcel Post ...	40,203	55,218	+15,015

The exports show a decrease on the month as compared with February, 1890, of £2,110,256—affairs in the New World being mainly chargeable with this; doubtless, also, to some extent, disputes at the various ports of shipment. But the outlook for protective and prohibitive duties on the other side of the Atlantic is not favourable for those who desire to shut us out from brotherly competition, as readers of the daily papers, who are sound political economists, are cognizant. An endeavour will be made, with certain articles of manufacture, to face even the new French tariff, and some goods we have seen of the St. Etienne stamp, give good promise of success. So excellent are some of these manufactures, that if they do not find a fairly remunerative market in la belle France, are certain to supplant the products of our neighbours in other lands, and also in perfidious Albion. These goods are made up of worsteds from Huddersfield, cotton from Manchester, tram from China, silk tussa from India, and the rejected ends (grease and filth covered) from Milan. The spun and made up product from this latter stuff is simply a marvel, as it takes the dye better than the more stiffly spun silk of France or even England—the dye taking all through in the former, the beauty being only skin deep in the latter; and the prices of the English St. Etienne wares is something wonderful. We have nothing to fear from France in this manufacture. Germany is not "in the running" with such goods, as our readers are well aware. The very "wildest" of Indian silk becomes tractable to the utmost limit among the guiding fingers of our Scotch friends' machinery. Thus, good is gradually being evolved out of what seemed to threaten to be a great evil, and this, too, without reducing wages by one penny to man or woman! When we cease to handicap ourselves less in the very output by means of royalties and first-charges, our manufacturers and patentees and workers all round will cease to be scared by any threats of prohibiting free barter—the natural condition of things. Concerning the imports of fruits and vegetables, we call the following from the general returns for the month of February:—

	1890.	1891.	Difference
§ II. Fruit:—			
Apples, raw ... bush	192,866	188,406	-4,460
Unenumerated, raw	10,607	21,112	+10,505
Onions	313,486	369,817	+56,331
Potatoes cwt.	20,517	115,228	+94,711
Vegetables, raw, unenumerated value	£10,837	46,398	+5,561

THE LATE MR. DOMINY.—The first business before the Orchid Committee at its meeting on Tuesday, was to pass a deeply-felt vote of condolence with the family of the late Mr. DOMINY. The subject was introduced by the chairman, Mr. HARRY VEITCH, and the resolution proposed by Mr. DOUGLAS, and seconded by Dr. MASTERS. Since the death of Mr. DOMINY on February 12, we have had to announce the decease of his widow, and now we have again the melancholy task of announcing the death of the second son, Mr. JOHN DOMINY, in his 37th year, leaving a widow and three children.

"BOTANICAL MAGAZINE."—The March number contains figures of the following plants:—

Encephalartos Altensteinii, t. 7162:3.—A noble Cycad, which produced a cone in the garden of W. H. TILLET, Esq., of Sprowston, Norwich; the first description of the female cone having been given in our columns in 1876, with figures from a plant in Mr. BULL'S nursery.

Masdevallia macrura, t. 7161.—A species with a short broad tube, of a reddish-purple colour, spotted with deeper purple, and dividing into 3 long yellow tails. Native of Granada, whence it was introduced by ROEHL, and described and figured in our columns in 1874, and again in 1877, p. 12, f. 2. *Hort. Kew.*

M. punctata, t. 7163.—A curious species, described by Mr. ROLFE in our columns, 1888, pt. ii., p. 323. The flowers are about half an inch across, with a hemispheric tube, thickly speckled with crimson; dorsal sepal broadly ovate, concave, thickly five-ribbed and narrowed into a long tail; lateral sepals horizontal falcately incurved, ovate-lanceolate from a gibbous base, and with a filiform excurrent process within the tip. Supposed to be a native of New Granada. *Hort. Kew.*

Clematis Stanleyi, t. 7166.—A species native of the Transvaal, and more like an Anemone than a Clematis. Figured in HOOKER'S *Icones*, t. 589; and in *Gard. Chron.*, 1890, pt. ii., p. 326. *Hort. Kew.*

PHALÆNOPSIS AT HENHAM HALL.—Mr. G. W. EDEN writes:—"Lovers of Orchids residing in the vicinity of Henham should not fail to see the *Phalænopsis* in that garden. The plants have large leathery leaves, measuring in some cases 20 inches in length, and more than 5 inches in breadth, and one plant has fourteen of them, and flower-spikes 4 feet long. All of them are growing in baskets of Elm and Elder wood, suspended from the roof, the air is kept sweet and moist, and the temperature ranges from 70° to 75° by day, and 65° by night. The plants are flowering remarkably well this year, there being at present upwards of 1000 open flowers, making such a charming display, that one is tempted to make it widely known."

CROSSING CUCURBITS.—Following in the wake of M. NAUDIN, Professor L. H. BAILEY has been experimenting in this direction, and some of the results of his experiments are given in the *Bulletin* of the Agricultural Experiment Station of Cornell University, New York. Professor BAILEY shows that "immediate crossing," resulting from the influence of the pollen upon the ovary in the same year that the cross is made, does not occur. Any influence that is exerted is manifested in the offspring of the crossed fruit. Such an influence does occur in Indian Corn, according to Professor BAILEY, but not in Pumpkins and Squashes, nor in Blackberries, Dewberries, or Raspberries; in all of which experiments have been made by Professor BAILEY. Other experiments confirm the Darwinian opinion that close pollination, or the application of the pollen to the stigma of the same flower, is more or less ineffectual. In like manner individual pollination, as Professor BAILEY calls it, where the pollen of the male flower is placed on the female flower of the same plant, as in monoecious plants, is markedly ineffectual. Thus 163 out of 183 flowers so treated yielded no fruit at all, the remaining twenty-two carried fruits to maturity, but in every case the seeds were thin and

worthless. In cross-pollinations made at the same time, a large proportion of the crosses were successful indications that the failure of the individual crosses was due to the inability of the pollen to fertilize the ovules rather than to incidental methods of operation. The experiment also shows that the pollen of Squashes, which cannot produce fertile seed, may still cause the development of the fruit. From one of his experiments, Professor BAILEY obtained a Squash of unusual excellence. Desirous of securing it, he sowed seeds in 1890. These seeds, all from the same fruit, produced 110 varie-

BOUGAINVILLEA GLABRA.—The plant figured below has become a general favourite, and is often to be met with at exhibitions. It has bright green smooth leaves, and the flowers, which appear in panicles, are smaller than those of *B. speciosa*, each branchlet bearing three rosy bracts; the flowers are pale yellow. It blooms in the summer, and very freely. Our illustration shows a plant as grown by Mr. CUNDY, nurseryman, Sudbury, Suffolk, in which there is a laudable absence of the formal training that is so frequently to be noticed in these and similarly habited plants at exhibitions.



FIG. 76. A NATURALLY GROWN BOUGAINVILLEA GLABRA.

ties, and only one was like the parent plant. The flowers of this latter were pollinated with their own pollen, but all the flowers so treated failed to set. Other flowers were then pollinated with pollen from other varieties like the original one, and in this way two fruits were procured. In Pumpkins and Squashes the pollen is therefore impotent upon pistils of the same plant, and true inbreeding does not occur in them. Other experiments were made to ascertain if Melons and Cucumbers would intercross, but these experiments were unsuccessful—or, at least, exceedingly doubtful. Professor BAILEY notes, as we have done in this country, that the staminate flowers are formed previous to the female ones on the same plant—another indication for the necessity of cross-fertilisation.

PUBLICATIONS RECEIVED.—*A Year in a Lancashire Garden*, by H. A. BRIGHT (London: Macmillan & Co.)—*Journal of the Bath and West of England Society*, 1890—91, vol. i. (London: Ed. Stanford).

NOTICES OF BOOKS.

IDLE HOURS WITH NATURE. By Charles Dixon. (Chapman & Hall.)

Mr. Charles Dixon has published yet another book of bird-lore, entitled *Idle Hours with Nature*. This volume consists of chapters and articles of various lengths, each of which is devoted to ornithology

from the author's point of view. He complains that this science is now reduced to "little more than a study of hard names . . . All the poetic charm of a bird's life is discarded, and yet it is this which makes ornithology one of the most enticingly charming of the natural sciences . . . Nomenclatural fever is one of the ills most ornithological neophytes suffer from; it is considered a wise and scholarly ambition to become the doting parent of a string of useless Latin prefixes; and the zenith of all ornithological skill to become, and be quoted as, an authority on that driest of all dryness, the synonymy of birds. But this is not ornithology, in spite of what all our learned doctors may state to the contrary. I am fully aware that system and classification are necessary, and I speak with the authority of years of scientific experience, but I do maintain that these subjects are only of secondary importance; they are the finger-posts and landmarks in the kingdom of the birds, and as such should be as simple as possible to guide the student, and make his labours easy in the technical details of ornithology. The great charm of this fascinating science rests in studying the ways and movements of the feathered tribes, not in museums or galleries, but in field and forest, on mountain and plain." Further on in his book, the writer gives an example of the modern tendency he so much deprecates. He finds great fault (although he has previously told us that classification is necessary) with those who regard a bird as being only a species of a genus. Speaking of the dipper, he asks, "Where is his true place in a systematic classification of birds?" and farther on, after quoting various opinions of naturalists, he says, "After all, the dipper gambolling in the clear water below the grey rocks, is infinitely more interesting than a long and dry discussion on his right of place in the artificial systems of scientists, and we will leave them to wrangle over his dry skin and lifeless carcase, and watch his movements when in the full enjoyment of his active restless life."

Even now the author has not fully unburdened his mind, but makes a similar complaint at the end of his book against those who "lay claim to the dignified title of naturalist, simply by compiling book after book of what pretends to be a scientific study of this or that order of the animal kingdom, filling-in all the life-history of the creatures with which they deal, either by annexing the observations of men more enthusiastic, more patient, and more painstaking than themselves, or by getting others, under false pretences, to do what they are pleased to call the 'drudgery.'"

This is, indeed, strong language. Is there, however, nothing to be said for him who works only or chiefly in his museum, or in his cabinet? Personal observation is, of course, invaluable or absolutely necessary; but unless the results are carefully tabulated and assorted, they serve only to interest one student, instead of benefiting men in general. Those who have time and taste for lying all night on a mud-flat or a mountain-side to watch feathered visitors, have not always the power or even the desire to write the details of their own experience properly. This must be done by someone, or how could science advance?

¶ Let those who like pleasantly-written and suggestive descriptions of country sights and sounds seek for them in the book before us, but not to the exclusion of those "drier" works, which, properly used, are essential to the student of Nature, because they aid him to think for himself, while our author would fain press his own opinions upon others.

We might call Mr. Dixon a bird "interviewer," for he visits them at their homes, studies their peculiarities with eager attention and interest, and finally retails to an appreciative public those delightful little personal details which, instead of doing away with the need for more formal descriptions, should rather go hand in hand with them. Then the study of living birds would not lead to mere idle curiosity and supposition; and, on the other hand, facts, in themselves about as interesting as a string of historical dates, would be quickened and made more palatable by true anecdotes and pleasant reminiscences connected with them.

FIRMINGER'S MANUAL OF GARDENING FOR BENGAL AND UPPER INDIA.

This work, which enjoyed great popularity in India, and which was a good book in its day, has been issued in a fourth edition by Mr. H. St. John Jackson. The new edition is said to have been revised, corrected, and amplified by the Editor, and this is no doubt true, but it would have been even more satisfactory if the work had been entirely re-written. In spite of the revisions, corrections, and amplifications, it has an antique look about it which, however appropriate historically, does not give confidence to the reader. The general principles of cultivation are, of course, the same in India as in Europe, but the peculiarities of the climate demand special modifications. A slight sketch of the general principles introducing some more recent information than that taken from Lindley and Paxton, and a detailed account of horticultural practice in the various main climatal districts of India, would have been preferable to the mixed system here adopted. The appendix is disfigured by very numerous misprints, but there is a comprehensive index. Whether the *Amorphophallus Titanum* would succeed in the "grass" conservatories of India, as the Editor seems to think, is, we believe, doubtful, but we trust it may shortly be put to the test.

LES ARBRES FRUITIERS (FRUIT TREES). By G. Ad. Bellair. Paris, Baillière, 19, Rue Haute-feuille.

For those who read French, this will be found a useful little compendium of what is known concerning the cultivation of fruit trees, including planting, pruning, training, and other details. The physiological portions, as is usual in gardening books, are meagre, and might have been written at the commencement rather than at the end of the century. The work has been prepared by an old pupil of the School of Horticulture at Versailles, and is dedicated to the honoured chief of that establishment, M. Hardy.

FOREIGN CORRESPONDENCE.

BELGIUM.

THE MARCH HORTICULTURAL MEETING AT GHENT.—Thirty-nine plants were shown; seventeen Certificates and five Honourable Mentions were awarded as follows: Certificates of Merit for novelties or new varieties for, 1, *Cocos minima pulchra*, from M. El. Pynaert, a graceful little Palm of the same genus as is *C. Weddelliana*, but with more undulated fronds and narrower pinnules; 2, *Phajus tuberosus*, also from M. Ed. Pynaert, an admirable variety, in which the divisions of the perianth are pure white—unfortunately it is very difficult to bloom; 3, *Dendrobium Finzleanum*, from M. Alfred van Imshoot, a variety of distinct colouring; 4, *Cattleya Trianae*, Reine des Belges, for its re-introduction, to MM. Vervae et Cie., the lip is of fine form and brilliant colour; 5, a species of *Cattleya* from the same exhibitors, the colouring of this magnificent flower is wonderful; 6, another species of *Cattleya* from the same firm, admired for the beautiful shape of the flower and its wonderful colouring; 7, *Cattleya Trianae* var. *Lindeni*, also from the above-mentioned firm, the golden-yellow of the lip is of unusual brilliancy; 8, *Oncidium Phalaenopsis*, a most beautiful variety, difficult of cultivation, and chiefly remarkable for its brilliant colouring; 9, *Clivia* (seedling) from M. Jules Hye, the orange colour of the tip of the petals is streaked with white; 10, *Cypripedium Winianum* (*villosum* × *Druryi*), a very beautiful bloom and acceptable novelty; 11, an unnamed *Odontoglossum* of a greenish colour with brown markings, a very pretty variety shown by M. Jules Hye; 12, *Amaryllis Le Progrès* from M. Vuylstéke, a large and fine flower of a deep colour and admirable form; 13, *Amaryllis Bouquet d'Etoiles* from the same exhibitor, a very pretty flower of handsome dimensions.

Certificates for good cultivation and bloom were awarded to:—1, *Adiantum venustum* from M. L. Spaë-Vandermeulen; 2, *Caraguata cardinalis* from M. De Langhe-Vervae, a fine and old dwarf plant, well-flowered; 3, *Cattleya Trianae* from MM. Vervae et Cie., remarkable for good cultivation and bloom, bearing twenty-five splendid flowers in fine condition; 4, *Lycaste Skinneri* with seven flowers, excellent as to size, deep in colour, and of correct form; the Certificate was unanimously awarded to M. Hye for cultivation and for the variety.

Honourable mention was awarded for:—1, *Odontoglossum Wilckeanum*, var., from M. L. Van Houtte, the parts of the flower are larger than in the type, and the colour less deep; 2, *Pilumna nobilis*, an old Orchid with a powerful odour, from M. Van Imshoot; 3, *Platycerium Illi*, from M. Aug. Van Gaert; 4, *Cattleya Trianae*, from M. Van Imshoot; 5, *Cattleya Trianae*, from MM. Vervae et Cie.; 6, a species of *Cypripedium* (variety of *insigne*), from M. Jules Hye; 7, *Odontoglossum Ruckeri*, from M. Hye—a fine cluster of beautiful blooms.

MEETING OF THE CHAMBRE SYNDICALE OF BELGIAN HORTICULTURISTS AT GHENT.

The general annual meeting was held in the beginning of March. The chief matter under consideration was the renewal of the commercial treaties, and was introduced by the Secretary of the Chambre, who expressed the opinion of Belgian horticulturists, when he declared himself to be the advocate of Free Trade. One of the members of the perpetual committee proposed that the Belgian Government should be requested to tax flowers imported from the south, in cases where the French Government imposed a tax on Belgian horticultural products. The proposition will be laid before a special committee. When the business of the day was concluded, Professor Ch. De Bosschère, lectured on the botanical geography of Palms. More than fifty views were shown, illustrative of the remarks of the lecturer, who took his audience into all five divisions of the globe. Most of the views shown were taken on the voyages made by M. Ed. André, editor of the *Revue Horticole* of Paris; to Columbia and Ecuador during 1875-6, and the diagrams used were those prepared by this travelled botanist for a similar lecture given by him before the Société Nationale d'Horticulture de France.

EFFECTS OF THE WINTER IN BELGIUM.

Although it is as yet impossible to exactly estimate the amount of damage done this winter in this country, it is already evident that our losses will be considerable. Evergreens and perennials will be destroyed in great numbers, and bulbous-rooted plants have sustained serious damage; but Narcissi, Daffodils, and Hyacinths, seem to have escaped injury. After the hurricane of November 25, the thermometer, which until then had indicated a moderately high temperature, fell rapidly as low as 12° at Ghent, 10° at Brussels, and 4° at Arlon. The cold during November is unparalleled in the meteorological annals of the country, and was almost invariably accompanied by fog, lasting until December 20. But after the 21st, the frost again set in, in Belgium, lasting until January 23. Then came a cessation for two days, with renewed cold on the nights of January 26, 27, and 28. After this there ensued a thaw until February 3, on which day the frost again set in, and, except on the nights of February 7 and 17, it froze every night until February 21. *Ch. de B.*

ALPINE PLANTS.

ANDROSACE CHARPENTIERI, Heer.—This is one of the rarest and most remarkable of the *Androsaces*; rare, as it only grows on the rocky ridges of two mountains which overlook the Lake of Como, being found nowhere else in the whole world. A *Charpentieri* is not, as was long believed, a local variety of a common species, but a distinct and well-marked type. It varies considerably from *A. glacialis*, its closest relation. *A. Charpentieri* grows in little

dwarf clumps, close to the ground; the leaves are obtuse, pubescent, and arranged in rosettes round the stems, thick, and set closely one against another. The flowers are almost acaulescent, borne on short stems, which are dark brown and glandular; the flowers are a beautiful bright pink colour, with an eye, pale round the orifice. The capsule differs much from that of *A. glacialis*. Heer discovered it, in 1833, growing at an elevation of about 6300 feet, on granitic rock; and Hegetschweiler described it, in 1840, under the name of *Aretia brevis*. This interesting plant is not easily cultivated; it grows naturally in gravelly soil composed of scraps of granitic rock, between which it forces its fine and long white rootlets. The soil contains very little humus, and I have even seen young plants shooting up, growing and developing in broken rocks, which certainly did not contain a single scrap of vegetable mould. The crumbled rock, which is always moist, is sufficient for them; the roots and rootlets draw from it all that the plant requires to sustain life, just as the roots of certain rock plants, which creeping along the fissures of the bluffs, draw thence all that they require for growth and development. Besides this, *A. Charpentieri* grows in full sun and light, in a pure atmosphere, charged with moisture. It is, therefore, a mistake to cultivate this plant in pots and in frames, as is usually done. This is how I succeed with it, and how I would advise it to be grown in England: I plant it upright, between the cracks of two blocks of granite, on a rockery with an eastern aspect, taking care that the fissure is open only on the one side, so as to prevent the roots from being parched up. I keep it in place by means of little pebbles, which I put round the clump; for soil I put in the crack a mixture of small broken pebbles, granitic sand, and some turfy loam. By following this plan, I succeeded in making my plant flower, but it has not produced seed. A root transferred to our Jardin botanique Alpin de la Linnaea (elevation about 5500 feet), and planted in a horizontal position in full sunshine, in poor and light soil, flowered and fruited well.

Azalea procumbens, L. (*Loiseleuria procumbens*), is a pretty little dwarf shrub, which scrambles over the ground, and is only about half-an-inch to 1 inch high. It is covered during the months of May and June (July and August among the Alps), with quite small, bright pink flowers, sometimes very vivid, growing in little clusters of from three to five. The stems are slender, woody, and bear small oval leaves, the edges of which curl over, dark green and glossy. This species is very spreading, and covers the entire country for many leagues round, but young plants are rarely found. It is useless to try to pull up one of these large flat clumps which cover the soil, as it will not recover from it. It is necessary, at all costs, to seek for young plants; to find these, hunt among the loosened earth and stones on the bare slopes, at altitudes of about 6500 to 8125 feet; or even to raise them from seed, which is a long business. The plant must be grown in peat as fibrous as possible, in open sunshine, as it likes dryness and exposure to the full light.

Campanula exilis, Schleicher, is, like *Androsace Charpentieri*, a plant peculiar to the Italian side of the Swiss and Central Alps. It is found in the Simplon group, in the Valley of Saas, and in the Alps which divide Tessin from the Valley Antigorio, but nowhere else in the world. This plant resembles *C. pusilla* in habit, but differs altogether in its funnel-shaped flower, its glabrous straight leaves, and slender stem, and by its blossom, which bears wide notches between each division of the petals of the corolla. In habit at d leaves it slightly resembles *C. stenocodon* of the Eastern Alps. This plant is but rarely met with in cultivation, but its culture is by no means impossible. It requires a loamy soil and a sunny, dry position, especially in winter. If grown in pots, care must be taken to place it in a frame in bad weather, and to keep it very dry; it is easily propagated from seed.

Dryas lanata, Stein. (*D. nivea*, F. Kerner), is a most curious Tyrolean variety of *Dryas octopetala*,

the leaves of which are much narrower, and covered with a hairy down, which is much whiter than that of the species growing in a drier locality. The flower is rather smaller than that of *D. octopetala*, but the species seem to bloom more abundantly, and, I may add, is also more robust in every way, in the dry climate of Geneva. As this species is native of the sunny slopes of Southern Tyrol, it requires sunshine, and a pebbly or gravelly soil (loam mixed with broken pebbles); it is increased by seed, or by dividing the clumps.

Epilobium luteum, Pursh., from North America, is a pretty little plant, not more than from 6 to 8 inches high, with slender stems, with broad, bright green leaves, and bearing on the top a cluster of large flowers, each rather less than an inch across, and pale yellow in colour. This plant is but rarely

all the flowers on the stem, which are arranged in clusters, are faded, and the seeds are ripe, the stem and leaves wither so that no trace of the plant remains to be seen, the roots only being alive. This species requires a light soil (loam and leaf-mould, mixed), and a dry and well-drained position in full sunshine. It is easily increased from seed. *H. Correvon, Directeur du Jardin Alpin d'Acclimatation, Geneva.*

ROSES.

ROSES AND THE FROST.

Now that the late frost is quite gone[?], it is interesting and instructive to note its effects upon Roses. Here (Mid-Sussex) the results are disastrous,

of Teas planted in 1878, and that were severely cut in 1881, is almost demolished this season; the hardiest of all being the old Devonshire Souvenir d'Elise (not the Vardon variety); the remainder are cut down to the ground, and the wood is quite black. A few young Teas that had the soil drawn up to them similar to Potato culture, are sound enough under the soil, and this is a plan I shall adopt in future, as the main support of Tea and Noisette bushes is the strong shoots from the bottom of the plants. Large plants of Gloire de Dijon, Maréchal Niel, Celine Forestier, and others on walls are quite killed, one of the hardiest in this position being Marie van Houtte. *A. P.*

ROSES WINTER GRAFTED.

It may not be generally known that if Briar stocks, preferably of mixed heights, be potted in late autumn and placed in heat of 60° in early January until some slight growth begins, they may be grafted at the top either with one or two scions 4 inches in length of any desired varieties, which should be kept in heat till union takes place, which happens in about ten days. During this time the stocks may be put in almost any position, one on the top of the other failing space, but they must not suffer from want of moisture at top or bottom. When the scion has grown a few inches, put the plant into a slightly cooler light-house or pit, and treat it like other forced Roses. It will usually throw a cluster, or several good blooms, according to the habit of the variety, and may then be placed in the warm conservatory, or if needs must, the cool one. They are not at this age handsome plants, and are best used among other plants nearly as tall as themselves, so that little more than the bloom is visible. In the course of the summer they will make good heads out-of-doors, and a season has been saved.

HOME CORRESPONDENCE.

PLANTING VINES.—The best time to do this is immediately after growth commences, and before the young shoots are so long as to be in danger of breakage when being turned out of their pots. The roots do not commence to grow until some time after the buds have started, and fresh warm soil will stimulate them into action. I have planted Vines in May and June when in full leaf, and their subsequent progress has been greater than that of Vines planted at any other season. This applies especially to newly-made borders, where a gentle heat is set up by turfy loam in the process of gradual decay. No strong manure of any kind shall be placed in contact with the roots of young Vines. Old mortar siftings and charred refuse from a smothered bonfire will be found to be more congenial additions to the compost used, and a top-dressing of Thomson's Vine manure may afterwards be given with advantage. It is to be hoped that part iv. of the Royal Horticultural Society's *Journal* will soon appear, containing a report of the "Grape Conference," and the highly-interesting paper on the "Enemies of the Vine," by Mr. R. D. Blackmore. It would be well if intending planters of Vines consulted the *Journal* before making a final selection, as no doubt it will contain much valuable information about little-known varieties of Grapes. *W. R., Streatham Hill.*

PEACHES.—Mr. Sheppard, in his notes on the above fruits, alludes to the varieties I gave in a recent Calendar. I gave them honestly as being the best, and I think if Mr. Sheppard would turn to the January Calendar of 1889, he would there find several of the same sorts, and the only variety which proves somewhat shy is the Barrington, although this one, in most seasons, crops well. It must, however, be borne in mind that my notes were expressly for outdoor trees, while Mr. Divers at p. 655, December 6, 1890, is speaking of varieties under glass, with the exception of a few others. Now, coming to indoor varieties, Mr. Divers apparently gives the names of several as being the best in his opinion; and in his remarks at p. 151, January 31, he puts, as it were, a black mark against Noblesse, Grosse Mignonne, Bellegarde, Barrington, and Walburton Admirable. Noblesse and Walburton Admirable, he says, are not sure croppers indoors,

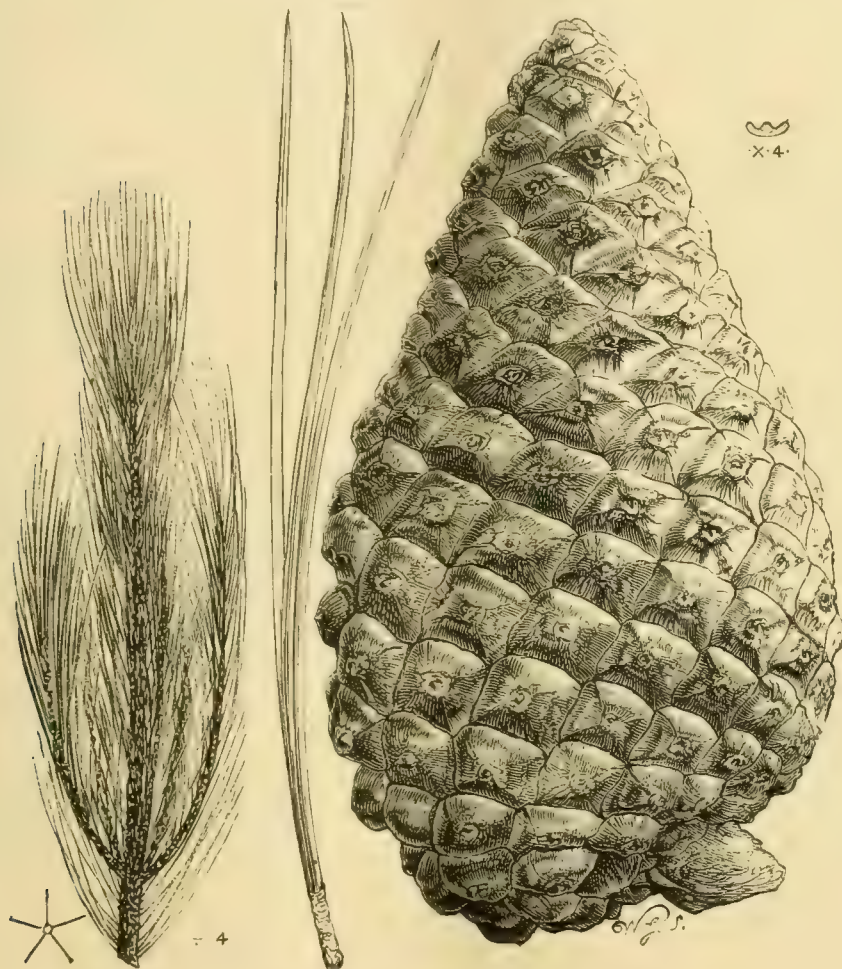


FIG. 77.—FOLIAGE AND CONE OF *PINUS INSIGNIS*. (SEE P. 337.)

met with in gardens, because it is slightly tender in winter. I plant it in a cool place, but in one where it is sheltered from the north winds.

Ianthe bugulifolia, Gris. (*Celsia bugulifolia*, Lam.), is an Asiatic plant, very peculiar and distinct in appearance. Boissier did not succeed in finding it where it is supposed to grow, because it seems to flourish only in the cemeteries, and there one day when he was not seeking it, he saw it in abundance in the environs of Constantinople, where it flowers in May. It is a perennial plant, with a thick root-stock, leaves forming a close rosette, from which rises the erect flower-stalk 20 to 30 cm. or 8 to 12 inches high, glandular and bearing sessile flowers attached to the stem, and surrounded with downy bracts. The flowers are large, in shape like those of *Verbascum* or *Celsia*, of a metallic, bronze-green colour, with a blotch of purple in the centre and striped with yellow. When

many of the tender varieties being almost exterminated. Old and thoroughly established trees have again shown their greater susceptibility to severe frost, when compared with healthy young plants. Budded dwarf stocks are looking none the worse for it, although our readings ranged from 26° to 10° and 12° for some time; this is the more remarkable when I state that here we had no snow laying during the severe part of the seven weeks' frost.

Both buds and plants upon the hedge Briar have suffered severely, and almost all of the Rose wood is yellow; on cutting it, the pith is quite black and brown, not at all a promising prospect for the Tea-scented varieties, which are principally grown upon the half-standard stock.

During the severe winter of 1880 and 1881, I noticed the same thing, viz., greater injury done to old plants and those upon the hedge Briar. A bed

which is news to me; while Bellegarde, he says, is not melting enough, an extraordinary piece of information, for I find this variety to possess a very fine full flavour, and to be very juicy, and on the open walls we find it to be equal to Crimson Galande in every point in the fruits bearing much resemblance to each other, only the Crimson Galande ripens earlier. I do not wish it to be understood that I disagree with Mr. Divers as to the varieties which he has selected, and they may be first-rate with him; but Beatrice and Louise are very little used here, and were I called on to plant two houses of three trees each, I should certainly pitch on Royal George for the warmer end of one of the houses, Hale's Early for the centre, and Noblesse or Grosse Mignonne for the third place. In the other two would be Dymond or Stirling Castle for the warmer end, Bellegarde for the cooler, and Barrington or Walburton Admirable for the middle place. There are several other good Peaches. But to show how greatly opinions vary as regards the different sorts, I have given my especial favourites for good cropping and fine quality for what it is worth. *H. Markham, Mercurworth.*

WATERING WALL TREES.—I strongly advise all who are wishing to secure good crops from stone fruits against walls—especially south and west walls—to prick up the borders for 3 or 4 feet in width, and mulch them with half-decayed stable-dung, and well water them, repeating it the next day. This, as I know by experience, will assist the setting of the blooms. The soil now is, I venture to say, dust dry, for although last summer was a wet and cold one, when we came to transplant some Peach trees towards the middle of October, the soil at 3 inches from the surface down to the drainage was as dry as ashes, although the trees were "supposed" to have had adequate supplies of water given them at the roots for the season. *H. W. Ward.*

PEACHES AND NECTARINES.—There is now little left to be said with regard to these, as Mr. Divers has quite shifted his ground, and has dropped his advocacy of new varieties *versus* old, and now only stands up for two—Early Beatrice and Louise, which, as I have already remarked, have nothing to recommend them but their precocity, for were it not for that, who, I would ask, would think of growing them if they came in with Stirling Castle and the old kinds, which, I contend, have no equals yet? As to not referring to the Hardy Fruit Calendar for a selection of varieties to grow indoors, the sorts that succeed in the one place are equally adapted for the open walls, for as far as regards hardiness, every one knows that Peaches and Nectarines are much alike. With reference to my good friend Mr. Fish's remarks, respecting Stirling Castle, he is in error that I ever considered it a Royal George, and I do not know how he came to have that impression. *J. Sheppard.*

FOGS AND GARDENING.—It is said of Mahomet that finding the mountain would not come to him, he wisely compromised by going to the mountain. The position of the unlucky metropolitan gardener seems to be that the mountain is less obstinate now, and is gradually coming to him—to his destruction. The distressing story told by Mr. Wythes at p. 23, as to his experiences of town smoke and fogs at Syon, is sad enough, and certainly it will become worse rather than better as years roll on. The mountain of brick and mortar, of which the metropolis consists, with its terrible smoke and soot eruptions, bid fair soon to overwhelm even such a horticultural Mecca as is Syon, and its prophet in the person of Mr. Wythes. It is too probably certain that the mountain will win the fight also if the contest between horticultural culture and smoke and fog may be so termed. The mountain is gradually becoming larger, its craters are perpetually multiplying, and its obnoxious eruptions increasing in intensity. What is to be done? If we go on as we have been doing during the past twenty years, in less than a generation we shall find gardening within a moderate radius of the metropolis almost impossible, especially in those districts where fogs mostly do congregate. Gardeners who labour in purely rural districts, far from the maddening effects of smoke and sooty fog, cannot realise the troubles incidental to plant culture in the fog radius, and Mr. Wythes himself must sigh for those halcyon days when he gardened with so much satisfaction in far-off Staffordshire. Such evidence as he gives as to the destructive effects of London fogs upon plant-life could be multiplied indefinitely, if needed. We know too much already of the deadly effects of

sulphurous smoke fumes and sooty fog deposits to require much further information as to the nature of fogs. What we want so badly to learn is, how these deadly agencies can be counteracted or neutralised. To expect that our smoke will be purified, is to hope for something possible fifty years hence. So far as present evidence goes, literally nothing is being done to stay the smoke plague, and, still further, we see this plague increasing in intensity every year. It is not only that the fog and smoke which forms one-half of a metropolitan fog does so much of harm in literally poisoning plant life, but it shuts out sunlight also. Not only for nearly the entire month of December were plants existing in a deadly vapour-bath, but they also had to endure semi-darkness; and general conditions, including temperature, were about as bad for plants as could well be conceived. What is now known with regard to the difficulties attendant on plant culture during the winter near London, may well induce all who may contemplate entering into gardening of any form to consider how far nearness to what is undoubtedly the finest market in the world may yet be neutralised by cultural difficulties. Of course, tender plants suffer most; but very many hardy plants suffer appreciably also. As the snow now dies away it is fully shaded by a coating of soot—conclusive evidence of the foulness of a metropolitan fog. *A. Dean.*

ARAUCHARIA IMBRICATA.—At the Piltdown Nurseries, Sussex (for so many years carried on by the late Messrs. Mitchell & Sons, and, until recently, occupied by us), there is a fine avenue of this Conifer, consisting of some sixty plants. The tallest of these is 65 feet, and measures 97 feet round the branches, while the stem of the tree is 10½ feet in circumference 4 feet from the ground. Most of the others range from 40 to 55 feet high. Speaking of the sexes, Mr. Webster remarks that the males are of more bushy habit than the females. One of these trees, that bore over sixty fully-matured cones in 1889, is the most bushy of the lot—and, in fact, the majority of the females are so with us. Then, again, there are six or seven females that are taller than any of the males, with the exception of the specimen I give the dimensions of. This is a male, while the plant adjoining is a cone-bearing tree, and not more than 40 feet high; they are of the same age, and were planted at the same time. The habit of these can, therefore, be no guide to their sex. In 1888 we noticed one of the plants bearing both catkins and cones; the foreman, who has been there some thirty years, says he has noticed it before. In 1889 we collected 3½ bushels of sound seeds from these trees, the bulk of which went to France and Germany. Home-saved seed produces much harder plants than imported seed; this is only natural, seeing they are thoroughly acclimatised. Neither of the severe winters of 1860-61, nor 1880-81, nor the present, have affected these plants in the least. The only time we knew them to be affected by weather was some few years back, during a very heavy south-west gale, when what is spoken of here as "the salt wind," killed the branches on one side of the specimen tree. Fortunately, this grand plant sheltered the remainder of the avenue. The wind that day was so impregnated with sea-spray as to leave a distinct flavour of salt upon the lips, and this at so great a distance as 20 miles from the coast (16 miles direct, but quite 20 the way the wind came). We thinned out the branches most affected, and the main stem has now thrown out fresh branches, quite 8 to 10 feet long. In 1880 one of these large plants that was injuring its fellows was cut down to the ground; during the spring of 1884 a sucker was produced from the roots. This grew 15 feet high in five years, and shows no signs of branching out in any way. It is exceptionally stout and healthy looking. These have for a long time been considered the finest specimens of *A. imbricata* in the country. The soil at Piltdown is a deep loam, with gravel subsoil. The Araucarias like plenty of moist, cool loam; but, as Mr. Webster says, it will have nothing to do with stagnant moisture. It does not matter in the least when Araucarias are pruned, as they grow steadily all the year. Where they thrive, they are always handsome and suitable for lawns, because they never shed their needles, unless from some injury; the needles on the main stem of these specimens are the same as were upon the two-year seedlings; they simply grow a few more, and grow larger and further apart as the plant increases in size. *P.*

EUCHARIS AMAZONICA.—Although the different methods of growing the *Eucharis* pursued by gar-

deners are frequently described, and I have no original remarks to make on the subject, I am tempted to write because at the present time our plants are in great beauty, and coming as these do just as the commoner varieties of *Calanthes* are passing out of flower, they are very valuable for cutting, &c. Their culture is of the simplest kind, and can be successfully followed by anyone having the necessary means to carry it out. The temperature that is usually recommended for ordinary stove plants is maintained in the pit, where they stand during every stage of their growth, and I have not found it to be expedient to rest the plants in a cooler temperature to induce floriferousness. I think this cannot be carried out as sometimes advised, without the roots being injured, with the result that the plants are more or less weakened. Bottom-heat is also not resorted to, except in a mild form, with a view to promote root action in bulbs that have been re-potted after the soil has been shaken from them; and although this kind of treatment is satisfactory in such case, the employment of bottom-heat generally is not found to be an essential point in the cultivation of the plant. During the time of active growth of thoroughly established plants, water is afforded them freely, and the soil maintained uniformly moist, and liquid manure of moderate strength is frequently given them. The soil is maintained in a less moist state while the plants are inactive, but at no time is it allowed to get so dry as to cause the foliage to flag. The failure many experience with *Eucharis amazonica*, I think, more often the result of the drying-off system, accompanied as it sometimes is with a low temperature. We keep the air of the house moist, and use the syringe more or less freely according to the weather. *Eucharis* enjoys a humid air and a shady situation, direct sunshine causing the foliage to become both thin in substance and of a pale colour, the plants soon failing if exposed to it. As a potting soil, I use a rather heavy fibrous loam, to which a small portion of peat is added, and some small quantity of sand. In potting, I am careful to let the drainage be good, and I seldom repot specimen pots of bulbs, these being let alone for several years without disturbance; the last time I potted any of these was in March, 1887, and their bulbs now thickly crowd the pots, and the plants are in perfect health, and will not be repotted before they show signs of needing it. Young plants are shifted on as soon as their pots are well filled with roots, and then, and for some time after the operation, the watering pot must be employed with great care. I have no remarks to pass about the mite, as we have had no experience with it. *T. C.*

AQUATICS.—Mr. Pettigrew's letter, from Lincoln Park, Chicago, quoted on p. 306, is a reminder of the frequent criticism of Americans who visit this country *re* the meagre use of aquatic plants in our own public parks and gardens. At the Central Park and Union Square, in New York, the lovely groups of Water Lilies and *Papyrus* are a constant source of attraction all through the summer and early fall. There *Nelumbiums* and other tender aquatics are planted in boxes, and removed to the park greenhouses every winter. It would be quite possible to form little creeks, near our larger ponds, with cemented bottoms, over which the water might circulate with a gentle current to a sewer. Here, in about eighteen inches of rich soil, renewed more or less every year, aquatics would flourish. Such an innovation would be vastly more popular than the various arrangements of water-spouts and fountains. *Vagabond.*

THE LUCOMBE OAK.—It may interest your correspondent, Mr. W. Napper, and may help other lovers of trees, to know that there is growing near the centre of this town in my place, a Lucombe Oak, that I claimed to be a larger, if not quite so perfect a tree, as the one just inside the Exeter Nursery gates, and certainly the real "old original" must have stood still some time, as mine is only a grafted specimen. *R. H. Poynter, Taunton.*

WHITE PRIMROSES.—I send photographs of beds of my winter-blooming white Primrose, "Sabrina." It is generally in perfection at Christmas, but this season at that time the beds were covered with snow. For the last three weeks we have had severe nights—14° of frost twice; but this they did not mind, except once, when there was heavy fog with it, and then they drooped their heads for two or three hours in the morning, but soon recovered. These photos were taken on February 18. I should have had them taken early in the month, but on the 4th I was obliged to have many hundred

blooms gathered, so was compelled to postpone the photographing. The small round bed has an edging of white Primroses, but in the centre are ten plants (all I have at present) of a rose-lilac sort, "Marnovia." The two colours appear alike in the photo, *J. H. Heyward*. [With these came excellent photographs, showing how very free-flowering these varieties are, and how well suited for beds in pleasure-grounds and similar situations. Some noble Oaks, which we may reproduce later on, form a wonderful background to the pictures. Ed.]

NEW AND OLD PEACHES.—As an old grower, I may be pardoned a few words in this discussion. Mr. Divers claims for the Sawbridgeworth seedlings great merits as early sorts. In my opinion, no Peach for early forcing equals Hale's Early. I used to grow a tree of Early Beatrice because it ripened its fruit a week or so earlier, and also a tree of Early Ascot, which I always found high-coloured and good-flavoured, although it ripened later than Hale's Early. All three set their fruit very readily, Hale's Early being the best as regards quality. For the main crop I always depended on the old varieties. For late work Barrington and Dese tardive seemed to me the best. The latter is a curiously-neglected Peach. Of Mr. Rivers' seedlings, Goshawk and Sea Eagle were my favourites; the former has a piquant flavour, very dear to a Peach-lover. For outdoor work, besides the well-known varieties, I always found Waterloo, Demond, Teton de Venus, and Salway worth growing, *W. Carmichael, Edinburgh*.

NURSERY NOTES.

MESSRS. B. S. WILLIAMS & SON'S NURSERIES, UPPER HOLLOWAY.

THE Victoria and Paradise Nurseries are always interesting for the extensive and varied character of the general stock of plants, and especially the excellent collection of Orchids. The late Mr. B. S. Williams bestowed on this latter much care and consideration, and so does his son, the present proprietor. If asked to name the most noteworthy feature in the collection of Orchids formed by Mr. Williams, we should be inclined to say the house of varieties of *Vanda tricolor* and *V. suavis*, the occupants of which, for size and vigour, leave little to be desired. All the leading species and varieties of *Vanda* are found there, and most of them are profusely furnished with flower-spikes, many of which have expanded flowers.

In the house in which were the *Vandas*, was noted a pretty group of Orchids in bloom, consisting of *Dendrobium Farmeri aureum*, with several spikes; several good *D. crassinode*, *D. Wardianum*, *D. lituiflorum*, and varieties of *D. nobile*, of which *D. n. nobilius* was by far the best, and the lesser-flowered *D. n. Wallichianum* one of the brightest. Flowering on the side stages were plants of *Calanthe masuca*, *C. veratrifolia*, *C. Williamsii*, *C. Stevensii*, *C. Turneri*, and other *Calanthes*; and a handsomely-marked *Epidendrum Wallisii*, which is stated to be in bloom nearly the whole year round.

Large plants of *Lælia purpurata*, well-sheathed specimens, occupy the centre of an intermediate-house; these form one of the specialties here, and as often as possible fine varieties are added to it. The plants in flower in this house were chiefly the varieties of *Lycaste Skinneri* of the large-flowered type, and there was noticed one good specimen of *L. S. alba*. Besides these, there were *Oncidium splendidum* and *O. sarcodes*; and suspended overhead a number of well-grown plants of *Chysis bracteescens*, each sending up several spikes of its large white blooms. The hanging of plants near to the glass has good results, as was observed in the next Orchid-house entered, where a number of plants of the Chatsworth variety of *Cœlogyne cristata*, growing in small pots and hung up, were well-furnished with flower-spikes. A plant of the pretty *Dendrobium Kingianum*, with several spikes, was likewise growing in this manner. Beneath these plants stood a specimen of *Cymbidium Lowianum*, with seven spikes, bearing between them nearly 200 flowers, and around it were some good forms of *Cattleya Trianae*, a specimen of *Dendro-*

bium infundibulum with extraordinary large flowers. Here also were observed a group of *Cœlogyne cristata alba* with about a score of flower-spikes, and another of *Odontoglossum hastilabium*, almost in bloom; and the rare and true *Cœlogyne lactea*, a pretty white-flowered species which the less showy *C. flaccida* often has to do duty for.

COOL-HOUSE ORCHIDS.

In bloom here, the most noteworthy plants were a finely-spotted *Odontoglossum crispum*, very close to the beautiful *O. c. Cooksoni*; a finely flowered plant of *O. Ruckerianum*, *O. crispum roseum*, and the pale yellow and spotted *O. prionopetalon*, a supposed hybrid of *O. crispum*. In the cool houses also are a quantity of *Oncidium macranthum* and *O. Marshallianum* in spike, and various good forms of *Odontoglossum crispum*, *O. Andersonianum*, *O. Humeanum*, *O. aspersum*, and other *Odontoglossums*; *Oncidium Phalaenopsis*, *Ada aurantiaca*, *Sophranitis grandiflora*, and a few *Masdevallias*.

CYPRIPEDIUMS.

These plants were disposed in one of the four houses which are not generally seen by visitors. The varieties of *Cypripedium* have become so numerous, that the mere enumeration of them is tedious; and suffice it, therefore, to mention only the more striking now in flower. Of these the favourite *C. vexillarium* × and *C. ænanthum superbum* are worthy; also *C. tonsum*, *C. nitens*, and *C. selligerum rubrum*. *C. Elliottianum* has a grand spike; *C. Fitchianum*, if not showy, is very curious; and the old *C. Swanianum* × appears to compare with many of the new varieties with such advantage to itself, as to lead one to wonder why it did not make a greater stir on its first appearance; perhaps it came before the fashion for *Cypripediums* arose, and too soon for glory.

In a warm house adjoining the one in which were the foregoing, were observed two specimens of *Diacrium bicornutum*, *Angræcum citratum*, and various other Orchids, in good bloom, all of which were suspended above a number of *Anthurium*s.

MISCELLANEOUS PLANTS.

Anthurium Williamsii has a fine pure white spathe; a similar plant—a seedling—white, with a few salmon spots; the pretty *Anthurium Paradisiæ*, white, with the faintest blush tint, and with salmon-pink spadix, were in bloom. The next house contained a beautiful collection of *Crotons*, above which a profusion of plants of *Dendrobiums* in flower were suspended, chiefly varieties of *D. Ainsworthii*, and with these were the pretty *D. crepidatum*, *D. nobile Cooksoni*, one plant of the true *D. n. nobilius*, and many of the primrose-yellow *D. luteolum*. These private houses are connected by a lean-to, which seems to answer admirably for some Mexican Orchids placed in it.

The *Amaryllis*-house is furnished with a fine array of flower spikes, but only one was in bloom, and that one worth a visit to see. It is new, and is named, *J. R. Pitcher*, and its scapes possess several flowers each. In colour, rich blood-red, with the veinings of purplish hue. The colouring is the same throughout, even the eye in the centre, usually very marked in most *Amaryllis*, being scarcely visible.

The collection of Ferns is extensive, and in these days of endless market varieties, it was pleasant to encounter many fine old species, as *Gleichenias*, the miniature tree-like *Lomaria attenuata*, and the more robust *L. Boryana*. The handsomest thing observed however, in the Fern-houses was the grand hybrid *Dicksonia Lathamiana* raised by Mr. Latham of the Birmingham Botanic Gardens, the stock of which Mr. Williams has undertaken to dispose of. Among other noteworthy objects, mention may be made of Williams' strain of *Cyclamen persicum*, plants of the pretty and useful white *Rhododendron Williamsii*, an extensive collection of *Nepenthes* and *Sarracenias*, a good houseful of *Cliveas*, and in the large warm and cool show-houses some noble Tree Ferns and Palms.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 10.—Despite the very severe weather which prevailed on Tuesday last, there was a capital display of flowers, including a few choice Orchids. Lectures on Snowdrops were given in the afternoon, the Rev. W. Wilks reading the papers, which are referred to in another column.

Floral Committee.

Present: Geo. Paul, Esq., in the Chair, and Messrs. B. Wynne, R. Dean, G. Bryceson, C. T. Drury, H. B. May, G. Phippen, F. Ross, C. E. Pearson, E. Mawley, C. Jeffries, W. Bain, J. Walker, T. Bines, G. Gordon, T. W. Girdlestone, J. Fraser, and H. Turner.

A beautiful and very interesting collection of hard-wooded plants in flower, was contributed by Messrs. H. Low & Co., Upper Clapton, who deserve thanks for bringing under notice these now somewhat neglected plants. Among them were *Thibaudia acuminata*, with panicles of showy flowers, scarlet tipped with creamy-white; *Diosma capitata*, *Chorozema Lowi*, a very free-flowering variety, with dark foliage; *Darwinia tulipifera*, *Pimelea spectabilis*, *Erica melanthera*, the richly-scented *Boronia megastigma*, and the brilliant *B. heterophylla*, with *Genista elegans*, grey-green linear foliage, and short flower-spikes; and splendidly-grown standards of *Cytisus racemosus*, a few *Acacias* in full flower, viz., *A. ovata*, *A. Drummondii*, and *A. cordata*; and an edging of *C. clamen*, both red and white, completed the group—one of the most interesting seen at the Drill Hall for a long time past.

Messrs. W. Paul & Son, Waltham Cross, showed a few Roses, including a new variety for forcing and bedding, named *White Lady*, which is a very pretty pale pink-rose, lighter than *Her Majesty*, and nicely scented and a well-formed flower; there were also plants of Denmark, a very pretty bright rose-coloured flower, and a branch of the Banksia Rose with a large lot of flowers on it. But the chief feature in the exhibits of this firm was the collection of *Camellia* blooms, which filled a dozen boxes. Some of the best and most popular varieties were represented by good blooms of the newer *Lucrezia Gazzarini*, rose striped with white; *Montironi*, an incurved white; *Cup of Beauty*, somewhat resembling the old and beautiful variety *Pfaff*, now rarely seen, creamy white; *Principessa Rostigiosa*, a rich pink, with a centre of the palest blush, very beautiful; *Comtesse d'Hainaut*, with much cupped petals, pale pink, running out to white at the edge of the petal. The best of the older varieties were likewise present, including *C. M. Hovey*, *Countess of Derby*, *Fimbriata Mathotiana*, &c.

Mr. W. E. Gumbleton, Belgrove, Queenstown, Cork, sent a few interesting flowers, these were *Crom-a-Boo Daffodil*, in which the cup is curiously filled on the outside, as shown in the figure on p. 345; also an Ajax type flower of clear bright yellow, called *Primrose Dame*, and said to be sweetly-scented. There were two forms of *Iris Rosenbachii*, one of which was paler, especially in the standards; also *Tulip Queen of the Netherlands*, which is a very pretty soft pink with deeper flushes, the base of the perianth is yellow inside as are the stamens also—it is a charming flower. *Anthuriums*, large and well grown, were shown from the gardens of Sir Trevor Lawrence, Bart., Burford Lodge, Dorking. The white-spated *Laingii* was in splendid form, also *carneum*, *Leodiense*, and several fine seedling forms, one very dark red, and others of the *Scherzerianum* type, having mottled spathes.

A pretty collection of forced Daffodils, embracing a great range of forms, was sent by Messrs. Barr & Son, King Street, Covent Garden, variety being lent by an admixture of *Scilla sibirica*, *Anemone fulgens*, *Galanthus* in variety, *Megasea*, and *Tussilago fragrans*.

A lot of nicely-flowered Violets, *Marie Louise* and *Comte Brazza* (*Swanley white*?) came from Mr. Allen, gr. to Lord Suffield, Gunton Park, Norwich. Mr. Moore, Glasnevin Botanic Gardens, Dublin, forwarded a comprehensive collection of *Lachenalias*, the best being *L. Nelsoni*, *L. tricolor*, and *L. Cami*. The flowers were generally faded, however; the pretty *Lotus pelecorynchus*, with its rich carmine-scarlet flowers, was shown by Messrs. R. Veitch & Sons, Exeter.

Mr. G. Phippen, nurseryman, Reading, showed a large quantity of decorative bulbous plants in ex-

cellent flower. It consisted chiefly of Tulips, Lily of the Valley, Hyacinths, Muscari, and Crocus, and was backed with Grevilleas, and edged with *Isolepis gracilis*. Madame Nuna, a pale lilac Crocus, is a novelty in colour; Tulips Purple Crown, Toreador a double Turn Sol, Titian, scarlet and yellow; Murillo, a white flower with a rosy suffusion; and Salvator Rosa, rose crimson flaked, were good varieties. The Muscari botryoides were capitally bloomed, but they lost in effect by the proximity of the bright Tulips and Hyacinths.

A richly-coloured *Amaryllis* bearing medium-sized flowers of very dark red, named J. R. Pitcher, was sent by Messrs. B. S. Williams & Son, Upper Holloway.

Orchid Committee.

Present: Messrs. H. J. Veitch, F. Sander, L. Castle, J. Douglas, J. O'Brien and Dr. M. T. Masters.

Messrs. B. S. Williams & Son, Upper Holloway, N., had a prettily-arranged group of Orchids, relieved by a few foliage plants, &c., among the more conspicuous being *Cymbidium Lowianum* and *C. eburneum*, *Dendrobium Farmeri* var. aurea, *Angraecum citratum*, *Cypripedium Dauthieri marmoratum*, *Odontoglossum crispum Cooksoni*, *Dendrobium Wardianum*, *Coelogyne cristata*, &c.

Messrs. F. Sander & Co., St. Albans, Herts, sent cut blooms and plants of several interesting species; there was a fine lot of the pure white *Coelogyne cristata hololeuca*, also *Phaius Humbloti*, *Odontoglossum blandum*, *Dendrobium nobile*, good white forms of *Cattleya Trianae*, *Masdevallia Kimballiana* ×, dull yellow with red-brown flush; and a plant of *Odontoglossum luteo-purpureum Amesiana*, which is a very distinct form, bearing flowers of a pale yellow-green colour, unlike those of any other *Odontoglossum*.

Messrs. H. Low & Co. sent the charming little *Saccolabium bellinum*, and from Mr. Burbury, Arundel Castle, Arundel, came a splendid specimen plant of *Cymbidium eburneum*, with a profusion of large flowers.

A small collection of popular Orchids came from Mr. W. Whiteley's nurseries, Hillingdon. *Dendrobium Cooksoni* and *Phaius Cooksoni* were well shown by N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne; and from G. Hardy, Esq., Pickering Lodge, Timperley, Cheshire, came a pretty *D. nobile*, Hardy's variety, the petals with deeply coloured tips, and *Cattleya Trianae Hardyana*, pale pink and pretty.

Fruit Committee.

Present: P. Crowley, Esq., in the chair; and Messrs. R. D. Blackmore, P. C. M. Veitch, W. Warren, G. Bunyard, J. Willard, T. J. Saltmarsh, A. H. Pearson, G. Wythes, J. Hudson, H. Balderson, F. Q. Lane, C. Penny, and A. Dean.

A collection of Chicory varieties was sent from the Society's gardens at Chiswick, the best being the Witloef, Large-rooted Magdebourg, and also Dandelion in an improved salad form, all nicely blanched.

An Apple, Chelmsford Wonder, from Messrs. Saltmarsh & Son, Chelmsford, proved to be of very good quality, it has firm flesh, is juicy and acid, it bakes well, and is a useful late culinary Apple. Its appearance is attractive, being rich yellow, flushed red, and it is of good size. Mr. Willard, Holly Lodge Gardens, Highgate, N., sent samples of Peaches received from the Cape, but they were worthless; and Dr. Wilks showed Vanilla pods.

Awards were made as follows:—

By the FLORAL COMMITTEE.

Award of Merit.

Amaryllis J. R. Pitcher, from Messrs. B. S. Williams & Son.

By the FRUIT COMMITTEE.

Award of Merit.

Apple Chelmsford Wonder, from Messrs. Saltmarsh & Son.

By the ORCHID COMMITTEE.

First-class Certificate.

Odontoglossum luteo-purpureum var. *Amesiana*, from Messrs. F. Sander & Co.

Awards of Merit.

Dendrobium nobile, Hardy's var.; *Cattleya Trianae Hardyana*, from G. Hardy, Esq.

MEDALS.

Silver Gilt Banksian—To Messrs. H. Low & Co., for group of flowering plants; to Mr. G. Phippen, for

group of Hyacinths, Tulips, &c.; to Messrs. W. Paul & Son, for collection of cut Camellias.

Silver Banksian.—To Messrs. Barr & Son, collection of Daffodils, &c.; to Sir Trevor Lawrence, Bart., M.P., for group of Anthuriums; to his Grace the Duke of Norfolk, for *Cymbidium eburneum*.

Bronze Medal.—To F. Sander and Co., for a group of Orchids; to W. Whiteley, for a group of Orchids.

Silver Flora.—To B. S. Williams & Sons, for a group of Orchids.

PRESTON AND FULWOOD HORTICULTURAL.

A MEETING of the members of this Society was held on Saturday at the Castle Hotel, in Preston, Mr. W. E. M. Tomlinson, M.P., presiding over a large gathering. Mr. Hathaway, of The Gardens, Lathom House, read a paper on "the Cyclamen." Some fine Cyclamens and a Clivea, also Onions, grown by Mr. Troughton; a white Azalea, a bunch of Van Sion Daffodils, and a Rhododendron, Queen of Dwarfs, from Lord Latham were exhibited.



FIG. 78.—NARCISSUS CROM-A-BOO. (SEE R.H.S. REPORT.)

In the discussion which followed Mr. Hathaway's paper, a general opinion was expressed that there was a difficulty in rearing Cyclamens, unless they were kept separate, and received special attention.

ROYAL AQUARIUM.

MARCH 11 AND 12.—The first of the series of flower shows arranged to be held at the Royal Aquarium, Westminster, took place on these days, when a pretty display was made.

Cyclamens were a leading feature, being both numerous and good, Mr. T. Walker, Gordon Villa, Hounslow, and the St. George's Nursery Co., Hanwell, being the chief prize winners, with excellent collections; and a fine deep red variety (*Vesuvius*) came from Mr. May, of Twickenham. Bulbous plants were of fairly good quality, Messrs. H. Williams & Sons, Fortis Green, Finchley, leading in the open classes; the amateur prizes going to Mr. T. L. Turk, Cholmeley Lodge Gardens, Highgate.

Greenhouse Azaleas were best from Mr. C. Nunn, gr. to J. Soames, Esq., Greenwich Park, but they were thinly covered specimens. Messrs. W. Paul & Son, Waltham Cross, showed a collection of cut Camellia blooms (twelve boxes). Daffodils, &c., were largely contributed by Messrs. Barr & Son,

Covent Garden; and Mr. W. B. Morle, 283, Regent Street, W., sent a group of foliage plants; but the prettiest contribution was an extensive group of Orchids, with stove plants, &c., from the nurseries of Messrs. J. Laing & Sons, Forest Hill, S.E.

FRUIT REGISTER.

APPLE CALVILLE DES PRAIRIES.

In the *Bulletin d'Arboriculture* for December, this handsome Apple is figured and described. It is described as a free grower, but very productive, and strongly recommended by M. Burvenich. The Apple is of medium size, ovoid-conic, faintly ribbed, of a pale yellow colour flushed with pink. The flavour is excellent, but the flesh is rather tender, so that the Apple does not travel well.

APPLE GASCOYNE'S SCARLET SEEDLING.

This variety, also known as Glory of England, quite deserves the praise bestowed on it by Mr. Markham on p. 57. It is a vigorous grower, a first-rate bearer (in Kent) when the tree has become aged. It is sweet and agreeable, and one of the highest coloured Apples. Under good cultivation the fruit grows to a good size, and the trees come into bearing when quite young, if treated as a pyramid. It keeps sound and plump until the end of the month of February. The tree should be planted in full sunshine, and in gathering the fruits, they should be handled with care, so as not to rub off the blush bloom. As the fruit ripens, a few fruits at a time should be gathered as they ripen, the handsomest being placed by themselves for table use. In pruning the tree, the branches should be left a good distance apart, to allow direct sunlight to reach the fruit, and the young growth should not be pruned back nearly so hard as other varieties. W. Packman.

DOMNESCITA APPLE.

A Moldavian Apple of universal cultivation in Russian Bessarabia. It is a first-class fruit, large, red in colour, and aromatic in flavour, keeping till late in the season. The flavour is much finer than Emperor Alexander. The tree is a strong grower, and is very hardy. *List of Novelties, National Arboretum, Zöschén.*

SAPIEGUNKA, POLISH BERGAMOTTE.

A medium-sized autumn Pear, which is capable of withstanding the cold of a Russian winter, and therefore well adapted for rough, cold climates. In Northern Russia, where the fruit ripens slowly, it is buttery, and very good eating; but in warmer parts it is coarse in grain, and readily becomes doughy. *National Arboretum, Zöschén.*

LE LECTIER PEAR.

A Pear of French origin and considerable value, owing to its fine quality and lateness—January to March. *List of Novelties, National Arboretum, Zöschén.*

MITSCHURIUS KOSLOW, MORELLO CHERRY.

A very excellent sort, with large juicy fruits, from Siberia, and ripening in Central Russia at the end of August. The plant forms a low bush, and comes true from seed. A full-grown bush is said to carry from one to two poods—about half a hundred-weight! *National Arboretum, Zöschén.*

VEGETABLES.

SHARPE'S TRIUMPH PEA.

Those who want a dwarf prolific Pea of good quality, should get this variety. I have grown it for five years past, and think highly of it. It grows from 2½ to 3 feet high, and the pods come very freely, and are about 4 inches long. I obtained a half-pint packet. Three Peas were sown in three lines, in shallow, broad drills, at about 2 inches from one

seed to the other. My employer pronounced the Peas to be the best-flavoured he had eaten. That the variety is a prolific bearer may be judged from the fact that 26 bushels of pods were gathered from 144 yards on one day. The rows of Peas were 4 feet asunder. *C. J. Waite, Glenhurst Gardens.*

IRISH NOTES.

I HAVE just bloomed Professor M. Foster's lovely hybrid *Narcissus bulbocodium monophyllus* × *N. triandrus*. It is quite a little beauty, and has of course traces of both its parents. It is very like Tait's hybrids (natural Portuguese), between *N. bulbocodium* and *N. triandrus*, and so explains the "dear old nurse's" proceedings. I saw at Straffan, co. Kildare, the seat of Major Barton, yesterday, a plant of *Cœlogyne cristata* var. *Lemoniana* with about sixty spikes of flowers, and splendid Violets and also Mignonette in pots. The Disas are also very vigorous, and *Galanthus nivalis maximus* is superb.

TEA AND COFFEE SUBSTITUTES.

(Continued from p. 138.)

VERBENACEÆ.

58. *Lippia citriodora*, Kunth.—An undershrub of South America, but cultivated in Europe. The dried leaves have been used as a substitute for tea as well as for flavouring creams and various other confections.

59. *Lippia adoensis*, Hochstetter.—An infusion of the whole plant is used on the Gambia, and it is said to possess febrifugal properties. It is known as Bormbor or Gambia tea. A sample obtained from the Colonial and Indian Exhibition is contained in the Kew Museum.

60. *Lippia rubiginosa*, Gill.—Under the name of Tornillo, this plant is common throughout Patagonia, where the Indians use the leaves to make an infusion like tea, which they regard as a stomachic, —they are also used for flavouring soups, stews, &c.

61. *Lantana pseudo-thea*.—This and several other species of *Lantana* are said to be used in Brazil as tea plants.

62. *Stachytarpheta jamaicensis*, Vahl.—A tall-growing biennial, native of the West Indies and many parts of Tropical America, where the leaves are said to be largely used, not only for adulterating Chinese tea, but also for preparing a similar beverage. It is further stated that they were at one time imported into Austria under the name of Brazilian tea. They are said to have stimulant and febrifugal properties.

LABIATÆ.

62a. *Monardadidyma*, L.—A native of the United States, where the dried leaves are known as Oswego tea, and are used in infusion which emits a very grateful and refreshing odour, and is said to have similar properties to Camomile. There is a specimen in the Kew collection.

63. *Sideritis theezans*, Boissier and Heldreich, *S. peloponnesiaca*, Boiss. and Heldr., and *S. Ræseri*, Boiss. and Heldr.—Under these names three species of *Sideritis* have been described as indigenous to Greece, the leaves and flower-stalks of which are gathered and sold by the herbalists as Greek tea. The infusion is said to be agreeably aromatic, with a resemblance to true tea. A specimen of *S. theezans* is contained in the Kew Museum.

64. *Salvia triloba*, L.—Under the name of Athens tea, or Phaskomyia tea, the Greek herbalists gather this plant, dry it, and tie it in bundles, and sell it in the markets. Dr. Landerer says an infusion, or tea, made from it is drunk in all cases of chills, besides which, it is sold in the coffee-houses and confectionery shops. The herb is found in all the poorer people's houses, and on board ships, and Phaskomyia tea is generally drunk on cold days. The

plant is also kept on hand in all coffee-houses, even as far as Odessa, and its infusion is a favourite beverage. In Odessa a kind of punch with rum is made of it. A specimen is in the Kew collection. *J. R. Jackson.*

(To be continued.)

Obituary.

JAMES MURRAY GARDEN.—Horticulture in Aberdeen and the north of Scotland has lost in the decease of Mr. James Murray Garden, advocate, a true and steadfast friend. A few years ago, when its finances were at a very low ebb, Mr. Garden became President of the Royal Horticultural Society of Aberdeen, and his enthusiasm and business capacity inspired into it the new life and vigour in which it continues to flourish, thanks in a large measure to his personal influence and his happy tact, which was especially marked in connection with the little internal differences of view that will inevitably arise in connection with such undertakings, but for which a solution was always found by Mr. Murray Garden's good feeling and common sense. By his death Aberdeen has lost a good citizen, who had done it good service in many capacities, and for whom a career of yet higher and more extensive usefulness had been generally anticipated. The position he had taken in the estimation of his fellow citizens was proved by the fact that he had been, on more than one occasion, approached with a view to his undertaking the responsibilities of the Lord Provostship of the city. That honour has seldom been thought of in connection with one so young in years. He was only forty-six years of age.

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	Above (+) or below (—) the Mean for the week ending March 7.	ACCUMULATED.			10ths Inch.	Ins.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.	
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.						Below 42° difference from Mean since Jan. 4, 1891.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.				
1 Oaver.	8	35	+ 69	— 40	13 +	47	12.3	25	18	
2 2 +	16	31	+ 53	— 11	1 —	23	2.2	43	30	
3 5 +	31	10	+ 45	— 27	1 —	21	1.4	34	28	
4 6 +	42	9	+ 40	— 89	1 —	23	2.1	28	33	
5 5 +	35	7	+ 46	— 53	1 —	19	2.3	24	33	
6 4 +	34	■	+ 5	— 104	1 —	20	3.0	27	34	
7 2 +	23	13	+ 56	— 44	3 +	35	6.7	19	22	
8 4 +	26	7	+ 64	— 3	1 —	23	2.8	18	30	
9 4 +	29	1	+ 14	— 58	3 —	21	3.9	22	37	
10 2 +	28	8	+ 56	— 26	Oaver.	33	2.9	21	27	
11 3 +	34	2	+ 43	— 3	6 —	26	2.9	22	30	
12 2 +	32	0	+ 13	— 34	4 —	22	2.5	16	46	

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 7, is furnished from the Meteorological Office:—

"The weather continued fair and dry in most parts of England until towards the end of the week, when rain was experienced very generally; over the greater part of Ireland and Scotland, however, the weather was unsettled, and rain was of frequent occurrence throughout the period. By the 7th, snow-showers were prevailing at all the northern and north-western stations.

"The temperature has been above the mean in nearly all districts, the excess ranging from 2° in 'Scotland, E.' and 'W.' and in the 'Channel Islands' to 5° in 'England, N.E.' and the 'Midland Counties,' and to 6° in 'England, E.' In Scotland where it was very high at the beginning of the period, it subsequently fell quickly, and finally became very low. The highest of the maxima, which were generally experienced either on the 1st or 2nd, varied from 67° in the 'Midland Counties,' and 66° in 'Scotland, E.' to 52° in the 'Channel Islands.' The lowest of the minima, which was recorded on the 1st over England, on irregular dates in Ireland, on the 7th at the Scotch stations, ranged from 13° in 'Scotland, N.,' 19° in 'Scotland, E.,' and 21° in 'Scotland, W.' to 32° in 'England, N.W. and S.W.,' and to 36° in the 'Channel Islands.'

"The rainfall has been considerably more than the mean in the north and west of Scotland, and about equal to it in 'Ireland, N.,' in all other districts it has again been less than the normal.

"Bright sunshine has been much less prevalent than it was during the previous week, but has still been fairly abundant over the north-eastern part of the kingdom. The percentage of the possible duration ranged from 43 in 'Scotland, E.,' and 34 in 'England, N.E.,' to 19 in 'Scotland, W.,' 18 in 'England, N.W.,' and 16 in the 'Channel Islands.'"

MARKETS.

COVENT GARDEN, March 12.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. ED.]

Market dull, with supplies very short indeed, particularly vegetables. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 6- 6 0	Lemons, per case	15 0-20 0
— Nova Scotia, brl. 15	0-25 0	Pine-apples, St. Michael, each	2 0 8 0
Cobs, Kent, 100 lb.	45 0-50 0	Strawberries, p. oz.	1 0- 1 6
Grapes, lb.	1 6- 3 6		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4- 0 6	Lettuces, per dozen	3 0-...
Beans, French, lb.	3 6-...	Mushrooms, punnet	2 0-...
Beet, red, per dozen	2 0- 3 0	Mustard and Cress, punnet	0 4-...
Brussels Sprouts, lb.	0 6-...	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Seakale, per basket	2 0- 3 0
Cauliflowers, each	0 9- 1 0	Shallots, per lb.	0 6-...
Celery, per bundle	2 6- 3 6	Spinach, per bushel	7 0-...
Cucumbers, each	0 9- 1 0	Tomatoes, per lb.	0 9- 1 3
Endive, per dozen	4 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ficus elastica, each	1 6- 7 0
Aspidistra, doz.	18 0-42 0	Foliage plants, various, each	2 0-10 0
— spec. plants, each	7 6-10 6	Genista, per dozen	9 0-12 0
Azalea, per dozen	24 0-42 0	Hyacinths, per doz.	6 0- 4 0
Bouvardias, p. doz.	9 0-18 0	Lily of the Valley, per dozen pots	9 0-18 0
Cineraria, per dozen	8 0-10 0	Marguerites, doz.	6 0-12 0
Cyclamens, dozen	9 0-18 0	Mignonette, per doz.	6 0- 9 0
Cyperus, per dozen	4 0-12 0	Myrtle, per doz. pots	6 0-12 0
Dielstra, per dozen	8 0-12 0	Palms in variety, each	2 6-21 0
Dracæna terminalis, per dozen	30 0-60 0	Primula sinensis, doz.	4 0- 6 0
— viridis, per doz.	12 0-24 0	Roots for bedding, boxes, each, from	1 0- 3 0
Euonymus, in var., per dozen	6 0-18 0	Spiræa, per dozen	9 0-12 0
Ericas, various, doz.	8 0-18 0	Solanums, per doz.	9 0-15 0
Evergreens, in var., per dozen	6 0-24 0	Tulips, per doz. pots	6 0- 9 0
Ferns, in var., doz.	4 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Anemone (Fr.), 12 bun. ... 0-4 0	Myosotis, 12 bun. ... 4 0-6 0
Azalea, 12 sprays ... 0 6-1 0	Narcissus (paper white), 12 sprays 1 6-4 0
Bouvardia, per bun. 1 0-1 6	— French, 12 bun. 1 6-5 0
Calla aethiopica, 12 cl. 2 0-4 0	Narcissus (yellow), 12 bun. ... 3 0-6 0
Camellia, white, 12 blooms ... 2 0-4 0	— (double), 12 bun. 2 0-4 0
— cold, 12 blms. 0 9-1 6	— Poeticus (Pheasant Eye) 12 bun 6 0-8 0
Carnations, 12 blms. 1 0-3 0	Pelargoniums, scarlet, 12 spr. ... 0 6-0 9
Chrysanth., 12 bun. 4 0-6 0	Poinsettias, 12 blms. 1 0-4 0
Cyclamens, per doz. 0 3-0 6	Primulas, 12 bun. ... 1 0-2 0
Daffodils, various, 12 blooms ... 0 6-1 0	— double, 12 ... 0 6-1 0
— (Foreign), 12 bun. 2 0-6 0	Roses, 12 sprays 0 4-0 6
Eucharis, per dozen 3 0-5 0	— single, 12 sprays 0 4-0 6
Gardenias, per doz. 4 0-9 0	Roses, 12 spr. per doz. 1 0-4 0
Heliotropes, 12 spr. 0 6-1 0	— coloured, dozen 3 0-6 0
Hyacinths, Rom., 12 bunches ... 1 0-2 0	— yellow (Maréchal), per doz. ... 4 0-8 0
Hyacinth, various, 12 spikes ... 3 0-6 0	— red, per dozen ... 6 0-12 0
Lily of the Valley, 12 sprays ... 0 6-1 0	— do., French, doz. 1 0-3 0
Maiden Hair Fern, 12 bunches ... 4 0-9 0	Snowdrops doz. bun. 1 0-3 0
Marguerites, 12 bun. 3 0-6 0	Tuberose, 12 blms. ... 1 0-2 0
Mignonette, Fr., bu. 1 6-2 6	Tulips, various, 12 bl. 0 9-1 6
Mimosa (French) 12 bun. ... 12 0-15 0	Violets, 12 bun. ... 1 6-3 0
— (French) basket 4 0-6 0	— Parma, Fr., bun. 2 6-3 6
	— dark, Fr., bun ... 1 0-2 0

ORCHID-BLOOM in variety.

OLD POTATOS.—The late cold weather has tended to harden prices again.

For NEW POTATOS prices generally have ruled lower, especially for rounds.

Malta kidneys, 10s. to 24s.; rounds, 7s. to 8s.
Canary Island kidneys, 8s. to 22s.; rounds, 6s. to 9s. J. B. Thomas.

SEEDS.

LONDON: March 11.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that the return of winter, as might be expected, has somewhat checked the inquiry for seeds, the result being a quiet feeling on the markets. Holders, nevertheless, in view of the lightness of stocks, and of the fact that the whole of the approaching spring's requirements, have to be satisfied from same, express considerable confidence. Values all round, for Clover seeds, &c., are this week without alteration. For spring Tares there is an improved inquiry at full prices. Bird seeds show no quotable variation. Enhanced rates are realised for Peas and Haricots. Rape and Linseed keep firm. The Board of Trade returns give the imports into the United Kingdom of Clover and grass seeds for the past month as—Cwt., 49,173; value, £108,917; as against cwt., 76,420; value, £163,103, for February, 1890.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending March 7, and for the corresponding period last year:—1891: Wheat, 32s. 7d.; Barley, 27s. 7d.; Oats, 18s. 5d., 1890: Wheat, 29s. 11d.; Barley, 30s. 9d.; Oats, 18s. 6d. Difference: Wheat, +2s. 8d.; Barley, -2s. 2d.; Oats, -0s. 1d.

FRUIT AND VEGETABLES.

SPITALFIELDS: March 11.—Moderate supplies of green stuffs and Potatoes, demand fair. Fruit trade good. Prices as follows:—Savoys, 5s. to 10s. per tally; Cauliflowers, 3s. to 6s. per dozen; Curry Kale, 3s. 6d. to 4s. per sack; do., 2s. 6d. to 3s. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Turnip-tops, 4s. to 5s. 6d. per sack; Sprouting Broccoli, 3s. to 4s. do.; do., 1s. 9d. to 2s. 3d. per sieve; Brussels Sprouts, 2s. to 2s. 9d. per half-sieve; Greens, 5s. to 7s. per dozen bunches; Turnips, 2s. 6d. to 3s. do.; Carrots, 3s. to 3s. 6d. do.; Parsley, 9d. to 1s. per lb.; Parsnips, 1s. to 1s. 3d. per score; Beetroots, 4d. to 6d. per dozen; Cabbage Lettuces, 2s. to 3s. 6d. per dozen; Endive, 1s. 6d. to 2s. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Leeks, 3s. to 3s. 6d. per dozen; Horseradish, 1s. to 1s. 4d. per bundle; Celery, 6s. to 12s. per dozen bundles; English Onions, 8s. 6d. to 9s. per cwt.; Bordeaux do., 6s. to 7s. per case; Spanish do., 7s. to 7s. 6d. do.; Belgian do., 4s. 9d. to 5s. 6d. per bag of 110 lb.; Dutch do., 4s. 6d. to 5s. do.; American Apples, 18s. to 24s. per barrel; English do., 5s. to 10s. per bushel; foreign Tomatoes, 1s. 6d. to 2s. 6d. per box; forced Rhubarb, 1s. 6d. to 2s. per dozen bundles; Carrots, 25s. to 50s. per ton.

STRATFORD: March 10.—There has been a good supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 3s. to 6s. per tally; Savoys, 5s. to 8s. do.; Greens, 1s. 6d. to 2s. 6d. per sieve; do., 6s. to 9s. per dozen bunches; Cauliflowers, 2s. to 3s. per dozen; do. 9s. to 13s. per tally; Turnips, 2s. 6d. to 4s. 6d. per dozen bunches; do., 40s. to 7s. per ton; Carrots, household, 40s. to 60s. do.; do., cattle feeding, 32s. to 40s. do.; Parsnips, 9d. to 1s. 6d. per score; Mangels, 20s. to 24s. per ton; Swedes, 20s. to 25s. do.; Onions, English, 180s. to 180s. per ton; do., Dutch, 5s. to 7s. per bag; Apples, English, 2s. 6d. to 10s. per bushel; Celery, 9s. to 12s. per dozen rolls; Radishes, 10d. to 1s. per dozen bunches; Watercress, 7d. do.

POTATOS.

BOROUGH AND SPITALFIELDS: March 10.—Quotations:—Hebrons, 100s. to 120s.; Magnums, 100s. to 140s.; Bruce's, 105s. to 135s.; Imperators, 100s. to 120s. per ton.

SPITALFIELDS: March 11.—Quotations:—Imperators, 90s. to 130s.; Victorias, 90s. to 100s.; Magnums, 90s. to 100s.; Champions, 90s. to 95s.; Bruce's, 95s. to 120s.; Hebrons, 90s. to 110s. per ton.

STRATFORD: March 10.—Quotations:—Magnums, 100s. to 115s.; Imperators, 100s. to 115s.; Elephants, 100s. to 120s.; Bruce's, 105s. to 120s.; Scotch do., 110s. to 120s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior do., 48s. to 75s.; hay, best, 60s. to 87s.; inferior do., 26s. to 50s.; and straw, 20s. to 37s. per load.

NOTICES TO CORRESPONDENTS.

AMERICAN BLIGHT ON THE ROOTS: F. S. You might try the effect of dilute Ammonia Sulphate of commerce, as a remedy. As a manure, it is used at the rate of 264 lbs. per acre, and you must not exceed that proportion, about 26 ozs. per square rod.

ARTIFICIAL MANURE: Catford. Doubtless you could do so, but a preliminary study of chemistry and vegetable physiology would be desirable, followed by practical experiments. It may be commercially venial to do as you propose, but as to the morality of the transaction, you must be the best judge.

BOOKS: PEACH GROWING: Pelicot. *The Hardy Fruit Book* (Mr. D. T. Fish), illustrated, published at the Bazaar Office, 170, Strand, London, W.C.

CAIRO: E. W. O. The Rev. G. Henslow is still in Cairo. His article was received about a month since.

CAPE FRUIT: W. H. M. We cannot find any such name, but we ought to say we are not clear as to the handwriting. Can it be the Cape Gooseberry Physalis.

CLAY BURNING: C. M. P. The clay you name, if fairly free from sand, will burn well; and if you have a quantity of small coal it may be burned cheaply. If small quantities only are wanted, split wood, old roots, and the like, would answer the purpose. If coal be used, make at first a fire with wood, over which carefully heap coals until a half cart-load is well alight; the clay may then be placed over it, leaving a few vents at or near the bottom of the heap; then a layer of coal and a layer of clay, and so on, until a heap of say 20 cart-loads is thrown up. It may burn for weeks if for ballast, but if it be wanted for mixing with soil, the fire should be quenched, and the heap opened when the clay is partially fired. Only those on the spot can tell when any particular kind of clay has been sufficiently done for one or the other purpose.

CYTISUS GRAFTING ON LABURNUM: C. M. P. In the spring, just as growth commences. The scions should already have been taken, and laid-in in a cool spot. Mezereon next week.

DARJEELING: Y. H. W. We must refer you to our issues of February 21, p. 242, and March 7, in our "Notices to Correspondents" column.

DOUBLE-SPATHED "ARUM LILY."—A. S. S. Not uncommon; many such have been sent us, some of which are figured in these columns.

DRACENA ROOTS: J. C. On microscopic examination, we find the roots of your Dracena are swarming with the eel-worms so often figured and described in our columns. Unfortunately, we cannot tell you how to cure it. Turn out the soil, burn all the affected plants, and replant in fresh soil; or, if this be too drastic a measure, grow the plants on as well as you can by judicious manuring, so as to make the best of a necessarily bad thing.

LILY WHITE SEAKALE: F. A. A. To be obtained at any good nursery.

MELONS IN LATE AUTUMN: A. B., W. H. S., and others.—There are no good Melons at that season. The fruits may have a fine appearance, but owing to the lack of sunshine at that season, the flavour is insipid and sweetness trifling in amount. Late Melons are a delusion.

DR. PLOWRIGHT'S THREE LECTURES ON PLANT DISEASES: C. W. They are in course of publication in our columns. The first lecture began in our issue for February 28 last, was continued on March 7, and will finish in the present one; the

others will appear at short intervals in the course of the next few weeks.

NAME AND ADDRESS: W. R. W. We always desire to have these, not necessarily for publication, but as a mark of bona fides.

NAMES OF PLANTS: G. Nottage. *Cœlogyne flaccida*—G. W. H. A species of *Scutellaria*, but specimen insufficient for naming.—H. M. M. 2, *Acacia pravissima*; 3, *A. melanoxylon*.—G. H. M. Should address the editor, not the publisher; 1, *Tussilago Farfara*, Coltsfoot; 2, *Daphne Mezereum*; 3, *Origanum Dictamnus*.—Nemo. 1, *Daphne Mezereum*, central Europe; 2, *Pinus excelsa*, Himalayas; 3, *Eranthis hyemalis*, winter Aconite, central Europe; 4, *Hepatica triloba*, central Europe; 5, *Cupressus sempervirens*; 6, *Thuya dolabrata*, Japan.—J. H., *Brecon*, 1, *Abies Smithiana*; 2, *Sequoia sempervirens*, the red wood. The yellow flower is *Candollea cuneiformis*; *Cœlogyne flaccida*.—J. H. *Dendrobium primulinum*.—J. U. *Dendrobium luteolum*. In a small tin mustard-box, no letter, *Dendrobium Wardianum*.—B. A. *Dendrobium nobile*—not near nobilium.—A. Bartram, Next week.

NAMES OF FRUIT: W. L., Bath, 1, *Brabant Belle-fleur*; 2, French Crab; 3, Court of Wick, much bruised; 4, King of the Pippins.

ROYAL HORTICULTURAL SOCIETY: FRUIT COMMITTEE.—The next meeting will be on March 24. Write to Mr. Barron, the Superintendent, a few days in advance.

SCHUBERTIA GRANDIFLORA: T. H. The plant known under this name is a stove creeper of the *Asclepiad* family. The stems and leaves are clothed with brown hairs, and contain a milky juice. The flower, white, has a tubular corolla, much swollen below, with a 5-parted limb, the segments of which recurve. It is agreeably scented. It is like a *Stephanotis*, and as easily propagated and grown.

TENANT'S FIXTURES: I. O. W. We think you cannot claim anything for buildings with foundations in the soil, or that are fixed to such by bolts and screws. If there existed nothing more than a verbal agreement between yourself and the late owner of the land, you are powerless. Consult a solicitor.

VINES AT LONGLEAT: R. W. To be obtained at the *Journal of Horticulture* Office, 171, Fleet Street, E.C. Price 1s.

CATALOGUES RECEIVED.

DICKSONS (Limited), Chester—Farm Seeds.
DICKSON & ROBINSON, 12, Old Millgate, Manchester—Agricultural Seeds.
THOMAS KENNEDY & Co., 106 and 108, High Street, Dumfries, N.B.—Agricultural Seeds.
BUCANT, Poitiers, Vienne, France—New Plants.
JOSEPH BRECK & SONS, New England Agricultural Warehouse, 51 to 53, North Market Street, Boston, Mass., U.S.A.—Seeds.
ALEX. CROSS & SONS, 19, Hope Street, Glasgow, N.B.—Manures.
J. PEED & SONS, Roupell Park Nurseries, S.W.—Dahlias.
MAX DEEGEN, Köstritz, Thuringia, Germany—Dahlias.
WILLIAM WATT, Cupar and Perth, N.B.—Farm Seeds.
J. R. PEARSON & SONS, Chilwell, Nottingham—Show Pelargoniums, novelties in Zonals, also Fuchsias, Dahlias, Chrysanthemums, &c.
T. SMITH, Daisy Hill Nursery, Newry—Hardy Alpines, Bulbs, &c., and Seeds.
J. R. JACOB, 15, High Street, Newport, Monmouth—Seeds.
DICKSONS & Co., 1, Waterloo Place, Edinburgh—Farm Seeds.
ELWANGER & BARRY, Mount Hope Nurseries, Rochester, N.Y., U.S.A.—Roses.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London—Hardy Perennials, Alpines, &c.; Herbaceous Pæonies, Primulas, &c.; Hardy Climbing Plants; Hardy Florists Flowers.
NATIONAL ARBORETUM, Zöschén, near Merseburg, Germany—Trees and Shrubs.

COMMUNICATIONS RECEIVED.—Regnier, Paris.—Munches.—W. J. S.—E. C.—R. T. L.—J. E.—B. D. J.—J. C. S.—The Société Royale d'Horticulture de Liège.—F. W. B.—R. T. C.—W. W. (forested).—Professor Baillon, Paris.—F. v. M., Melbourne.—O. P., Vienna.—Wild Rose.—J. A.—Maulmain. T. W.—Ed. Mawley.—T. Meehan.—A. M.—W. Watson.—J. T.—Expert.—N. E. B.—J. H.—E. D.—J. R. J.—J. D.—H.—T. A.—C. E. (next week).—C. Scott.



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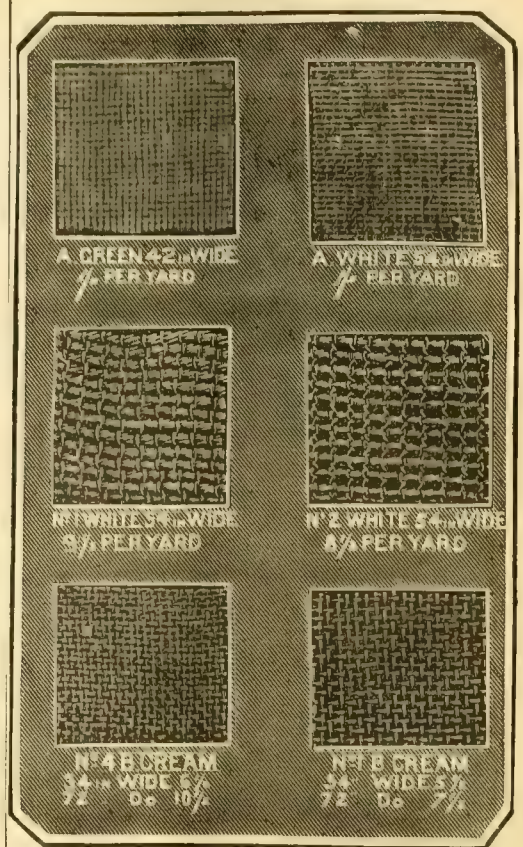
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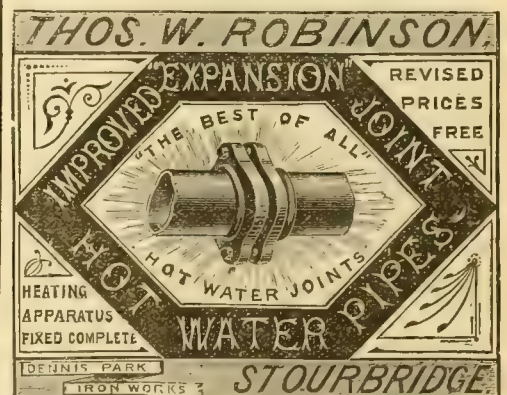
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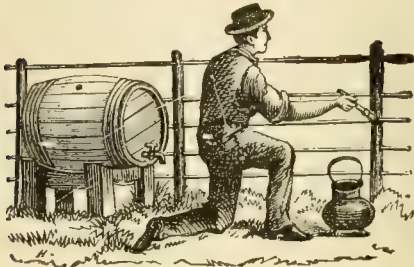
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MR. JAMES MERRY, as Gardener to G. M. MEDELY, Esq., Winsford Tower, Beaworthy, Devonshire.

Mr. J. MEREDITH, formerly of Wollaston Hall Gardens, Stourbridge, as Gardener to T. BEACH, Esq., J.P., Tettenthal Court, Wolverhampton.

Mr. J. E. BENNETT, until lately Gardener at Byrkley Lodge, Burton-on-Trent, as Head Gardener to Lord MAGHERAMORNE, Needwood House, Burton-on-Trent.

Mr. GEORGE LEWIS, General Foreman at Madresfield Court for the past seven years, as Head Gardener to the Hon. G. H. ALLSOPP, M.P., Foston Hall, Derby.

Mr. G. TURNER, formerly Gardener to J. DURANCE, Esq., at the Green Hills, Lilford, Farnham, has engaged with this gentleman in the same capacity at Cranmore Place, Chislehurst.

Mr. JAMES RALPH, formerly Head Gardener to Colonel HEATHCOTE, M.P., Apedale Hall, Newcastle-under-Lyme, retains his appointment at the Colonel's new place at Merstham-le-Hatch, Ashford, Kent.

THE COMMITTEE of the GARDENERS' ROYAL BENEVOLENT INSTITUTION invite applications for the vacant post of SECRETARY, from Gentlemen who will be able to devote the whole of their time to the interests of the Institution. Applications must be made by letter only, giving full particulars of Antecedents, Age, and Salary required, addressed to "THE COMMITTEE," 50, Parliament Street, S.W.

WANTED, a good WORKING HEAD GARDENER, for Shropshire. Must understand his work in every branch, and work himself. Without family preferred, and not over 45 years of age. Foreman kept and three outdoor men. Write, giving every particular, wages, &c.—L. H. S., May's Advertising Offices, 162, Piccadilly, W.

WANTED, a GARDENER, well up in Flower and Plant Growing for Market. State wages. —EDWARD CARR, Lily Nursery, Aughton Road, Birkaale, Southport.

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GARDENER (HEAD); age 30. —D. MCKENZIE, Gardener to Lady Siemens, Sherwood, Tunbridge Wells, wishes to recommend J. Walker to any Lady or Gentleman requiring a steady and trustworthy man as above. Fifteen years' good practical experience in all branches. Six years in present situation.

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GARDENER (HEAD WORKING). —Age 37, married; twenty years' thorough practical experience in all branches, Land and Stock. Good references. —C. CANDLER, 12, Hartford Road, Bexley, Kent.

GARDENER (HEAD WORKING); age 27, married when suited. —Mr. STAGG, Gardener to P. Rawson, Esq., Woodhurst, Crawley, Sussex, wishes to recommend his Foreman, C. Prior, to any Lady or Gentleman wanting a trustworthy man; abstainer; thirteen years' experience.

GARDENER (HEAD WORKING); age 37, married. —A LADY highly recommends a good all-round man as above. —JORDAN, Plumley Cottage, Sydenham Hill Road, Sydenham, S.E.

GARDENER (HEAD WORKING). —Age 31, married, one child; sixteen years' practical experience in all branches of the profession. Good references. —GARDENER, Brooklands, Lyndhurst, Hants.

GARDENER (HEAD WORKING); age 31, married. —F. KING, Gardener to A. F. Perkins, Esq., Oak Dene, Holmwood, Surrey, can with confidence recommend his Foreman (F. Fitzwater) to any Lady or Gentleman requiring a thorough practical man as Gardener. Four and a half years' good character.

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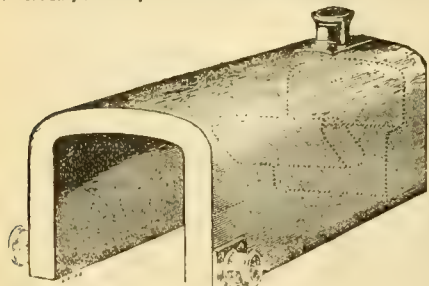
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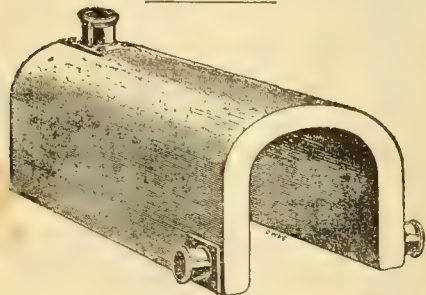
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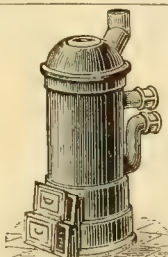


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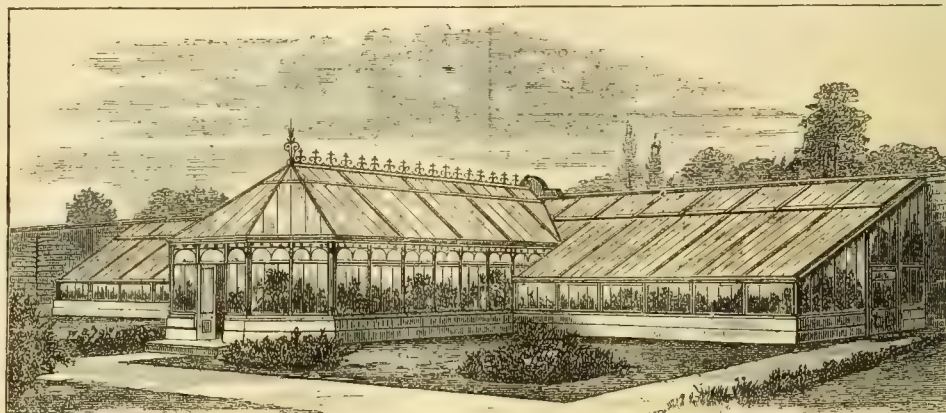
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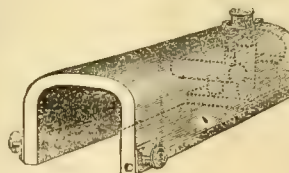
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The GARDENERS' CHRONICLE

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NOTICE TO ADVERTISERS.

FRIDAY NEXT, March 27, being GOOD FRIDAY, the "GARDENERS' CHRONICLE" will be published on THURSDAY, March 26.

ADVERTISEMENTS for NEXT WEEK must therefore reach the Office not LATER than WEDNESDAY MORNING, March 25.

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Full descriptions, with numerous Illustrations and Price List of upwards of 1500 varieties, see SUTTON'S AMATEUR'S GUIDE in HORTICULTURE for 1891. Price 1s., post free; gratis to Customers ordering goods value 20s.

SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, the Queen's Seedsmen, READING.

Sterling Garden Seeds.

DICKSON AND ROBINSON offer their superb strains of—
CALCEOLARIA, choice mixed, 1s. 6d. and 2s. 6d. per packet.
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GLOXINIA, choice mixed, 1s. 6d. and 2s. 6d. per packet.
PRIMULA, red, white, and choice mixed, each, 1s. 6d., 2s. 6d., and 3s. 6d. per packet.

All post-free. Descriptive CATALOGUE on application.
Seed Warehouse, 12, Old Millgate, Manchester.

LOVEL'S YORKSHIRE STRAWBERRIES,
for Spring Planting.—100 strong plants, in four good varieties, 3s., carriage paid for cash. Select Descriptive LIST, free.
W. LOVEL AND SON, Strawberry Growers, Driffield.

SPECIAL OFFER.—PRIMULA ROSEA.

For Spring bedding; in quantity only.
Brilliant pink Himalayan Cowslip.
"F. E." Messrs. Street & Co., 30, Cornhill, E.C.

ASPARAGUS, 3-yrs. old for planting, 25s.
per 1000. Cash with order. My Asparagus always makes top price at Covent Garden.
J. J. CLARK, Market Gardener, Goldstone, Brighton.

ASPARAGUS.—True Giant, 2-year, good.
Sample and price on application.
JAMES BIRD, American Nurseries, Downham Market.

ASPARAGUS.—This delicious Vegetable does
not require half the expense often incurred. For directions see Illustrated Seed List, free. Strong Roots, 2s. 6d. per 100.
RICHARD SMITH AND CO., Worcester.

TREE FERNS, PALMS, &c.—Any Ladies or

Gentlemen having any of these plants that have outgrown their houses, are earnestly requested to PRESENT THEM to the WINTER GARDEN of the PEOPLE'S PALACE for East London. All expenses of removal will be paid.
SECRETARY, People's Palace, Mile End Road, E.

STANDARD PLUMS, DAMSONS, and Single
ALMONDS, per 100 or 1000. Price on application. Also AUGUBAS, 1 to 3 feet, per 100 or 1000.
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To the Trade.

WANTED, 1000 MAIDEN APPLE TREES,
of the leading varieties. Sample and price for cash.
MANAGER, Fern Bank Nurseries, Woore, Newcastle, Staffs.

WANTED, old CLOVE CARNATIONS,
last year's layers. State price per 100 or 1000.—
C., Sidney Villa, Northcote Road, St. Margaret's, Twickenham.

WANTED, a quantity of LYCOPODIUM
DENTICULATUM, loose for Planting out. Apply to—
GEO. ABBEY, Avery Hill, Eltham, Kent.

WANTED, strong FRUITING CANES of
Muscat of Alexandria Vines, Hamburgh, Gros Colmar; also PLANTING CANES of Muscat of Alexandria, Mrs. Pearson, Black Alicante. Quantities and prices to—
IRELAND AND THOMSON, Nurserymen, Edinburgh.

WANTED, RHUBARB ROOTS, good 2-year-
old stuff, Royal, Albert, and Victoria.—Price per 1000, with samples, to GARDENER, Eltofts, Thorner, Leeds.

Turf.

WANTED, about 2500 extra good soft
GARDEN TURF, suitable for Tennis or Croquet Lawn. Delivered to St. John's Wood. Price and quantity to Collector.—63, Chancery Lane, London, W.C.

WANTED, the following Numbers of the
GARDENERS' CHRONICLE:—No. 54, January 7, 1883; No. 106, January 5, 1889.—The PUBLISHER, 41, Wellington Street, Strand, W.C.

THE CHINESE ARTICHOKE (Stachys
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Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

FOR SALE, "GARDENERS' CHRONICLE,"
first Six Vols., 1841 to 1846, bound, with advertisements, complete.—W. HOLAH, Redleaf Gardens, Penshurst, Kent.

SUPERB ORCHIDS, CHEAP.—Thousands
to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

LOBELIA CUTTINGS, strong-rooted; best
blue grown, 6s. per 100, carriage free.
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ORCHIDS.—Clean healthy plants at low
prices. Inspection invited. Kindly send for CATALOGUE.
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Gentlemen.

MY DWARF ROSES are the finest Plants I
have ever grown. Many kinds are bushes 3 to 6 feet high.
CHARLES NOBLE, Bagshot.

Trade Offer of Large Kentias and Cocos.
W. ICEION begs to offer some extra fine
BELMORIANA, FOSTERIANA, MOOREANA, and
RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand
Specimens, from 20 to 25 feet, with 10 to 18 leaves; large
batch of COCON FLEXUOSA and PLUMOSA, 9 to 15 feet.
Prices on Application. Inspection invited.
Putney Park Lane, S.W. (near Barnes Station); also 129
and 130, Covent Garden Market.

RHODODENDRONS.—Largest and finest
stocks, all sizes, grown in peat. RHODODENDRON
PONTICUM, 10-inch bushy, 16s. per 100; 1 to 1½ feet, 22s. per
100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 40s. per 100; 3 feet,
60s. per 100; 4 to 5 feet, 120s. per 100. Hybrids, fine named,
2 to 3 feet, 70s. per 100; 3 to 4 feet, 150s. per 100. RHODO-
DENDRONS, fine stocks, 80s. per 1000.
GARLIES MITCHELL, Nur-eryman, Stranraer.

Now ready, descriptive Catalogue of
HARDY HERBACEOUS PERENNIALS,
free on application, describing the BEST HARDY
HERBACEOUS PLANTS for Borders, Rockwork, and Cuttings.
BARR & SON, 12 and 13, King Street, Covent Garden,
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TOR'S GUIDE for 1891. 24th Annual Edition. 140 pages,
illustrated. Price 3d., post free. "Best practical guide
published."—DOBBIE AND CO., Seed Growers, &c., Rothsay.

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H. AND F. SHARPLES' WHOLESALE
LIST of SEED POTATOES comprises all the best
varieties under cultivation. They have been grown from
selected stocks expressly for seed purposes, and the quality
this season is exceptionally good.
Seed Growing Establishment, Wisbech.

Rhododendrons, 2 feet to 6 feet.

H. LANE AND SON have a Splendid Stock
of Healthy, Well-Budded Plants, uninjured by frost,
of the best named Sorts; also PONTICUM and HYBRID
SEEDLINGS, in all Sizes. CATALOGUE on application.
The Nurseries, Berkhamsted, Herts.

SPECIAL OFFER for Cash.—SPRUCE
FIR, 1 to 1½ ft., 10s. per 1000; do., 1½ to 2 ft., 12s. per
1000. THORN or QUICK, 2 to 3 ft., 12s. per 1000. LAURELS,
BAY, 2 ft., 10s. per 100. LAURELS, PORTUGAL, 2 ft.,
20s. per 100. Sample 100 at 1000 rate.
D. MCOMISH, Nurseryman, Crieff.

THOMSON'S IMPROVED VINE and PLANT
MANURE.—This valuable Manure is made only by us.
Every bag and tin has our name on it. To be had of all Nursery
and Seed-men, and direct from us. 1 cwt. and over carriage
paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Gala-shiel, N.B.

SALES BY AUCTION.

Wednesday Next.

5000 grand Bulbs of LILIUM AURATUM (a few in cases), LILIUM LONGIFLORUM, &c., from Japan; several thousand Pearl and S. African TUBEROSES, AMARYLLIS, GLADIOLI, &c.

MR. J. C. STEVENS will include the above in his SALE by Auction, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, March 25. On view morning of Sale, and Catalogues had.

Wednesday Next.

GRAND COLLECTION OF BORDER PLANTS, ROSES, FRUIT TREES, SHRUBS, LILIUMS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, March 25, at half-past 12 o'clock precisely, Pyramid and Dwarf-trained FRUIT TREES, comprising some of the best kinds of Apples, Pears, Plums, &c.; 600 Standard and Dwarf ROSES, Ornamental SHRUBS and CONIFERS, Red CURRANTS, Moss ROSHS, White PINKS in quantity, Home-grown and Imported LILIUMS, grand Collection of CARNATIONS, PICOTEES, French PÆONIES, PHLOXES, DAHLIAS, and other BORDER PLANTS, GLADIOLI, DUTCH BULBS, &c.

On view morning of Sale, and Catalogues had.

Monday Next.

CARNATIONS, PÆONIES, LILIES, and PERENNIALS.—MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, March 23, at half-past 12 o'clock, 4000 LILIUM AURATUM; also a large collection of named CARNATIONS, PÆONIES, PYRETHRUMS, PHLOXES, IRIS, English-grown LILIES, PERENNIALS, and a great variety of HARDY PLANTS and BULBS.

On view morning of Sale, and Catalogues had.

Orchids in Flower.

SPECIAL SALE, TUESDAY NEXT, March 24.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, March 24, at half-past 12 o'clock, ORCHIDS in FLOWER, from various Collections.

On view morning of Sale, and Catalogues had.

Tuesday Next.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, March 24, by order of Messrs. F. Sander & Co., a quantity of ESTABLISHED and IMPORTED ORCHIDS, including the following:—Cattleya Mossie Matut na, just to hand, in very good condition; imported Dendrobium, amongst them D. Jamesianum, D. nobiliss, in fine large masses; D. luteolum, D. latifolium, D. Freemanii, &c.; D. species from virgin forests; D. Dalhousianum, with fine bulbs, well set for flowering; Cypripedium insignis, unflowered (only ten plants of this wonderful strain of C. insignis are off-red); also Oncidium splendens; the lovely Cattleya Walkeriana, imported plants; Cymbidium tigrinum, Odontoglossum vexillarium, Cattleya amethystoglossa, Dendrobium Dearei, Odontoglossum citrosum, plants with flower-spikes; Angreum Samarianum, fine plants in spike and flower; Vanda teres, Cattleya Warnerii, Epidendrum xanthinum, Brassavola glauca, Dendrobium cariniferum, D. barbatulum, Acridos roseum, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LARGE IMPORTATIONS FROM JAPAN, for UNRESERVED SALE.

1300 TREE PÆONIES,

Four cases of various Japanese Plants.

65 cases of CYCAS REVOLUTA stems,

about 2500, varying from 6 inches to 3 feet in length, some to be sold in cases, as received.

800 JAPANESE IRIS.

2500 LILIUM SPECIOSUM RUBRUM, and 1500 L. AURATUM.

The whole of the above having just arrived from Japan. A splendid importation of

640 LILIUM WALLICHIANUM,

so rarely offered, 4500 American Pearl Tuberoses, a consignment of Camellias, Azaleas, and other Plants from Belgium; 50 lots of Ferns, and other Plants from an English Nursery.

800 CARNATIONS and PICOTEES, finest stage flowers, from a well-known firm of growers; 400 Standard and Dwarf Roses, and a large assortment of Hardy Bulbs, English-grown Lilies, Herbaceous Plants, together with

3000 HYBRID and NAMED GLADIOLUS and DAHLIAS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 25, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Preliminary Notice.

The Entire COLLECTION of ESTABLISHED ORCHIDS, formed by Mr. J. J. D. Paul, Esq., of The Lawns, Norwich, who is giving up their cultivation in consequence of change of Residence.

The Collection comprises in all about 2500 Plants, including 1500 Odontoglossum Alexandrie, mostly unflowered; 400 O. cirrhosum, Cattleyas and Laelias in variety, Cypripediums, large plants of Cereus christata, and others.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, April 14 and 15, at half past 12 o'clock each day.

On view morning of Sale, and Catalogues had.

Preliminary Notice.

A PORTION of the EAST INDIAN ORCHIDS, from the well-known Blenheim Collection, many of them being fine and large specimens, consisting of Vandas, Aërides, Saccolabiums, Angreccums, Laelia elegans, and Dendrobium Dearei.

To be Sold without the slightest reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, April 3, at half past 12 o'clock.

On view morning of Sale, and Catalogues had.

The Celebrated Fernside Collection of Established ORCHIDS.—WITHOUT THE LEAST RESERVE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from H. M. Pollett, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, April 7 and 8, at half-past 12 o'clock precisely each day, a Portion of the celebrated FERNSIDE COLLECTION of ESTABLISHED ORCHIDS, in splendid health. First-class Certificates have been awarded by the Royal Horticultural Society to many of the plants, and the names of several will be found in the *Gardeners' Chronicle* for February 21.

Catalogues with Coloured Plates of some of the principal Odontoglossums will be ready in a few days (price 1s. each), and can be had of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers and Valuers, Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Sale of the "Ghyllbank" Collection of Orchids.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, are pleased to state that they have received instructions from W. J. Thomson, Esq., of "Ghyllbank," St. Helens, to sell his entire Collection of Orchids, consisting of about 2000 Plants, in great variety, and in the very finest condition.

Mr. Thomson has, for many years, been an ardent collector of Orchids, and has got together a large and select collection, including many unique specimens. He is compelled to part with his collection, owing to the erection of large brickworks, which will shortly be in operation close to his Orchard houses.

It has been thought advisable not to remove the collection from "Ghyllbank" to Garston; it will, therefore, be on view at "Ghyllbank" (which is about 15 minutes walk from St. Helens or Thatch Heath Stations, London & North Western Railway), from March 16, and on Sale from March 30.

Descriptive and Priced Catalogues are being prepared, and will be sent, post-free on application, to all who will send their name and address for that purpose, to THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool.

N.B.—The date of commencement of the Sale of this Collection is postponed for a week, owing to the Catalogue taking longer time to prepare than anticipated.

Marling Park Estate, Hampton-on-Thames.

EXCELLENT sites for Nurseries in this favourite district are offered on a new system of leases for 40 years, specially designed to meet the requirements of horticulturists.—Apply to F. J. CULLIS, The Estate Office.

TO BE SOLD, a NURSERY, with extensive Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, and easy of access per rail to Manchester, Wigan, and Liverpool. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

FOR SALE, a small NURSERY, Freehold, in a good neighbourhood, about four miles from Covent Garden. Six Houses well heated, Office, Stabling, &c. Can be continued as a Nursery, or used for Building purposes. Apply to Mrs. FOOTER, 20, Peckham Rye S.E.

FOR SALE, a NURSERY and SEED BUSINESS, old-established, and well-known all over England. In complete Working Order, comprising about 25 Acres of first-class saleable Nursery Stock, consisting of well-grown Forest and Ornamental Trees, Conifers, and Shrubs, in great variety; Fruit Trees, Roses, &c., in saleable sizes. Commodious seven-roomed House and Steading, Shop, Office, and Warehouse attached, all in splendid order. Horse, Wagonette, and Gig; Carts and Van, Harness; Working Implements; Dairy for supplying Manure on the ground; Cottage for Foreman; moderate rent. Capital opening for young man with connection. Satisfactory reasons for selling. Apply, J. G. E., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Florists and Fruit Growers.

TO BE LET, ON LEASE, THE VINEYARD, Potter's Bar, N. For many years successfully carried on by Mr. E. Bennett, who would let it on very advantageous terms, having removed to Harefield; 20 Glass Houses, 2 Dwelling Houses, Office, Stables, Sheds, and standing on 3 Acres of Land. Rent, £200.

MR. BENNETT, Harefield Grove, Uxbridge.

TO BE LET, ON LEASE, a NURSERY, Seven, Fourteen, or Twenty-one years; rent, £100 per annum; premium, £150. Or Fifty years' Lease would be sold, price £1100 (part could remain); rent, £50 2 Acres, 7 Glass Houses (1, 106 feet long; and 2, 35 feet long); Cool House, Peach House, Vinery, 5 Sove House; 1 Tubular, and 2 Saddle Boilers, all in working order and good repair. Also, Six-roomed DWELLING HOUSE, Coach House, and Stabling for 1 horse; 2 Potting and other Sheds; Frames and Lights (Glass and Wood to build 3 or 4 more Houses—optional). 35 minutes' from Covent Garden. The House and 1 Acre could be let separately.

Apply (by letter only, in first instance), to J. L. S., 53, Piccadilly, London, W.

TO BE LET, a compact FRUIT GARDEN, well-stocked; also, FLORIST and SEED BUSINESS attached, in the growing neighbourhood of Slough; one mile from Eton College, and two from Windsor. About 4 acres in extent. Comprising, Dwelling-house, 2 Vineries, Cucumber-house, Greenhouse, and long range of Pits, Mushroom-house, Stable, and other Sheds. Leasehold, part to run. Rent, £100 per annum.

Stock can be taken at Valuation. Further particulars can be obtained from J. DAUNCEY, Chalvey Road, Slough.

Landscape Gardening.

B. MALLER AND SONS are prepared to Furnish Plans for, and to carry out all kinds of above work. Burnt Ash Lane Nurseries, Lee, S.E.

MESSRS. POPE & SONS, HORTICULTURAL AUCTIONEERS and VALUERS, 6, Philip's Street, Birmingham, hold SALES at their Rooms as follows:—CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday.)

MISCELLANEOUS PLANTS and BULBS every THURSDAY. NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

LANDSCAPE GARDENING.—JAMES

RICHARDSON, 25 years Manager and now Successor to the late Mr. Edward Kemp, of Birkenhead Park, Landscape Gardener, is prepared to FURNISH PLANS, and to carry out all kinds of above work.—9, Rose Mount, Oxtou, Birkenhead.

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Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense Stock of Orchids,

And they are constantly receiving Importations from various parts of the world.

NEW DESCRIPTIVE PRICED CATALOGUE

Post-free on application to

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FOR SALE, 40 bushels of SCARLET BEANS, at 7s. per bushel, fine sample.—Address F. COOPER, Seed Grower, 9, Chappel Row, Kelvedon, Essex.

CHOICE FRUIT—CHOICE FRUIT.

Highest Market Prices guaranteed. Prompt cash.

HENRY RIDES, Covent Garden, W.C.

Always Sow the Best.

J. E. DIXON'S President Carnot BRUSSELS

J. SPROUTS. Hundreds of Testimonials. Lord Scarborough's Gardener says:—"It is the hardiest and best variety grown."

Price 6d. and 1s. per packet; per oz., 1s. 6d.; per lb., on application.

J. E. DIXON, Seed Merchant, Gainsborough.

TROPEOLUMS, stock Plants of Doubles, Scarlet and Yellow, 12s. per 100; VESUVIUS, 5s. per 100; large ADIANTUM CUNEATUM, in 60's, 14s. per 100. For cash with Orders.

J. SHEPHERD & SON, Nurserymen, Surbiton Hill.

MANETTI STOCKS.—Strong, clean, and

well-rooted. First-class stuff, 25s. per 1000.

A. BARTLEMAN AND SON, New Malden, Surrey.

FERNS—FERNS. FICUS ELASTICA.

1000 always for sale in best market sorts, in 72's, 12s. 6d. per 100; in 60's, 14s. per 100; in 48's, 5s. to 6s. per dozen. FICUS, at 12s., 15s., 18s., per dozen. Free on rail for cash. J. PAXTON, The Nurseries, 31, Green Lanes, Stoke Newington.

Extraordinarily Cheap.

PINUS STROBUS, 1 to 3 feet, bushy, and well-rooted. RHODODENDRON PONTICUM, 1½ to 2 feet, bushy, and well rooted.

GRAY AND SONS, Brox Nursery, Chertsey.

PANSIES, TRIMARDEAU or GIANT

PANSIES, a very fine strain. Plants extra strong. Price on application.

GEORGE SMITH, 6, Portland Place North, Lower Capton, E.

Cheap to Clear.

FINE MAIDENHAIR, in 24's; Double White PRIMULA, in 48's; also DRACÆNA and ASPIDISTRA.

C. JOHNSON AND CO, Tangle Park Nursery, Hampton.

50,000 Lobelia, Emperor William, warranted true from Cuttings.

JOHN SOLOMON offers the above in thorough good stuff, at 2s. 6d. per 100; 20s. per 1000; for Cash with order, package included.

Queen's Road Nursery, Walthamstow, E.

NEW CHRYSANTHEMUMS FOR 1891.—

JAMES CARTER AND CO. have one of the largest and most perfect stocks in the country. For full particulars, see *Carters' beautifully illustrated CATALOGUE*, gratis and Post-free to intending Customers.

Royal Seedsman by Sealed Warrants.—237 and 238, High Holborn, London, W.C.

FOR ORCHIDS, and GARDENERS
to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

CHEAP TO CLEAR.
50,000 English OAK, 1½ to 2 ft., and 2 to 3 ft.
50,000 ASH, common, 2 to 3 ft., and 3 to 4 ft.
All transplanted, well-rooted.
THOS. MATHESON'S Nurseries, Morpeth.

"GOLD IN HARVEST."—If you want a bit of the richest Gold colour in your garden at Harvest-time, order "Plants" of Hartland's Golden Quilled Double Sunflower, "Soleil d'Or." 15 Stamps will cover box and postage for a single plant, or 12s. for a dozen, post-free. It is the finest Hardy Border Plant extant. No doubt of this fact. "Year-book" of Rare Seeds, for 1891, free. Cut Daffodil Blooms in any quantity.
WM. BAYLOR HARTLAND, F.R.H.S., 24, Patrick St., Cork.

ORCHIDS A SPECIALTY.—CYPRIPEDIUM LONGIFOLIUM, 2s. 6d. to 10s. 6d.; C. LAWRENCEANUM, 2s. 6d. to 7s. 6d., some showing spike; DENDROBIUM BENSONI, flower shortly, 5s., 7s. 6d., 10s. 6d.; D. JAMESIANUM, strong growths, 5s., 7s. 6d., 10s. 6d. Please write for LIST of cheap, healthy plants. Cash with order.
W. L. LEWIS, F.R.H.S., Chasewater, Southgate, London, N.

OWEN'S IMPERIAL BEGONIAS.—New and distinct strain. The result of many years careful selection and hybridising. Habit dwarf, vigorous, and erect. Blooms of great size and bright colours. Awarded many Prizes and Certificates. Ten First Prizes by one Exhibitor. Price of Tubers—Single for pots, 6s., 9s., 12s., and 18s. per doz.; Double for pots, 9s., 12s., 18s., and 24s. per dozen. Seed, Single or Double, 1s. 6d., 2s. 6d., and 3s. 6d., per packet.
R. OWEN, Floral Nursery, Maidenhead.

To Nurserymen, Builders, Local Boards, Vestries, and others who intend planting Trees and Shrubs this season.
ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to offer an extensive stock of FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c., which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine SEAKALE and RHUBARB for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

THE LOVE OF FLOWER GARDENS.
—Do you want really good Seeds for your garden? If so, write to "Hartland, Cork." Ask for his "Year-book" of Seeds for 1891. Its pages will tell you he knows your wants. Price, Quality, and Services, everything so arranged, for rich and poor alike.
WM. BAYLOR HARTLAND, F.R.H.S., Seedsman, 24, Patrick Street, York.

CABBAGE PLANTS, Autumn Sown, Extra
Early Etampes, fine plants, parcel-post free, 1s. 6d. sample 100. Strongest forcing Crowns SEAKALE, 1s. 6d. per dozen sample, 10s. 6d. 100, free. New Rollinson's Telegraph CUCUMBER SEEDS, 10s. 1s. 3d.; 1000, 7s. 6d. free. LIST, with copy of testimonials, of
EDWARD LEIGH, Cranleigh, Surrey.

LILIUM AURATUM.—Heavy consignments in the finest possible condition. Bulbs usually from 6d. to 9d. each, to clear them out, 25s. and 30s. per 100; per dozen, 5s. Special price per 1000.
PEARL TUBEROSES, 12s. per 100.
F. ROSS AND CO., Import and Commission Agents, Blenheim, Red Hill.

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- (1) Of a portrait to be placed in the Lindley Library, under the charge of the Trustees of that Institution.
- (2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned.

The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds, and amount in the aggregate to £205 12s. 6d. (March 11, 1891).

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THE

Gardeners' Chronicle.

SATURDAY, MARCH 21, 1891.

AN AMATEUR'S GARDEN.

THE amateur probably derives more pleasure
from his garden than does the professional
gardener from his more skilful and scientific
work in the garden of another, or even than
the gardener's employer. Crabbe speaks in his
homely and pathetic way of the labourer and
his cottage plot,

"It is his own he sees—his master's eye

Peers not about some secret fault to spy,

Nor voice severe is there, nor censure known;

Hope, pleasure, profit, they are all his own."

and this applies to the amateur with even greater
force. As a rule the successful amateur is a
successful man—his method and work, whether
in business or recreation, are thorough and
will-full—no half measures suit him. The
amateur, whose garden I am about to describe, is
a builder in rather a large way; he is somewhat
addicted to field sports, is a capital cricketer, and
an amateur gardener of the most enthusiastic
and philosophical type.

His garden, which is about the third of an
acre in area, lies on the north-western slope of a
famous hill. The soil, though heavy, is thoroughly
workable, a good, deep, rich loam. "Ah!" said
he, repeatedly, as I walked round in the cool of
the evening in early summer, when a smart
shower had freshened the Peas and Brassicas,
and beat the perfume out of the Roses, and put
diamond pendants on the drooping Filberts, "I
couldn't live, Sir, without my garden when
bothered with business, making out estimates,
and overlooking plans. I come out here—(then he
peers into an opening bud, touching it tenderly
with a finger)—I come out here, and all my
troubles vanish like an uncanny dream; the
smell of the young green leafage and yielding
soil, the fragrance of these Roses that seem to
speak to me and touch me as I pass them, gives
me new life, and the business fog clears away."

Entering the garden gate from the east, the
ground is laid out in oblong beds, divided by
a broad central path and two side paths, so that
there are two large beds and two smaller ones by
the sides. At the upper end, which is raised a
few feet, is a row of Filberts, kept sufficiently
open to allow access to sunshine and air, and free
of suckers—the undergrowth that is seen so
frequently round the stems. These trees, among
which there are two Kentish Cob-nuts, bear
abundantly; last year, as all know, was one of
the greatest Nut years remembered. I saw
hundreds of bushels hanging on the hedgerows
between quaint and picturesque old Wendover
and Great Missenden. Here, then, in mellow
autumn, my friend resorts to sip a glass of port
and crack his Filberts. Except Roses and a
few old-fashioned things, such as Honeysuckle,
Lavender, and Sweet Peas, he grows few flowers.
There is, however, a great clump of Solomon's
Seal, and very charming it looks in early June
when Lilies bloom. I once saw a somewhat
similar arrangement in the famous old gardens
at Cassiobury Park, only the Roses were standards
with symmetrical heads, and stood a few yards
apart down a long narrow bed. There was a
belt of white Pinks on each side, and the centre,

about 4 feet wide, consisted only of Lily of the Valley. To walk along the cool, smooth paths at which time an early summer shower pattered its pearls among the Lilies, and breathe the fragrance, were worth a journey from Fleet Street.

A row of standard Roses stood round the side beds, not too high to enjoy, and here and there was a small patch of Mignonette. My friend the amateur was particular about his seed-beds; he never begged or bought plants, and it is perhaps unnecessary to say he gave quantities away. Then he had the earliest and crispest of Cabbage, great creamy-bossed Cauliflower; tall stems thickly garnished with rosettes of Brussels Sprouts, and Kale of various kinds, to carry the family through till dewdrops again shimmered and sparkled among the dimples of the spring Cabbage. Peas he always had in abundance. Ashtop and Lapstone Kidneys, and the earliest Soarlet Runners in the place. He was careful, however, that the slugs and brown snails should not have the first and last bite, and would go leisurely round with his basket of slacked lime for protection. Then there were old trees of Bon Chrétien and Bergamot Pears; Ribston and Blenheim Orange Apples; Victoria, Orleans, and Greengage Plums; Currants, Gooseberries, and Raspberries.

Perhaps it was the Strawberries, however, that he took most pride in, growing them for two years only. But the young plants were so carefully removed and tended, that he would gather excellent samples of President, Sir Harry, and La Constante, after planting the preceding autumn. How many punnets were given away, mostly to poor folk, he himself took no note. I was walking round a garden some years ago with a man of fabulous wealth, whose wife had, in course of time, acquired aristocratic tastes, and the result was a capital garden with compact range of houses for Vines, Peaches, Melons, and stove and greenhouse plants. He was evidently craving for praise and willing to be flattered. My object, however, was information, and when I discovered the kind of information he was anxious to impart about what he called the "Strawberry Vine," that had been raised from a Vine grafted on the Strawberry, or *vice versa*, my anxiety was appeased. Strawberries, however, lay around, hanging in rich clusters over the Pea protectors. He stooped to pick one, I stooped involuntarily, and he said, "Ah, yes! taste one—take two or three." My amateur was not of that type—probably he gave away more than he consumed.

"Mushrooms! do you grow Mushrooms?" "Yes, in my cellar. It is a cool deep cellar, and the temperature in summer varies between 50° and 60°; last year I had pecks, in one spot about a foot across, there were forty-seven, counting buttons as well. The stuff is prepared in a shed and carried down, then pressed firmly with the feet, and when the fermentation is going down, the bed is spawned, and I wait in faith."

The amateur has an eye to the birds who haunt his garden. "One summer, no, it was May," said he, "I was wandering along this path one morning, and a bird flew out—a hedge sparrow—I parted the twigs and looked into the nest, there were four blue eggs and a larger whitish one. I saw at once that it was a cuckoo's. So, of course, I watched the nest until the eggs were hatched. The hairy little monster grew rapidly and soon gave its companions a lift in the world, of which the parents seemed utterly unconscious. Just before it was able to fly, I took it indoors and placed it

in a wicker cage. Had you seen me, Sir, capering round this garden in search of larvæ and caterpillars, you would have had but a very low estimate of my intelligence. It lived, however, and would fly down to take food from my hands. One day, when one of his tribe swept past uttering his peculiar note, my cuckoo skimmed out and disappeared. In a few days, however, he returned utterly demoralised, it seemed. With care he recovered, and my wife made him a little coat. As November fogs came on, the curtain of his once bright eye dropped, and my poor bird joined the majority—the ungrateful wretch, without once saying 'cuckoo;' perhaps, however, it was a hen bird, and, therefore, incapable of saying so much." Of my amateur's Cucumbers, and some wonderful stories of animal life related by him, I cannot now speak. My story is simply a sketch from life, amateur, garden and all. T. W., Harrow.

NEW OR NOTEWORTHY PLANTS.

THREE NEW HYBRID CYPRIPEDIUMS.

UNDER this title, I last year described in these columns, vol. viii., p. 294, three new hybrids that Mr. Drewett O. Drewett, of Riding Mill-on-Tyne, had been fortunate enough to flower simultaneously for the first time; and now he has again had the pleasure of having three more new ones flower at the same time, two of which are rather handsome novelties, and one has, I believe, beaten the record for rapidity of development, having flowered in a little under two years from the time the seed first germinated! Very few of the petaloid monocotyledons arrive at the flowering stage in a less time than this, and for an Orchid it is exceptionally quick.

CYPRIPEDIUM CERES, new hybrid.

This handsome hybrid is the product of the seed of *C. Spicerianum* fertilised by the pollen of *C. hirsutissimum*, and may be briefly described as a greatly improved *C. hirsutissimum*, although the dorsal sepal at once proclaims that it is not a mere variety of that species. The leaves are intermediate in breadth between the two parents, moderately dark green, with very faint traces of darker irregular transverse bars, and scarcely shining; the underside is dull green, clouded with purple at the very base. The scape is purple-brown and hairy. The bract is similar in form to that of *C. hirsutissimum*, dull green, with the nerves, keel, and the basal half densely dotted with purple-brown. Ovary turgid, like that of *C. Spicerianum*, not compressed, as in the female parent, purple-brown, sparsely hairy. Upper sepal similar to that of *C. Spicerianum* in shape, but not arching forward quite so much; the base is green, densely dusted with purple-brown; the upper two-thirds is white, faintly tinged with rosy-purple, and dotted in the lower part, especially on the nerves, with bright dark purple, and with a broad middle line of the same colour; the back is rosy-purple, with rather darker nerves, and a moderately broad white border. The lower sepal is oblong-ovate, and similar to that of *C. hirsutissimum*, but flatter, with recurving margins; pale green, with two purple-brown nerves on the inner face; both sepals are pubescent. The petals are almost identical with those of *C. hirsutissimum* in form and colour. The lip is also like that of *C. hirsutissimum*, but rather broader, and the sides of the basal part are not inflexed so much, but are more as in *C. Spicerianum*; the colour is brownish around the mouth, shading into purple at the apex. The staminode is quadrate, and slightly undulate, but much less so than in *C. Spicerianum*, bright purple, with a whitish centre and narrow whitish border; it is shining, and has a few hairs at the base.

From the above, it will be seen that this pretty

hybrid partakes much more of the character of the pollen-parent than of the seed-bearing parent. Raised by Mr. A. J. Keeling, gardener to Mr. Drewett O. Drewett, Riding Mill-on-Tyne. N. E. Brown.

CYPRIPEDIUM JUNO, new hybrid.

A charming little hybrid between *C. callosum* and *C. Fairieanum*, the latter being the pollen parent. *C. Fairieanum* being a scarce plant, not many hybrids have yet been derived from it, and neither of those that I have seen show such distinct traces of having *C. Fairieanum* in their composition as the present novelty does. Besides its intrinsic merits from a horticultural point of view, it is interesting as being probably one of the most rapidly-developed seedling *Cypripediums* on record. I am informed by its celebrated raiser, Mr. A. J. Keeling, that a flower of *C. callosum* was fertilised by the pollen of *C. Fairieanum* on October 19, 1887; the seed was sown on August 12, 1888, it germinated April 14, 1889, and the first flower opened March 1, 1891; so that, from the sowing of the seed to the production of the first flower only three years and eight months have elapsed, or from the time the seed germinated, slightly under two years—a very quick growth for a *Cypripedium*. The plant is of dwarf habit, with small leaves, 3 to 3½ inches long and 1 inch broad, light green, tessellated with darker green, not shining. The peduncle, bract, and ovary are almost identical with those of *C. Fairieanum*, and the flower is of the same size, and nearly of the same form as in that species, except that the upper sepal is flatter and less undulate at the margins, the upper margin of the petals not quite so wavy, and the toe part of the lip longer and proportionately narrower. The upper sepal is bright vinous-purple, with numerous nerves and a few cross-nerves of a dark purple, and a white border, a small area at the base being green; the back is of the same colours, but not so bright. The lower sepal is oblong-ovate, light green, with purple-brown veins. Petals drooping, but not quite so much curved as in *C. Fairieanum*, light green, with the apex and both margins bright vinous-purple, and all the nerves thickly covered with dark purple-brown dots and spots nearly to the apex; both margins are ciliate, and there are no wart-spots. Toe part of the lip olive-brown, with brownish-purple nerves. The staminode is nearly as in *C. Fairieanum*, coloured pale greenish, with a dark green venation on the disk, and a tinge of purple at the sides. N. E. Brown.

CYPRIPEDIUM PALLAS, new hybrid.

This is a hybrid between *C. callosum* and *C. calophyllum*, the latter being the seed-parent. The foliage is somewhat intermediate between that of its parents; the colour is light green, handsomely marbled and tessellated with dark green. The peduncle and bract are similar to those of *C. calophyllum*, the ovary being more like that of *C. callosum*, with a distinct pedicel as long as the bract. The upper sepal is white, with many green nerves; the lower sepal greenish-white, with green nerves, both sepals being almost exactly the same as those of *C. calophyllum*. The petals droop a little, just as in *C. barbatum*; their basal half is light bright green, faintly tinged with very pale rosy-purple below the mid-line; the apex is bright rosy-purple; both margins are ciliate, and along the upper one are a few dark purple-brown wart-spots, and there are also one or two of the same spots at about the middle of the lower margin. Lip very similar in form to that of *C. calophyllum*, but not so brightly coloured, the colour of the toe part being of a somewhat dull brownish tint; the inflexed sides of the basal part is pale yellowish-green, with small purple raised spots. The staminode is something like that of *C. barbatum* in shape, pale greenish, tinged with pale rosy-purple, and reticulate, with dark green on the disk, the central point being purple-brown. Raised by Mr. A. J. Keeling, gardener to Mr. Drewett O. Drewett, Riding Mill-on-Tyne. N. E. Brown, *Hort. barium*, Kew.

ORCHID NOTES AND GLEANINGS.

CATASETUM SACCATUM.

A SPECIES all but lost sight of since its first introduction, but now once more brought under notice by MM. Linden. It is a splendid species, the sepals 2½ inches long, marbled and almost suffused with purple-brown on a light green ground. The petals

the lighter coloured lip. Native of Brazil. *Lindenia*, t. 270.

ODONTOGLOSSUM CLAESIANUM X.

A handsome form, conjectured by M. Lucien Linden to be a natural hybrid between *C. crispum* and *O. luteo-purpureum*, or *O. odoratum*. It was discovered by M. Claes in New Granada. No description is given, and the details of the lip and column are not very clearly indicated in the plate. The segments of the perianth are broad, undulate,

throw some light on this interesting point. When Lindley described it in the *Journal of the Horticultural Society*, vol. iv., p. 266, he remarked: "This beautiful plant exists in gardens as a variety of either *C. Andersoni* or *punctatum*, from both of which it is perfectly distinct. The flowers are large and yellow, like the first, and they are slightly speckled with crimson, like the second; but there the resemblance ends. At the base of the lip is to be found a convex warted crest, unknown in *C. Andersoni*, and at the end of the lip there is no trace of the tubercles so conspicuous on the edge of *C. punctatum*. The specimen from which the foregoing definition has been prepared was sent me by R. Hanbury, Esq., in August, 1847." Some time ago, I had to dissect and compare these species, and arrived at a different result from Lindley, for I am quite satisfied *C. cardiochilum* is synonymous with the older *C. Andersoni*, R. Br. Lindley's observations would, at first sight, appear conclusive, but in reality they are not so. His description was made from a living specimen, but he compared it with dried specimens of *C. Andersoni*, the crest having vanished in drying. As a matter of fact, his type specimen of *C. cardiochilum* is now in this very condition, for I have made a careful dissection of one of the flowers. There is an excellent figure in the *Orchid Album*, vol. iv., t. 176, and if any one will compare it with the figure of *C. Andersoni* in the *Botanical Register*, vol. xxvii., t. 8. I venture to say he will agree they are synonymous. Now *C. Andersoni* is well known to be a Brazilian plant—in fact all true *Cyrtopodiums* are tropical American. *Cyrtopoda*, which has some Asiatic species, is quite distinct, and should never have been united with the former genus. We may now consider Brazil to be the habitat of this beautiful plant. R. A. Rolfe.

PHALANOPSIS LOWII.

This is remarkable for its pretty white flowers tinted with delicate rose, its labellum, with the front lobe purple, enlarged, and fimbriate near the summit, the rostellum with a long beak. It is a native of Moulin. *Lindenia*, t. 272.

DISEASES OF PLANTS.*

(Continued from p. 332.)

THE POTATO DISEASE.—Of all the plant diseases of fungoid origin, there is none which has aroused more general interest than that caused by the parasitic fungus known to scientists as *Phytophthora infestans* (see fig. 79). This is one of the very few fungi which can lay any claim to having effected a change in the laws of our land. Politicians and reformers take credit to themselves for having, by dint of much writing and more talking, brought about the repeal of the Corn laws; but there are those who still say, if it had not been for the Potato disease, and the famine it caused in Ireland, this political change would not have taken place until long after it really did.

So momentous a calamity as befell Great Britain and Ireland in 1845 by the failure of the Potato crop has seldom been equalled, and is quite without parallel in the records of food supply in our time. The remarkable feature about the Potato murrain was not only its suddenness, but its unexpectedness. For some three centuries the Potato had been cultivated in Europe. From the facility with which the plant had become acclimatised, the ease with which it could be cultivated, its productiveness, the large amount of food-stuff it afforded, and the simple manner in which it could be cooked, it had become a general favourite with both rich and poor. To the former, if not a luxury, it was, at least, an additional comfort; to the latter, an aliment which for years had stood between them and starvation. A native of the northern parts of South America, Peru and Chili, it was introduced into Spain in the sixteenth century; into this country it is reputed to have been

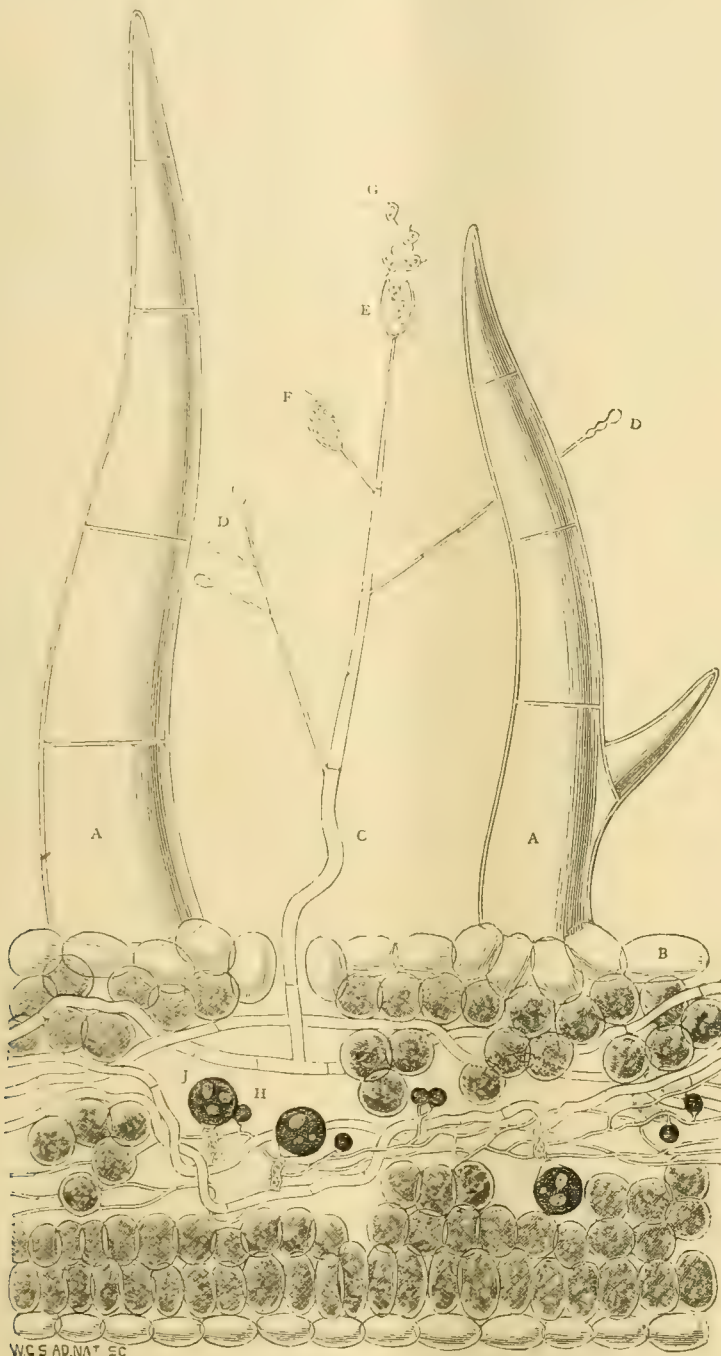


FIG. 79.—THE POTATO DISEASE. SECTION OF A LEAF.

(Showing at A A, hairs of the Potato-plant; B, epidermal cell; C, hypha or thread of the fungus *Phytophthora infestans*; D D, conidia or bud-spores; E F, zoospores; G, zoospore bursting to liberate the zoogonidia; H, antheridia, or male portion; J, oogonia or female portion of a fungus in the central tissue of the leaf. Whether H and I are portions of the *Phytophthora*, as once asserted, or of another fungus, *Pythium*, is doubtful. The lower surface of the leaf is shown as uppermost.

are shorter, but the ground colour is more distinct, and the purple-brown blotches more sharply defined. The lip is spurred and indistinctly three-lobed, lobes fimbriate, reddish-brown, mouth of spur ivory-white. It belongs to the section *Myanthus*. Figured in *Lindenia*, t. 269.

CATLEYA GRANULOSA VAR. BUESONIANA.

A distinct variety, distinguished by the total absence of spots from the sepals and petals, and by

lacinate, white, heavily blotched with purplish-red spots. *Lindenia*, t. 271.

CYRTOPODIUM CARDIOCHILUM, Lindl.

I observe at p. 333 an interesting note by "F. R." with respect to a plant of this handsome species now flowering at The Briars, Reigate. It is there pointed out that its native country remains doubtful, though the writer remarks that "possibly Java is not far removed from its native habitat." I think I can

* A course of lectures delivered before the Royal College of Surgeons by Professor Flouwright, M.D., in February, 1891.

brought from Virginia by Sir Walter Raleigh in 1586. Gerard, in his *Herbal* ten years later (1597), speaks of it as a luxury, and, judging from Parkinson (1640), we gather that it had not recommended itself to the general public as an economic plant of any great value; it was not cultivated in Scotland until nearly a century after its introduction into England.

During the last 100 years, however, it has become one of our most important crops. In many parts, not only of Ireland, but of England, it formed the staple food of the agricultural labourer in the times of the corn laws. There is still a legend current in East Anglia of the times when the families of the labourers were brought up on "Potato and point," the Potato being the food, the "point" being an allusion to the salt-cellar, the contents of which were too expensive a luxury to be consumed—they could only be pointed at. What then must have been the consternation of the whole community when, towards the end of August, 1845, a disease appeared amongst the Potatoes, which spared neither foliage nor tubers, and which in a couple of weeks spread all over the country. Starting in the Isle of Wight and the Southern Counties, it spread with fatal rapidity, not only over all England, but also into Scotland and Ireland.

The suddenness, combined with the severity of the disease, rendered it most appalling: no remedy was found to have any effect upon arresting its spread, and something very much akin to panic seized the public mind. It is quite worth while to study the origin and extension of this epidemic. That it did not arise *de novo* we now know to be the fact, but how and why it spread with such rapidity, and whence it came, have only been elucidated by much subsequent painstaking investigation.

In the first place, the advent of the disease was not so sudden as it at first appeared. Evidence was soon forthcoming that, during the previous year (1844) it had been noticed—although not to any very alarming extent—in Jersey. In the Isle of Thanet, a correspondent of the *Gardeners' Chronicle* also refers to it; and it is mentioned in Knight's *Penny Magazine* as having occurred in the same year. On the other side of the Atlantic, however, in Canada, it was present to a much greater extent, and seriously damaged the crop. In the Island of St. Helena, it was not only prevalent, but very destructive.

In 1843 it was present in many parts of the Continent of Europe, and was recorded as doing great damage in West Jutland (Denmark). In 1842 it made its first appearance in Denmark, into which country it had extended from Belgium. The same year in the vicinity of Boston, America, Mr. B. M. Watson speaks of its occurrence.

In 1841, Westrem noticed it in Norway. In 1840, five years before the English epidemic, it was observed in various parts of Germany, in France, in Belgium, as well as in the North American States.

Beyond this we cannot for certain trace it, but different forms of "Potato rot" are spoken of by agricultural writers in various countries which may, or may not, have been due to the *Phytophthora*, but we have no direct evidence of its presence in Europe prior to 1840. The general extension of the disease in its first appearance was from south to north. Not only was this the case in Europe, but also in America. Now this is exactly what we see with regard to the spread of the disease each year. In Great Britain it first appears in the Channel Islands, then in the Southern Counties, then in the Midlands, then in the Northern, and so on into Scotland. It is not to be inferred that the disease starts in the Channel Islands, and from there as a focus, spreads continuously into Scotland; but, that those conditions of climate and temperature which arouse the *Phytophthora* into active growth, are the same which have previously operated upon the growth and development of its host-plant.

No fungus has probably had more study bestowed upon it than the *Phytophthora*, and certainly no individual species has had the number of books, of

pamphlets, of newspaper and other articles, written about it. No sooner was the cause of the Potato disease recognised, than botanists set about the study of its morphology and physiology; horticulturists, agriculturists, and scientists generally, deluged the reading world with the published results of their investigations and observations. Such being the case, it may occur to you, that our time would have been more profitably occupied than in discussing such a well-worn theme. There are, however, certain points connected with the life-history of the fungus that are even now obscure; furthermore, the disease is still greatly dreaded by all those who have anything to do with the cultivation of the Potato on a large scale. The methods at our disposal for combatting its spread and its ravages are far from complete, and this, after all, is the most important aspect of the question to the majority of persons. True it is that, during the past few years, certain important facts have been elicited, by which the disease, to a certain extent, can be combated. Some of these suggestions, based upon a scientific study of the disease, are still on trial, and it is mainly with a view of our being able to judge of the value of these suggested methods of coping with the disease, that I have selected this subject for my lecture. Although it is not to be supposed that you are ignorant of the main facts connected with the structure and habits of the fungus, yet it will be advisable to give a short *resumé* of what is known of its anatomy and physiology. For unless we are conversant with certain details connected with processes of reproduction of this fungus, we cannot appreciate the means suggested for arresting its spread.

The microscopic mould, which causes the Potato disease, was placed in the genus *Phytophthora* because the conidia are successively formed at the end of each branch of the conidiophorous hyphæ, the first formed conidium being pushed on one side by the unequal swelling of the point of the hypha to which it is attached. The tip of this swollen hypha continues to grow onwards, until it has attained a length equal to between one and two conidia, when it forms a new conidium. This process being repeated ten or a dozen times, the conidiophorous branches present a characteristic nodose outline, which readily enables an observer to recognise them.

The influence of temperature upon the production of the conidia is a matter of considerable interest, as by it we are enabled to understand certain facts connected not only with the spread of the *Phytophthora* but also its geographical distribution. The most convenient method in which such investigations as this can be carried out is the following:—A Potato tuber affected with the disease is cut in halves, and placed in a damp atmosphere under a bell-glass. In the course of from 12 to 24 hours, if the mycelium in the tuber be alive, a crop of conidiophorous hyphæ will have appeared on the cut surface. These should be washed off by a delicate stream from a wash bottle, such as analytical chemists employ. The washings of the Potato section amounting to a table-spoonful or two will afford a most efficacious medium by which other tubers, or what will often be found more convenient in practice, slices of tubers may be infected by simple immersion in it. The dipped slices placed under a bell-glass in a moderately moist atmosphere will be almost sure to develop the *Phytophthora*, the presence of which can be recognised with the naked eye by the brown spots or stains its mycelium gives rise to. The presence of the conidia can then be confirmed by the microscope. When further cultures require to be made, shaking the slices in a little water, or washing them with the fine stream from a wash-bottle, enables us to obtain a fresh supply of spore-charged water. Now if some dipped slices be kept under a bell-glass in a damp atmosphere at a temperature of 77° F., or over, no *Phytophthora* will be produced; if, on the other hand, they be kept below 34°, no effect will be produced upon them, so that we know the limits of the temperature at which the fungus produces its conidia, and this may be taken as a measure of its activity. Between 45° and 74° F.,

dipped slices will be found to produce conidia in from three to ten days. At 45°, it takes sixteen days or thereabouts, between the application of the spores to the Potato slice and the development of conidia. At 50°, conidia are produced in about a fortnight; at 60°, in a little less than five days; at 63°, in three and one-sixth days; at 72°, in two and one-third days; at 74°, in two and three-quarter days (Jensen). Above which temperature spore production ceases. We may regard a little above 77° as the lethal temperature of the *Phytophthora*, above which no spore formation or mycelial development takes place. On the other hand, the development of conidia takes place very slowly at 45°; while at 40°, although mycelium may be formed, yet no conidia are produced. We may look upon 40°, then, as the hibernating temperature of the fungus.

From the above, we may conclude that, in those countries where the mean temperature exceeds 77° Fahr. for any considerable time, the Potato is free from the *Phytophthora*. Practically, this point is not without interest; for, although we cannot influence the temperature of our fields, yet the knowledge of the above fact enables us to protect an allied plant, viz., the Tomato, which is also subject to attacks of the *Phytophthora*, and whose successful culture is generally carried on under glass. Should these Tomatoes become affected with the *Phytophthora*, all that is necessary is to raise the temperature of the house to 77°, when the disease will be arrested.

We have here, too, the probable explanation of the curious circumstance that Potatoes were grown in Europe, and in North America, for nearly three hundred years without the disease. No doubt the *Phytophthora* has existed in the native place of the Potato plant as long as the Potato itself has—at any rate, from remote antiquity. Now, the native place of the Potato is generally acknowledged to be the Cordilleras of the northern part of South America. Growing here, in the elevated regions of Chili and Peru, the fungus was for centuries imprisoned within these limits by the hot air which, for hundreds of miles, surrounds these regions in all directions. When the Potato was introduced into North America, and from thence into Europe, it lost its parasite by passing through the torrid zone. The parasite was separated from its host by the tubers being sterilised in passing through the hot equatorial regions. In those days the means of transit were very different to what they are now, the communications were slow and infrequent, as it took many days to perform the journey across the tropics. On the introduction of steamers, however, this was changed, large cargoes were brought in place of small ones, and transits were effected in hours, instead of in days. There is another fact to be borne in mind: just prior to the time the Potato disease appeared, there were a great number of ships and steamers sent to the home of the Potato plant by reason of the development of the guano trade—so that it is from these causes that we owe the reunion of the *Phytophthora* with its host-plant (Jensen).

From a series of careful inquiries and investigations, it appears that the geographical distribution of the Potato disease depends more upon the mean maximum temperature in summer than on the mean day temperature, hence the disease does not go so far south on continents as upon islands; speaking generally, the disease does not exist in continental lowlands south of the 40th parallel of latitude in the northern hemisphere. It does not exist at all in tropical countries where the mean temperature attains 77° F. for any length of time. It is not found in mountainous districts within the tropics, except in very rare cases, because its introduction into such places is very difficult on account of the protection afforded by the high temperature of the surrounding atmosphere. It probably exists in all countries having a temperate or cold climate in the northern hemisphere. It may be found in temperate climates in the southern hemisphere. It is not found in Australia (1883), though in many parts of that continent it would flourish if it were introduced (Jensen).

(To be continued.)

FLORISTS' FLOWERS.

THE CARNATION.

In reference to "R. D.'s" remarks at p. 333, as to the Carnation and Pink having one common origin, I thought this matter had been settled in the negative years ago. [See also Mr. Williams' lecture at last year's Carnation Conference. Ed.] Gerard, in his *Historie of Plants*, published in 1597, treats fully of both. The name of Plumarius or Feathered Pink was given by Gerard to the white jagged Pink, from the petals being deeply cut or jagged on the edges, resembling a feather. There were double white and double purple varieties grown, also single red and single purple. The Carnations are treated of in a separate chapter, under the name of Caryophyllus, but he also states that under this name are "comprehended divers and sundry sorts of plants of such variable colours that a great and large volume would not suffice to write of every one at large and in particular." Pinks and Carnations are indiscriminately termed Gilliflowers, and the first yellow Carnation, or Gilliflower, Gerard informs us,

hibited at the recent Tudor exhibition, carry Pinks or Carnations in their hands. Dr. Masters drew my attention to this, and I noted it when subsequently visiting the exhibition.

My experience with seedlings from yellow Carnations is considerable, for I must have raised some thousands of them, and I have frequently observed their tendency to sport into the ordinary forms of Carnations and Picotees. I have had white ground red-edged Picotees from them, but none worth preserving; and, what is very remarkable, many really good rose-self Carnations. We grow our yellow-ground varieties in a house some distance from the white-ground Picotees and Carnations; but, of course, the bees which visit the flowers may, and do, carry the pollen from one house to the other. But it is to a very limited extent, as I notice they come in a direct line to one house, and having satisfied their wants, they return by the same route that they came; indeed, if intercrossing was effected in this way, there would be at least some evidence of it amongst the white-ground Picotees and the striped and self Carnations—whereas it is not so. We have raised many thousands of seedlings from all these sections



FIG. 80.—SHOWING MODE OF GERMINATION OF FUNGUS SPORE, PHYTOPHTHORA INFESTANS, IN THE LEAF OF A POTATO. (SEE P. 362.)

was obtained from Poland. He says, p. 472, there is "also a Gilliflower with yellow flowers, the which a worshipful merchant of London, Master Nicholas Lete, procured from Poland, and gave me thereof for my garden, which before that time was never seen nor heard of in these countries." This is sufficient evidence of the first cultivation of the yellow Carnation in England at least.

When Parkinson wrote *The Garden of Pleasant Flowers* about thirty years later, he describes fully twenty-nine varieties, some of them with flowers so double as to be pod-bursters. Amongst them a double yellow or orange-tawny Gilliflower; so that the introduction of the worthy Master Lete from Poland, had borne fruit, and we may therefore state with confidence that the Yellow Carnation has been cultivated in England for the long period of 300 years; moreover, putting Gerard and Parkinson in evidence, we must give to the garden Pinks and the Carnations a distinct origin. In both books they have separate chapters to themselves, and were both very popular as garden flowers. The popularity of these lovely flowers was further shown in Tudor times, by the fact that some of the portraits of ladies and gentlemen painted in that age and ex-

hibited at the recent Tudor exhibition, carry Pinks or Carnations in their hands. Dr. Masters drew my attention to this, and I noted it when subsequently visiting the exhibition.

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THE RANUNCULUS.

These pleasing flowers are not yet grown so extensively in gardens as they ought to be. When the scarce varieties were sold at the price of a guinea for one small tuber, they were grown and valued, but now that a collection containing most of the beautiful varieties may be purchased for that sum, they are not thought worthy of attention even by those who make a specialty of hardy garden flowers. We grow about a thousand tubers annually, and give away as many more, for it is a plant that increases rapidly when well grown. The entire collection was planted out in a border of deep rich soil on February 24. We have sometimes planted them out later in the year than this, and sometimes a week or two earlier; it depends much upon the state of the weather. When the ground is in good condition, it is as well to take advantage of it. The tubers are found three or four of them clustering together, and they are easily parted out into single crowns. We plant these in lines 6 inches apart, and 3 or 4 inches between the tubers in the lines; the crowns are covered to a nearly uniform depth of 2 inches with fine soil. The old florists were very particular as to the depth the tubers were planted, and for many years I have also been careful on this point. They are very small, and it is a matter of some consequence to get an uniform growth over the surface of the bed. They like a holding yellow loam, if this, by frequent digging, trenching, and manuring, has been well pulverised. Our soil is of this nature, with a sort of clayey subsoil, and we merely plant the tubers in some fine sand, covering them over with 2 inches of fine siftings from the potting-shed. Soil that had been used to grow Tulips or Hyacinths the previous year is of a sandy nature, and it does well for this purpose; the plants seldom require water in such soil. Mr. Simonite told me that the finest bed of Ranunculuses he ever saw was in the corner of a peat field. Probably it was moist peat, for I find that the fine siftings from Orchid peat is too light for them. I had a good show one year when they were planted in blackish Azalea peat, which was not moved by the wind when dry as the Orchid peat was.

THE HOLLYHOCK.

When I ventured to read a short paper on the Hollyhock before the Fellows of the Royal Horticultural Society in August last, I was able to show an interesting series of specimens of the Hollyhock fungus (*Puccinia malvacearum*), from the first attack made upon the leaf until the tissues of the leaves were totally destroyed. The troublesome parasite does not seem to thrive after the plants have been exposed in frames to such a winter as we have passed through. Condy's fluid may be used upon the leaves where the fungus appears, which can be readily destroyed in its earlier stages. I have also used soft-soap water, with flowers-of-sulphur stirred into it. Plants propagated from cuttings or eyes during last summer and autumn, which are in large 60-sized pots should be repotted in large 48's or 32's, according to the strength of the plants. They should be placed in cold frames or pits, the lights being entirely removed in favourable weather. Cuttings or root grafts may yet be put in either hot-bed frames, or in a gentle bottom heat in a forcing house. Plant them in thumbs in sandy moist soil; the reason I use it moist is owing to the fact that if these cuttings or root grafts are watered before roots are formed, many will rot. The lights or the glasses under which they stand must be wiped over daily to remove moisture, or the leaves will be destroyed by a mould. When roots are formed, the plants must be re-potted on, and gradually inured to the outer air. Hollyhocks like a rich, deep soil, which should be made friable and in good order for being planted; and the autumn is the best time to manure and trench. Summer and autumn propagated plants that have never been in a heated house may be planted out early in April, and the spring propagated plants one month later.

PANSIES.

I find it is a mistake to coddle these plants under glass; and if cuttings are put in late, as we had them last autumn, I would place them in boxes in cold frames, using the lights only as a protection from the severest frosts. The frosts have been severe this winter, but our collection has been out-of-doors in the open border all the time. I ventured to plant them, where they are intended to flower, on February 27. One has to be rather cautious as to the early planting out of even such a hardy plant as the Pansy. Last year we planted in March, and 22° of frost killed a large portion of the plants almost immediately, sadly crippling the remainder. This of course is quite exceptional severity as regards the weather; but then we are always talking of exceptional weather. It has been an exceptionally severe winter in the South. Never before has there been such a dry month as February known in these parts, not a drop of rain for the whole month. But we must take certain risks, and, as I have before advised, keep in reserve at least one plant of each variety where they may not be injured by frosts, but, indeed, as much as 10° or 12° does no harm at all, unless the frosts are accompanied by wind from the north or east. If strong plants of Pansies and Violas are not planted out pretty early in the season, they do not flower freely when their bloom is most valued, that is, early in the year. *J. Douglas.*

SOILS AND THEIR PROPERTIES.

FROM a recent report of numerous investigations of soil from the Californian vineyards and orchards by Professor E. W. Hilgard, the following summary of the general conclusions should prove of value and practical use to all gardeners and horticulturists.

First, in no case has any natural virgin soil showing high plant-food percentages been found otherwise than highly productive, under favourable physical conditions. But, on the other hand, the reverse is not always true, for the simple fact that heavy clay soils, rich in plant-food, may advantageously be diluted with arid sand several times over, thereby increasing instead of diminishing their productiveness, because of improved physical conditions. This fact is abundantly exemplified in the daily experience and practice of gardeners.

Of course there must be a limit to the favourable effect of such dilution, even if effected by means of sand, which renders the soil more readily penetrable by roots.

In the case of dilution of heavy clay soil by sand, not only is there a necessary limit beyond which plants cannot make up by greater spread of root for the diminished amount of available plant-food existing within a given space, but it is obvious and abundantly exemplified in Nature that this limit is materially influenced by the habit of the plant root-system, and especially by its ability to develop abundant root-hairs. The better provided it is in this latter regard, the greater will be its ability to utilise plant-food spread through an extended space in a diluted form.

The presence of one substance in the soil often exerts a material effect upon one or several others. Among these, the presence of an abundant supply of lime seems to be the most common and potent; for the evidence that, in presence of much lime, smaller proportions of potash and phosphoric acid are adequate for profitable culture, than when lime is scarce, is overwhelming. Most potent of all appears to be the co-existence of large supplies of lime and of humus. On the other hand, investigation distinctly shows that the presence of much clay necessitates a larger supply of the active plant-food ingredients than is necessary in light or sandy soils, simply, perhaps, for the reason that roots cannot penetrate clay as minutely and abundantly as sandy ones.

These facts lead us to affirm that, in calcareous soils, minimum percentages of mineral plant-food will suffice for the purposes of maximum crops, even under the most exhaustive culture. *J. J. Willis, Harpenden.*

A NOVEL MODE OF SELLING APPLES.

MR. GEO. W. SHAW, of Garden Grove, Iowa, gave his mode of selling Apples before the State Horticultural Society. He hires a car, and divides it into bins of about 5 feet wide, leaving a passage-way along one side. He places about 6 inches of clean prairie-hay in bottom, and then fills in his Apples, keeping the kind separate by means of these bins. He finds that he can in this way put about 1000 bushels in a car, which is more than can be put in a car in barrels, and saves their expense besides, for at the end of the journey he sells the lumber for about first cost.

He says there is no other way in which Apples can be shipped and bruised as little as this. The freight only amounts to about 10 cents a bushel for a distance of 500 or 600 miles. He arranges the Apples tastefully, by contrasting colours in different bins; thus, Grimes' Golden and Yellow Belleflower contrast well with Jonathan and Fameuse.

When he arrives at a town, for of course he markets his own fruit, and thus saves all commission, he first buys a few Apples to get the market price, hires an intelligent, honest man to assist in measuring, and then advertises freely.

In canvassing for orders, he addresses himself to customers somewhat as follows:—

"We have at the dépôt, in our own car, 1000 bushels of Apples of our own growing; Fameuse for present use; Jonathan, Grimes' Golden, Northern Spy, and Wagner, for early winter. Ben Davis, Willow Twig, and Rawle's Genet, to do until Strawberry time next spring. Remember that the Apples you buy at the stores pay nearly or quite a half-dozen profits; the banker has his for the money which he loans the shipper; the wholesale and retail men have theirs; now we can afford to divide the profits with you."

In about a week he has retailed out his carload of Apples, got the top-price with the least expense, banked his money, and is prepared to load up another car for some other point. *Canadian Horticulturist.*

[We have seen a similar plan in operation in Picardy. Ed.]

THE BULB GARDEN.

NARCISSUS DUBIUS.

MR. BARR, with his usual liberality, has just sent to Kew a dozen bulbs of this rare Daffodil. It is a native of the south-east of France, and placed under Tazetta, between *N. papyraceus* and *N. canariensis* in Baker's *Amaryllideae*. Moggridge, in *Flore Mentone*, says that *N. dubius* is one of the grateful exceptions to the rule among Narcissi, for it is found to grow in wild, rocky situations, in mountains near Toulon and Hyères, and never, so far as he could find, in cultivated ground of any kind. The flowers are small (too small for market purposes), creamy-white, and pure white after being open some time. Flowers, 3 to 5 in a head, all sloping in the same direction, and at the same angle, the small crown being more or less distinctly 3-lobed. The leaves are about a $\frac{1}{4}$ -inch broad, a little exceeding the scape. It is figured in the *Flore Mentone*, t. 71, b. c. d.; and in Baker & Burbidge, t. 28.

NARCISSUS BROUSSONETII.

This rare and very remarkable Narcissus has again flowered in the Herbaceous Department of the Royal Gardens, Kew. It flowered at Kew in December, 1887, and continued until the middle of February, 1888, and it is from these same bulbs that the present flowers have been produced. Since 1888, we have been trying to cultivate this bulb in pots, and although some of the largest and fattest bulbs were selected, we never succeeded in getting more than a few short leaves. Last year the bulbs were planted in their old quarters—a pit in which the temperature rarely falls below 45° Fahr., and, unless in autumn,

when it is kept dry, the atmosphere is invariably moist. The plant appears to have been first found by M. Broussonet, and lost sight of until it was again found by Dr. Lared, since which time it has been found by many other persons. The bulbs sent to Kew were gathered by Her Majesty's Consul at Mogador, many of them being quite as large as a well-grown *N. tazetta*.

It has been described as *Aurelia Broussonetii* on account of the almost entire absence of a corona which, in some of the flowers, forms a mere scar. The flowers are pure white, about an inch in diameter, and with a long narrow tube. They are very fragrant, and, although they may be called handsome, it is a shy and difficult plant to manage, and will probably never be much grown in gardens. The leaves are very remarkable, some of them are an inch broad and over a yard long, of a fine green colour; but they are not strong enough to stand upright. In Morocco, it appears to flower in April, but, under cultivation, the leaves begin to die down about that time. *D. Dewar, Kew.*

DAHLIAS IN MEXICO.

HEEDING the suggestion of an English botanist, I gave, on my latest journey in Mexico, the home of the Dahlia, special attention to this genus, and, for the effort, was well rewarded, as usual. Two new species were brought to light to be added to the half-dozen already known, and in the hands of cultivators. These are *Dahlia pubescens* and *D. dissecta* of Watson.

D. pubescens was found on calcareous bluffs of prairies bordering the valleys of small streams in the state of Mexico and to the north of Toluca. The plant struck me at first sight as very distinct in habit from the species I had frequently encountered, the parents of most of our garden varieties; for it is smaller, only 1½ to 2 feet high, and more strict, the leaves, pinnately parted with narrower and more numerous divisions, being, like the fewer branches, more erect. This strict appearance is further increased by the flowers being held vertically by erect peduncles. The flowers are 2 or 3 inches broad, with a yellow disc surrounded by about eight rays, which are purple, with lines of deeper colour, but change with age to light purple or dull rose. The tubers are comparatively small, only 1 or 2 inches in length, and vary from round to oblong in shape.

D. dissecta was discovered growing on limestone ledges of mountains 50 miles east from San Luis Potosi. It is a very unique species, being scarcely more than 2 feet high, and of bushy habit, from an almost woody base. Its leaves are bipinnate, sometimes tripinnate, with numerous divisions only 1 or 2 lines wide, smooth, dark green, and somewhat fleshy. The flowers are raised above the foliage on peduncles a foot long; they are 2 or 3 inches broad, with about eight mauve-coloured rays. All my breaking up of the rocks, in whose seams the roots of this plant were hidden, failed to bring to view any tubers; doubtless, it is only to be propagated by seed and by division of the perennial branching base, from which arise the very leafy annual flowering branches. Owing to its peculiar habitat, this must be a very local species. Working southward from the boundary, slowly, and somewhat carefully, I have as yet only reached the latitude of the capital at various points within the States of Mexico, Michoacan and Jalisco; hence, I have so far met with only two of the old species of Dahlia—*D. coccinea* and *D. variabilis*—those earliest known and most varied and combined under cultivation.

Of these, *D. coccinea* has the more northerly and by far the most extensive distribution. From the Cordilleras of Chihuahua, within 200 miles of the United States boundary—probably much nearer, and possibly within the limits of the United States on the Chiricahua Mountains of Arizona—it ranges southward through the mountains to Jalisco in a purple-flowered variety, and was seen again in the adjoining state of Michoacan in a yellow variety. On the eastern side of the country, also, it was found from the mountains of Coahuila to those sur-

rounding the Valley of Mexico. On this line the colours shown were scarlet, varying through orange to lemon-yellow. The size of its flowers in the wild state varies from 2 to 3 or 4 inches in breadth, and the stature of the plant from 3 to 6 feet or more. Its habitat has been given as "sandy meadows" (probably the alluviums of streams was meant), but I have rarely seen it growing, except in the thin, dry soil of ledges—even in the crevices of bare ledges—or (quite commonly) among the broken rocks which form, with a little soil, the talus of cliffs, either

bluffs of streams, the plants here showing the largest development. It added interest to these two plants, as I admired them, to reflect that it was from this vicinity, quite likely, that seed was obtained a little before 1789 to send to the Botanic Garden of Madrid, and again in 1804 by Humboldt. Amidst the enterprise of the present century it seems incomprehensible that the Spaniard, who admires all things that are beautiful, should have been in Mexico 270 years before sending home plants so striking as these.

these two species in their wild state—and probably these are the two most closely related of all which botanists have recognised—I marvelled at the audacity shown by the late Mr. Shirley Hoober when he declared at the Dahlia show held at Chiswick last autumn, that, in his opinion, there was no good ground for admitting more than one original species. If he should be able to refer *D. coccinea* to *D. variabilis*, could he so dispose of such extreme species as *D. imperialis* or *D. scapigera*, not to mention this new *D. dissecta*? C. G. Pringle, Charlotte, Vt., in *Garden and Forest*, February 4, 1891.

THE DISA GRANDIFLORA.

THE illustration (fig. 81) will afford our readers a good idea of the structure of the flower and form of flower-buds and leaf of a terrestrial Orchid from the Cape of Good Hope, which will probably become very generally cultivated when its wants are better known. The peculiarities of *Disa* culture have been frequently touched upon in these columns, and so recently as January 17 and 24, February 7, and March 7, of the present year. We may remark that *Disa grandiflora* is one of the few Orchids that have been raised true from seed, the seeds germinating very freely when sown on living sphagnum moss; and the progeny vary but little from the parent plant. (See *Gardeners Chronicle*, 1872, p. 603). The culture of *Disas* is, in this country, best carried on in the greenhouse or cold frame, although we find that *D. grandiflora* and *D. racemosa* have in some growers' hands done well under a treatment much warmer than either a greenhouse or garden frame affords. Mr. Watson, of Kew, keeps his *Disas* in a cool Orchid-house, and at the cooler end of it. The plants are kept in an active state up to January, when they are afforded liberal syringings (three times a day), and the bed of coal-ashes on which they stood was kept moist; the water-pot is seldom used. The plants should be potted in shallow pots or deep pans, in fibrous peat roughly broken up, and containing a large portion of silver-sand and a small portion of rotted manure. After flowering is over, less water is required by the plants, and if they can be stood on the north side of a wall, and syringed occasionally, they do better than in a sunny place; moreover, the former situation is better, as there are fewer risks of the plants becoming dry at the roots, which is usually fatal to them. The most suitable time for potting them is just before starting them to grow. Propagation is by means of suckers, which are thrown up plentifully, and these should be taken off when they have become well furnished with roots.

THE LUCOMBE OAK.

THERE is a manifest ambiguity in the text-books as to the origin of this fine tree. For example, in an old book just given me by my friend, Dr. Woodman, and which, by the way, was once the property of his enthusiastic uncle, the late Mr. R. T. Pince, entitled *Flora Devonensis*, it is stated that the Lucombe Oak seems to have been a variety of the common British Oak (*Quercus robur*), retaining its leaves through the winter; and in one of his works, Loudon states that it is merely a seminal variety raised by Lucombe, a nurseryman at Exeter, from seeds of the species, about 1762. Whereas in the recently published *Encyclopædia of Horticulture*, by Mr. Nicholson, it is recorded that this kind is simply a garden synonym of *Quercus cerris subperennis*.

All this, to say the least of it, is rather conflicting, and I have every reason for believing that none of these statements are strictly accurate, and my endeavour is to prove that the "Lucombe Oak" is neither the one nor the other, but a hybrid. The first writer on this famous tree was Mr. John Zephaniah Holwell—a gentleman of Exeter extraction, though Dublin is said to have been his birthplace, and he is celebrated in history as being the chief of the prisoners of war who suffered the horrors of the Black Hole of Calcutta, on that memorable



FIG. 81.—FLOWERS OF *DISA GRANDIFLORA*.

From a drawing of Mr. Burbidge. 1, flower-stalk; 2, leaf; 3, flower-segment cut away to show the column with the anther and pollen mass, a; b, base of lip.

mountain walls or cañon walls. A sight of its bright flowers is cheering to the collector when he is struggling with the difficulties of such situations as these.

D. variabilis was not met with until I had reached the state of Mexico. On the sides of ravines, among the foot-hills of the mountains that rim the Valley of Mexico, it was seen in abundance and perfection, a royal plant, colouring the slopes with its profuse purple blooms. Many of the flowers measured 5 inches in breadth. The height of the plants varied from 3 to 6 or 8 feet. Near by, but far less abundant, *D. coccinea* was growing on the

Walking among these wild Dahlias day by day, admiring the symmetry of their single flowers, and the rich contrasts of scarlet and gold displayed by the disc and rays of the one, and of purple and gold shown by the other, the aversion which the botanist feels for the monstrous forms of flowers produced in gardens was intensified in me; and it was with much satisfaction that I learned afterwards that single Dahlias are now receiving far more attention among cultivators than double ones. As yet, however, it is only the older double sorts that are seen in Mexican gardens.

After improving this large opportunity to study

night in June, 1756, but who later on succeeded the great and noble Lord Clive as Governor of Bengal, retiring in 1761. Governor Holwell was the author of several works, and died at Pinner, near London, on November 5, 1798. His letter is dated Exeter, February 24, 1772, and records the fact that the Lucombe Oak was raised by Mr. William Lucombe from a parcel of acorns obtained from a tree of his own growth of the iron or wainscot species, and that some thousands had been grafted by that ingenious old gardener. He also refers at some length respecting his recent visit to Mr. Lucombe's nurseries at St. Thomas, near that city, and mentions the size of the parent tree, giving its age as seven years, speaking of it as capable of proving an inestimable acquisition to this kingdom. It would, therefore, appear that 1765 was the actual year when the Lucombe Oak was first noticed by Mr. Lucombe as being different from the rest of his seedlings, in consequence of remaining ever green; and there is a report of this remarkable phenomenon in the *Gentleman's Magazine* about that time.

We have thus shown clearly the starting point, and that the iron or wainscot Oak, popularly known as the Turkey Oak (*Quercus cerris*), was the mother-tree; and according to a note I possess, given by Mr. Lucombe's successor, the late Mr. Pince, this identical mother-tree grew at the Exeter nursery beside a Cork Oak (*Quercus Suber*), so was of course fecundated by the pollen of that species; hence the hybrid character of the offspring, which, although having the nature and characteristics of the Turkey Oak in a marked degree, yet it is at this season of the year that the difference is most striking, the Turkey variety being now leafless and bare, whilst the Lucombe Oak remains clustered with its bold, leathery, dark green leaves, which, as a rule, remain on the trees until the young ones fill their places. Several fine varieties were also raised at the Exeter nursery from the Lucombe tree, including *Q. c. l. crispa*, *Q. c. l. Suberosa*, *Q. c. l. incisa dentata* and heterophylla, and at the entrance-gates of the nurseries stood the original trees of *Q. c. l. crispa*, and *Q. c. l. suberosa*.

Q. c. l. crispa is still standing, but it is now, I hear, quite dead, and was a most imposing and graceful tree, towering to a height of nearly 70 feet, with a stem girthing over 12 feet; whilst *Suberosa* was just as imposing, but the trunk was not so massive. These noble trees, together with the great purple-leaved Beech in their midst, have long been familiar objects to all persons acquainted with the Exeter nursery.

The Lucombe variety is of rapid growth, attaining dimensions in thirty or forty years which the common Oak can barely do in one hundred. Moreover, as a landscape tree, it is unsurpassed; many important places can boast of fine specimens which are probably the trees supplied by Messrs. Lucombe and Pince, and the finest that I have seen stands at the entrance gate to Trevarrick, St. Austell, Cornwall. It is some years ago now, but I well remember with what genuine pride and pleasure the venerable Squire of Trevarrick pointed out his pet tree to me. *W. Napper, Chelsea*. [The history of this tree is fully given in the *Philosophical Transactions* in 1772, from which London compiled the account given in his *Arboretum*, vol. iii., p. 1854. Ed.]

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

PROTECTION OF WALL-TREES.—The buds of Apricots and Peaches are becoming prominent, and within the next fortnight the trees will stand in need of their protective blinds, coverings, &c. Coverings are very useful aids towards securing a crop, but in my opinion, the matter that is of as great importance, is the strength of the buds and vigour of the trees, and to have these in a good state. Over-crowding of the shoots in summer, and over-cropping, and the roots in poor soil, are evils which must be guarded against. Where fixed copings or the pent-houses of glass do not exist, broad boards put along the tops of the wall or fence, and a blind of fish-netting or canvas fixed to it is very efficient in warding off frost. If these are used, there should be some means of drawing them aside in the day-time. Failing anything of the kind, Spruce Fir boughs may be fastened thinly over the trees, and very good crops are secured in this way, no harm being done to growth or bloom, as the needles fall

off as soon as the sun gains strength, so that a partial uncovering is going on until the boughs are taken off in May. When nets or blinds are used, long poles should be placed slanting-wise against the wall, to keep them away from the face of it. The blooms should be on the point of opening before any kind of protection is put up.

FILBERTS.—These bushes, so far, have had a fine time for setting their nuts, and in no past year do I remember to have seen a better promise of a crop. If the pruning is not yet done, it should be forthwith brought to a finish, before the tiny fruit blossoms close. Keep the bushes open as much as possible in the centre, and the main branches clothed with small fruiting twigs. Strew powdered quicklime freely about and over the branches, to kill the insects that infest the bushes, and keep the land clean. Nut bushes may still be planted, but they will need a mulch, and attention as regards watering in the early summer months, a dry soil at that time being attended with bad results afterwards. If the soil is heavy, a little fine mould of another kind, should be scattered on and about the roots, when planting. *H. Markham, Mereworth Castle, Maidstone.*

PLANTS UNDER GLASS.

HARD-WOODED PLANTS.—*Boronia*s, *Pimeleas*, *Correas*, *Croweas*, &c., which have done booming, and have commenced to grow, and require repotting, should have attention at once. Great care must be taken in securing good drainage in the pots, and in making use of a suitable compost for these plants. The last-named may consist of fibrous peat with sufficient coarse silver sand added as will keep it open. Before repotting any plant, loosen the roots on the outside of the ball with a pointed stick; and the pots made use of should be one or two sizes larger than those the plants occupied previously. The soil should be fairly moist before using it, and it should be made quite firm around the old ball, using a thin piece of wood for this purpose. Let the new soil overtop the old ball not more than half an inch, and should the plant have grown as large as is desirable, the ball may be shorn of its roots by cutting the ball smaller. No harm will arise if the plants are kept close for a fortnight, or placed at the warmer end of the greenhouse. Much water should not be afforded the plants until re-establishment has taken place, but over-head fine-spraying is an advantage, and in very bright weather a little shade is necessary. [Always leave sufficient space above the ball for efficiently watering it; and if the plant should be stood on a solid floor, place thin pieces of tile or slate underneath, so that the water may drain freely away from it. If a plant have not very fine hair-like roots, sifted loam and charred earth may be added to the peat in small or large quantities according to the size of the plants. *Banksias*, *Eugénias*, *Acacias*, *Eucalyptus*, *Ficus australis*, *Melaleuca*, *Telopea*, *Casuarina*, &c., are amongst those which are benefited by a modicum of loam in the compost. Ed.]

FUCHSIAS.—The present is a good time to put in a batch of cuttings of Fuchsias, which will make most useful plants for furnishing the greenhouses and conservatory during the autumn months, growing them in pits or frames until June where they will not have the direct rays of the sun. The soil for these early plants should be rich and free, and contain more and more loam the older they get; and the potting and repotting must be done firmly, giving at the same time good but not excessive drainage. Rapid yet compact growth is what is wanted, bushiness being secured by constantly stopping side shoots and occasionally the leader.

IVY-LEAVED PELARGONIUMS.—Cuttings struck in the autumn should now be shifted into larger pots, using a good turfy loam, with a liberal addition of rotten manure and sand, potting firmly, and affording them no water till the roots have taken well to the new soil. Stop the shoots occasionally, so as to form the foundation of the future specimens. These plants are well adapted for basket culture, placing two or three varieties in one basket, in which way they look much better than if each basket were filled with the same variety.

PETUNIAS.—Young plants of the double and single varieties of Petunias which were struck from cuttings last autumn, will now be ready for potting off into 4 or 6-inch pots; good loam, rotten manure, and a liberal supply of sand will be found a good compost for them. These plants are useful subjects for market; the single varieties being, perhaps, preferable on account of their free-flowering properties. After they are potted, keep them a little

warmer than ordinary greenhouse plants for a few days, but in all cases let them have as light a position as possible, but not direct sunlight, as when they are exposed much, it is difficult to get the plants to make the required amount of growth, owing to their free disposition to bloom. *R. Milner, Penrice Castle, Swansea.*

FRUITS UNDER GLASS.

PINE-APPLES.—With increasing warmth, the plants will be getting active, and a moister air must be afforded them, also a little more water at the root, and occasionally liquid manure, that is, to fruiterers. Keep the bottom-heat quite steady, at about 90°, remembering that a fluctuating warmth often causes deformed fruit. Watering must be carefully done, too, and no plant watered that does not need it. The examination of the plants should take place twice a week, and if water is found in the axils of the leaves, the syringing should cease for a time, and the bed only be damped. Fruiterers, if robust, should have a night temperature afforded them of 75° if the weather is mild, and 70° if frosty or when windy. Pine pits are always best when the glass is covered at night with Frigi Domo or mats. As the sun gains power, a shading of tiffany during the brightest part of the day will become necessary. Shut up the pits early in the afternoon, the temperature being then allowed to run up if it will to 100°, all surfaces being thoroughly damped. If scorching of the leaves of young plants occurs in April, coat the glass with thin whitewash.

SUCCESSION PLANTS, ETC.—These should be kept at 65° to 68° at night with a 10° rise by day, in a moist atmosphere, and once in ten days guano-water, or a mixture made of soot and sheep-dung, or other liquid manure applied in a warm state. Pot the suckers, and plunge them in bottom-heat of 90°, giving no water for ten days or a fortnight, and then water them if they require it, not otherwise. If any of the succession plants are in an unhealthy state, repot and water them sparingly till fresh roots are made. The temperature for Pine suckers may range from 65° at night to 70° to 75° by day. The repotting of all fruiterers and successions should be finished by this date.

PEACHES AND NECTARINES.—Disbudding should get daily attention, taking foreright shoots first, and then the fruit may be thinned, although many gardeners leave the thinning of these to a later period; but it does not seem to me to be necessary to do so, as it robs the trees of strength when all the fruit that is set is allowed to remain for so long a time, and if the set is a good one, the evil is very great. In thinning the fruit, leaves sufficient for loss during stoning, and other mishaps. Much of the dropping complained of is caused by leaving too many fruits at first. Many growers thin the blooms, a good plan with those varieties that are free setters. Crowding of shoots should be foreseen and avoided. Fumigate the houses in dull weather, if much fire-heat is made use of, and keep a moist air in them in bright weather, syringing the trees twice daily. The borders in the early house may be watered with warm liquid manure and clear water, and mulched with strawy stable litter. The early house may be kept at 60° at night, with a rise of 10° by day, the syringing of the trees being omitted in the afternoon in dull weather, and the foliage always allowed to get dry before nightfall. Trees in late houses, and now coming into bloom, will require the same kind of treatment as that advised for those in the earlier houses, except that there should be more syringing of the floors and stems of the trees, and a thorough watering of the borders with tepid water when the fruit has set.

In the latest house, the ventilators may be kept open continually, and the borders in a healthily moist state. Should greenfly appear, fumigate with tobacco.

ORCHARD-HOUSE.—In a mixed house the trees often flower at irregular intervals, and it is advisable to maintain a temperature so low that they shall not be much excited, and when they come into flower a compromise must be made with the different varieties, and all extremes of temperature should be avoided. When the fruit has set it is often necessary to fumigate the houses, to destroy the aphids, on three or four evenings in succession. Ventilation is of much importance in a mixed house, and after the flowers begin to open, some air should be admitted, even in damp weather, if a little heat is afforded by the pipes. The disbudding of pot trees should be kept well in hand, and some of the blossom should be removed when very abundant. Keep the soil healthily moist,

and avoid having the surface of it wet, and the middle dry, or the blooms will drop. *G. Wykes, Syon House, Brentford.*

THE ORCHID HOUSES.

THE CATTLEYA HOUSE.—*Cattleya Trianae* will now be at about its best, and those growers who reside in country districts distant from smoky towns will do well not to allow the flowers to remain too long upon the plants, as it is a source of much evil to these and other Orchids. It is not unusual for *C. Trianae* to last in flower six or eight weeks, but the plant will suffer in consequence, and I prefer to remove the flowers after they have been open for a month, or even less, if the plants are not strong, placing the flowers in tubes containing water, which may be stuck about in the sphagnum, and where they will last for a considerable time.

Lælia autumnalis will now be rooting freely, and as soon as this is observed, the plants should have a small quantity of sphagnum moss and sand placed round about them for the new roots to ramble in, and this may be kept merely moist, but not wet, until the growths have become thoroughly active. The same remarks will apply to *L. Gouldiana* and *L. alba*. These plants are sometimes grown too cool, and the pseudobulbs, consequently, do not attain to their proper size, and the flowers are small. The growth has to be made in a short space of time, and I make it a practice to take the plants into the Dendrobium-house to make up their growth during the summer months, removing them to the *Cattleya*-house when the flower-spikes are 6 inches in length. I would here say that I do not advise the removal of the plants into strong heat until the new growth is at least 1 inch long. Those *Lælias* above named root freely and precociously, and swell up the old pseudobulbs that may have been shrivelled after a previous flowering, but they fail to make any new growth unless the same is assured before placing them in strong heat. The same thing will occur even when they are grown quite cool. Should any plants of *Lælia anceps* or its varieties, white or red, have been untouched when the general repotting and surfacing was done, these should be taken in hand forthwith, the young roots of these species being like those of *Cattleyas*—exceedingly brittle. *Cattleya Skinnerii* is a delicate plant, being a late grower, and the pseudobulbs in consequence seldom finish up before Christmas, rendering the proper ripening of the same rather difficult, and flowering uncertain. The only method that I have found satisfactory in making these plants throw up their flower-spikes is to keep them dry at the root, but care must be taken, for what will make the plant bloom freely and without doing it the least harm in one case, may prove almost fatal in another. For instance, a plant that has been in the same pot for two years, and has made good growth, will not suffer much by being kept dry for a considerable period of time, whereas a plant that is not well-rooted into the potting materials and become firmly attached to them, would be much injured if kept dry at the root, and but little bloom would be obtained from it. The temperatures may remain for the present as given in my last Calendar. *A. G. Catt, Parkfield, Hallow.*

THE FLOWER GARDEN.

PRUNING ROSES.—Judging from reports, and remarks made in last week's issue of the *Gardeners' Chronicle*, p. 341, it would appear that, in many districts, Roses have been injured by frost and the general severity of the past winter. Where Roses are much hurt by frost, more than ordinary skill will be needed in pruning, and before beginning, an examination of the shoots should be made of all climbing kinds and Teas, as these will be the greatest sufferers; the breaking of the buds will now show where the living parts are, and they will form a safe guide to the pruner. Banksia Roses require at this season a thinning of the strong shoots, all twiggy growths being left untouched, as it is these which bloom. In dealing with climbers, select the medium-sized and best situated shoots, and do not shorten them beyond removing the unripe points, their habit being to bloom from most of the buds on such growths, especially *Maréchal Niel*, *Gloire de Dijon*, *Solfaterre*, *William Allan Richardson*, and others of that class. The shoots should be secured to the wall or fence in a neat, easy manner. With Teas, just the reverse must be followed, choosing the strongest wood, and pruning away all weak and dead shoots. Tea Roses may appear to be hard hit, but it generally will be found, if they have had any protection at all, that they will break back at the collar.

In pruning hybrid perpetuals, choice should be made of the strong growths, but the distance from the base at which they should be cut depends entirely upon whether many or few blooms be required, and if the latter so as to be fine and large, then about three buds will be sufficient; but if it is desired to have a good show in the beds, the plants must have more head, and it is a good plan in flower-gardens to leave the best shoots at full length, and peg them down, so that when they break, they will cover the whole of the ground. With the pruning complete, the beds should be forthwith forked over without touching the roots, mixing in, as the work proceeds, some short, well-rotted manure, or placing it on the surface after the forking is done.

BORDER PLANTS.—For borders in front of shrubs, few plants are more attractive or suitable than the Hollyhock, which should always have a place in them, and be planted either singly or in small groups of three, seedlings being quite good enough for the purpose, as they are generally less double and formal than the named kinds; and should the disease take them, the loss, in a pecuniary point of view, is not great. To grow Hollyhocks well, the soil must be deep and rich, and therefore before planting them, the sites should be prepared by digging deep holes and working into them rotten manure. The tall Delphiniums are also grand subjects for border work, and the positions for them should be made ready in precisely the same way as for the Hollyhocks, and the plants inserted at once. Any that are large, and have stood long in one place, will be all the better for dividing and removal to fresh ground, as, like most strong-growing perennials, they soon exhaust the soil unless free top-dressings are used.

BEDDING PLANTS.—These will now require constant attention, in order to work up a stock of any kind that is deficient in numbers, and to pot on and forward as fast as possible all such as are small, as the display one is able to make by-and-by depends greatly on the size and strength of the plants when put out.

DAHLIAS.—These roots should be started, either by potting them singly or partly burying them together in leaf-soil or light mould in boxes, and placing them where they can feel a little heat, when the crowns will soon break, and yield short shoots for cuttings, if such are wanted. These strike best if slipped off with a heel, and potted singly in sharp sandy soil in small pots, and stood where they can be kept warm and close for a time.

CANNAS.—The better way of treating Cannas is to divide the roots before starting them, after which they may be packed closely together in light mould in any warm place, and there brought on and kept till the time comes for hardening them off in early May. *J. Sheppard, Woolverstone Park, Ipswich.*

THE KITCHEN GARDEN.

THE recent snowfall arrested all planting and seed-sowing for a time. When the ground again becomes workable, Parsnips, Onions, Cabbage in variety, Brussels Sprouts, and Lettuce, may be sown, the latter in boxes or in cold frames, using above the natural soil of the garden some kind of light compost, but not peat.

Continue to prick off seedlings raised in heat before they become spoilt by overcrowding, which nothing whatever will remedy afterwards. The plants should stand, when pricked out, sufficiently wide apart to avert any spindling of growth whilst they remain in the beds; and as growth differs considerably with each kind of vegetable so treated, no precise rule can be laid down. For Lettuces, Onions, and plants generally, whose leaves do not spread widely, 2½ to 3 inches is about the proper distance, whereas Cabbage, Cauliflower, and the like, and Celery, should be put out at 4 inches apart. Neglect of pricking out often leads to "bolting" and "but-toning," as the case may be.

PLANTING.—Those Cauliflower plants which have been wintered in frames may now be transplanted, carefully keeping as much soil as possible hanging to the roots. They may be planted between the rows of Peas, at 2 feet apart, or in a quarter by themselves which has had the soil properly prepared. Use a trowel in planting, and make the soil moderately firm about the roots. Flower-pots are the best things to use to protect these plants from frost, if they are removed early in the morning. Those Cauliflowers which were raised in heat should not be planted before the second or third week in April.

Plantations of Lettuce which have stood the winter,

should have the gaps in the rows made good with plants from the seed-beds, or with such as have been wintered in frames. The soil of the whole bed should be made firm by treading it, and kept free of weeds. Plant out those wintered in frames in beds by themselves, selecting a warm aspect for the beds. As these plants should be taken up with what earth will hang to the roots, they should be planted with the trowel in rows 1 foot apart each, and if the soil be of a light nature, it must be made moderately firm by rolling or treading it.

ONIONS.—Those raised in heat should now be pricked off into boxes at 3 inches apart, the boxes being filled with a compost consisting of good loamy soil, leaf-mould, and manure which has been passed through an inch-meshed sieve. Care should be taken in pricking off not to injure them in any way. Put the pans or boxes near to the light, still in gentle heat, and keep them there until well established, afterwards placing them in cold frames.

SEED SOWING.—Sow the main crop of Celery in pans or boxes filled with fine light sandy soil and leaf-mould, and water the soil a few hours before sowing. Cover the seed very lightly with fine soil, and place in a temperature of 60° until growth takes place, when removal to a cooler place near the glass becomes necessary. Clark's Red, Standard Bear, White Gem, and Cutbush's Crystal White are good varieties to grow.

VEGETABLE MARROWS.—Seeds may now be sown singly in 60's, filled with light soil; for fruiting in pits or pans. Put the pots in gentle warmth, and when the seeds have sprouted put them on a shelf near the glass. They may be planted out when a pair of true leaves are made. Early crops of Marrows are best obtained in a hot-water pit, and a bed of fermenting materials for bottom-heat. As only a mild heat is required, the bed may consist chiefly of tree-leaves. A layer of rich loam, 6 to 8 inches thick, should be put over this. Give air freely when it is warm, and treat the plants like Cucumbers until warm weather sets in, and do not give much water at the root at first. *C. J. Waite, Glenhurst, Exeter.*

THE APIARY.

IN those districts where fruit blossom is depended on to give the first surplus honey, it is now time to commence to stimulate stocks to increase to their full strength, so that supers can be put on at the earliest indication of a honey flow from this source. Where bees have been given a proper quantity of food in the autumn, it saves much labour in the way of spring-feeding, for all that is then necessary is to bruise the cappings of a few cells every two or three days, which incites the bees to put forth their energies to their greatest extent. Should feeding be necessary, thin syrup made in the proportion of 10 lb. white loaf sugar to 7 pints of water and boiled for a few minutes, may now be given warm in a graduating bottle feeder, at the rate of about a quarter of a pint a day. The supply must be regularly kept up till natural food comes in from outside. Candy, to which pea-flour has been added, is also very stimulating, and is less trouble than syrup feeding, as a cake can be put in and renewed when required. Another plan is to feed with Porto Rico sugar: this is placed in a feeder, an inch wide inside, the shape of a "dummy," and is hung next to frame containing brood. The bees get in through a quarter-inch opening at the top, and work downwards, so that none is wasted. This feeder holds about three pounds, which lasts some long time; and a quarter to a half-pound of Pea-flour, as a substitute for pollen, may be mixed with this quantity of sugar if desired. For all manipulations so early as this, it is important to use carbolic acid instead of smoke; it does not excite the bees nearly so much, with the result that queens are not so likely to get balled or killed, a frequent occurrence at this season, and it deters robbing. The best way to use the acid is to make a solution in the following proportions: 1½ oz. Calvert's No. 5 carbolic acid well mixed with the same quantity of glycerine, which add to a quart of warm water. A piece of calico the size of the top of the hive, is damped with the solution, and is slipped over the frames as the quilt is peeled off; a pickle-bottle with a wide mouth is a good thing to keep the mixture in, and if the rag is kept in an air-tight tin-canister it will not require damping every time it is used. Spreading brood has, fortunately, gone out of favour, as it has no doubt been the cause of much mischief in the past by reason of our variable climate. Willows will now be yielding pollen freely, and Furze will soon be in full bloom. *Expert.*

EDITORIAL NOTICE.

Advertisements should not be sent to the Editors but to the Publisher.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, MAR. 24. Royal Horticultural Society's Committee and Lecture on Hardy Bulbs and Plants.

SHOWS.

WEDNESDAY, MAR. 25—Glasgow and West of Scotland.

THURSDAY, MAR. 26—Paisley (two days).

FRIDAY, MAR. 27—Falkirk.

SALES.

MONDAY, MAR. 23. Carnations and Bulbs, at Protheroe & Morris' Rooms.

TUESDAY, MAR. 24. Orchids in flower, at Protheroe & Morris' Rooms.

WEDNESDAY, MAR. 25. Lilies, Roses, and other Plants, at Protheroe & Morris' Rooms. Trees, Shrubs, Roses, Liliums, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—44°.

The Scientific Aspects of Gardening.

IN a recent article we gave the substance of a communication from a veteran nurseryman on the past and present condition and results of gardening, with some comments of our own. Connected therewith, it cannot be denied that there have been great advances in gardening for pleasure, in gardening for utility, and in gardening for instruction, even though preternaturally big Cockscombs and Balsams are not in vogue now, and, what is really to be deplored, the cultivation of the beautiful hard-wooded plants of the southern hemisphere is in a manner almost a lost art. Still, if hard-wooded plants were in demand, our gardeners would grow them, and would in time, for time is required, equal if not surpass anything produced by their predecessors. Orchids now occupy the first position in numerous establishments, and it is no exaggeration to say that where one man understood the cultivation of these plants forty years ago, forty understand their cultivation at the present day. Comparisons of this kind might be repeated, but that is not our object. The question is whether, on the whole, more knowledge is brought to bear on gardening operations; knowledge of the processes of plant nutrition, and of the conditions most favourable to germination and growth? The answer to this question is undoubtedly in the affirmative, for, although many gardeners, now as ever, are successful cultivators without possessing any knowledge whatever of biology, and although many well-informed, and at the same time thoroughly practical gardeners, have to proceed experimentally with some plants that they have not previously had under cultivation, there is no doubt that accumulated knowledge, whether of practical gardening alone, or of practice and theory combined, is the secret of success. Further, there is no denying the facts that, science and practice combined, beat practice alone; and that practice alone has a decided advantage over mere book learning. A sound knowledge of physiology and chemistry will no more make a good gardener than a knowledge of anatomy will make a good surgeon—that is, a successful operator; and after all, much more is often accomplished by the intelligent application of a little knowledge, than by persons having great pretensions to what is called scientific or exact knowledge. This is so true, that it seems almost

superfluous to insist upon it; but men are not all reasoning beings.

Coming back to the main question, is science utilised to the extent it should or might be? the answer would be in the negative. Science has doubtless much more in store for us. The matter has been discussed over and over again, yet there is always something left to discuss, to say nothing of re-discussion. In a "holiday speech" delivered by Dr. KNY, in the Berlin High School for Agriculture, in celebration of the German Emperor's birthday, the speaker took the words at the beginning of this article for his text. After referring to the cultivation of fungi, bacteria, algo-lichens, and other microscopic organisms, as outside the scope of practical gardening, Dr. KNY brought his science to bear on every-day work in the garden. The extinction of the topiary art was a subject for congratulation, and the still flourishing carpet-bedding a subject for condemnation. Not that the shears and pruning-knife were to be thrown aside altogether; but tasteful grouping of plants was to take the place of the unnatural crowding, to form something as nearly approaching the pattern of some woven fabric as possible. Coloured gravels and sand were also to be excluded. With much of Dr. KNY's speech we most cordially agree, though we think that there is room in this world for artificial as well as for natural gardening. He dealt more especially with the objects to be kept in view in public gardens, claiming that to afford instruction as well as recreation was the duty of the directors of these grounds, and that examples of bad taste should not be tolerated. Everybody accepts this dictum, yet tastes differ.

The speaker then referred with pride, and at considerable length, to recent changes in the Berlin Botanic Garden, especially to the arrangement of the hardy plants according to their geographical distribution over the surface of the earth. Nowhere else, he said, had the spectator brought before him so vivid a realisation, on so large a scale, of the floras of different regions, as in the Berlin Botanic Garden, which was, in a great measure, due to the present director, Dr. A. ENGLER. "The result was not only eminently instructive, but it afforded a sight of the first order, worthy of their great city."

If so much has been accomplished in so short a period in an old-established garden, what might be done with a fair start in a fresh field! Perhaps the arboreal part of the permanent vegetation of the garden happened to be singularly favourable to the successful carrying out of the geographical idea. At all events, it seems to have been thoroughly done, and on an extensive scale. A detailed description of these geographical plantations was contributed to the *Gartenflora* of last year by Dr. PAX, Curator of the garden, and it is claimed that even in this very early stage of their existence, the effect is a complete success, and one of the scientific functions of gardening—gardening for instruction as well as for recreation, has been practically realised. When we take into consideration the small area of the Berlin Botanic Garden—about 1100 ares, or a little over 30 acres, and that the operations connected with this re-arrangement were carried out during the winter of 1889–90, it is really surprising that so much has been effected.

The plantations illustrate:—1, the flora of the North American lake province, including Canada; 2, the flora of Atlantic North America; 3, the Prairie flora, as yet imperfectly; 4, the flora of Pacific North America; 5, the subarctic Siberian flora; 6, the European flora; 7, the

flora of Asia Minor. The Chino-Japanese flora is not included. The flora of Europe is naturally the best represented, as the existing mixed woods, Beech woods, and Pine woods, readily lent themselves to the purpose; and from Dr. PAX's description, it seems to have been so well done that we intend shortly to give some further particulars of this part.

OLEARIA LYALLI.—We have already in cultivation several species of *Olearia*, the best known among which is *O. Haastii*, which, even in London gardens, of the smokier sort, is a thing of beauty in autumn, from the profusion of its white flower-heads whilst its neat evergreen foliage is always attractive. *O. macrodonta* is less well known, but very distinct in its coarsely-toothed foliage. *O. Lyalli*, for the drawing of which we are indebted to Professor KIRK, of Wellington, New Zealand, is interesting, first, as being confined exclusively to Chatham Island, and next for its robust habit, bold leathery foliage, and rounded flower-heads, borne in simple terminal racemes. Sir JOSEPH HOOKER, who first described the plant in his *Flora of New Zealand* (1854), i. 116, and *Handbook of the New Zealand Flora* (1867), p. 125, speaks of it as a "noble plant."

ROYAL HORTICULTURAL SOCIETY.—At the meeting to be held on Tuesday, March 24, the flowers and plants exhibited will consist of Hyacinths, Tulips, Narcissus, Orchids, &c., and fruits and vegetables. A lecture on hardy bulbs and other plants will commence at 3 P.M.

LINNEAN SOCIETY.—At the meeting of the above society, held on Thursday, March 5, Prof. STEWART, President, in the Chair, Captain T. KEENE was admitted; and Messrs. T. B. CATO and E. NORMAN LANGHAM were elected Fellows of the Society. Mr. D. MORRIS exhibited a dwarf species of *Thrinax*, which he found growing plentifully in the Island of Anguilla, West Indies, and which was apparently undescribed. Mr. T. CHRISTY exhibited the fruit of some undetermined species of tree, which had been introduced into commerce by the name of *Monchana*, but the origin of which had not been ascertained. On behalf of Miss E. BARTON, Dr. D. H. SCOTT gave the substance of a paper communicated by that lady, and entitled "A Morphological and Systematic Account of the Fucaceous Genus, *Turbinaria*."

DRESSING ORCHID FLOWERS.—At a recent flower shower, an instance of this was to be seen. We had, hitherto, thought that Orchids were free from this tampering. The plant in question was *Dendrobium nobile* Cooksoni, in which the petals show an approach to the lip in form, and are almost exactly the same in the colouring, giving a certain air of regularity to the flower. In this instance, the exhibitor thought it well to assist or improve on Nature, and so opened the lip, and reversed the direction of its side lobes.

GARDENERS' ORPHAN FUND.—We learn with pleasure that the Duke of BEDFORD has generously granted the use of the Wholesale Flower Market, Covent Garden, for the purpose of holding a Floral Fête this season in aid of the Gardeners' Orphan Fund, and a meeting was held at the Hummums Hotel, Covent Garden, on Friday, March 20, when the matter was taken into consideration.

THE "KEW BULLETIN."—The March number contains an article on Dammer gum-resin from New Caledonia, and one on the improvement of the Cotton crop in West Africa by the introduction of Egyptian Cotton. Orchid growers will be more interested in the full list of the Orchids which flowered at Kew during the season of 1890. No fewer than 766 species and varieties are enumerated—a number which will create some astonishment. The large number is accounted for by the circumstance, that not only showy Orchids are grown, but also representatives of as many genera and species, showy or not, as can be conveniently got together. In view of

the great interest felt in Orchids, it is highly desirable that the family be well represented at Kew, and that full advantage be taken of the present fashion to increase and consolidate our knowledge of the order and to preserve specimens, descriptions, and drawings for future reference. The largest number of species flowering in any one month was 125 in May, the smallest number eighty-five in January, the average for each month being about 100.

now cultivated at Kew is 1312, grouped in 158 genera. We note that in some instances a capital letter is used for personal names, in others not—a variation which is a little puzzling to gardeners.

WAGES AT KEW GARDENS.—The First Commissioner of Works (Mr. D. PLUNKET, M.P.), on Friday last, received a deputation appointed at a recent public meeting held at Richmond, with

treatment of the men engaged at Kew Gardens. Their case, however, had been stated rather too strongly. He promised to inquire carefully into all the circumstances which had been brought before him.

PROFESSOR OLIVER.—We are pleased to see that the University of Aberdeen has conferred the degree of LL.D. on this distinguished botanist, whose labours at Kew for many years were so fruitful, and whose knowledge was always at the service of those who sought his assistance.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We have much pleasure in announcing that at the annual dinner of this Institution, to be held on July 8 next at the Hotel Métropole, Whitehall, the Right Hon. JOSEPH CHAMBERLAIN, M.P., who was prevented through illness from occupying the position in 1888, has very kindly consented to take the chair.

SALE ROOM GOSSIP.—The catalogue of the Fernside collection to be sold by Messrs. PROTHEROE & MORRIS at their Great Central Rooms, on April 7 and 8, is the event of the hour. It is elaborately got up, and furnished with brilliantly-coloured plates of most of the best *Odontoglossums*. The charge for it is 1s., but the receipts under that head will probably not warrant a second edition. The rare things of the Ghyllbank collection are also advertised for sale by the Liverpool Horticultural Company's agency. The plants are parted with solely on account of the operations of large brickworks close to Mr. THOMSON'S Orchid-houses. There are some unique and beautiful specimens in the collection, and it is wise and merciful to give them a chance in more salubrious quarters. The Rawdon Hill collection, sold at Messrs. PROTHEROE & MORRIS' Great Central Rooms, on March 17, went as well as could be expected, seeing that although the plants were generally in good health, some of the rarer specimens had been over-nursed, and were of a very bad colour. Thursday's sale, March 19, at Mr. J. C. SREVEN'S Rooms, King Street, Covent Garden, had a very fine lot of the new *Cattleya Warocqueana* from l'Horticulture Internationale, Brussels, including a part of the fine white variety of it, which recently flowered in Belgium.

DRAWING-ROOM BOUQUETS.—According to our contemporary *The Star*, the freshest and most graceful bouquets held by ladies attending the Drawing-room at Buckingham Palace, were composed of various blossoms, loosely mounted, and finished off with long ribbon or grass streamers. The Duke of WELLINGTON'S great niece, Mrs. WELLESLEY, is the latest addition to the lady shopkeepers of London, and her flower shop is full of new and pretty designs. She believes in encouraging native enterprise, and prefers selling English flowers to those grown on the Riviera.

"DIE HYPOGAEN DEUTSCHLANDS."—Under this title, Dr. RUDOLPH HESSE is publishing in parts a monograph of the species of *Truffle* found in Germany. The development, anatomy, and morphology of the plants are treated of, and directions are given for finding and collecting them. Coloured plates are given of the various species. The work is published at Halle, by LUDWIG HOCHSTETTER. The work is indispensable to all students of these interesting plants.

THE BIRMINGHAM GARDENERS' ASSOCIATION.—At the meeting of members on the 9th inst., Mr. J. H. LAING, of the Stanstead Park Nurseries, Forest Hill, gave an interesting record of his American trip in August and September last, to the Boston Convention of American Horticulturists, and in his visit to many of the leading horticultural establishments in the districts of New York, Boston, Philadelphia, and other places in the States. Table decorations in America are general, and frequently most elaborately done, and Mr. LAING seems to have been much struck with them. Thirty acres of



FIG. 82.—OLEARIA LYALLI; HARDY OR HALF-HARDY EVERGREEN SHRUB. REDUCED ONE-HALF.
(SEE P. 368.)

Among the more noticeable genera representatives of which flowered last year, there were sixty-nine species of *Dendrobium*, fifty-three of *Masdevallia*, thirty-one of *Cœlogyne*, forty of *Oncidium*, twenty-eight of *Odontoglossum*, twenty-four of *Cattleya*, and thirty-eight species (excluding hybrids), of *Cypripedium*. *Cypripedium longiflorum*, *Masdevallia pulvinaris*, and *Odontoglossum crispum* might have been seen in flower through the entire year. The total number of species of Orchid

reference to the wages paid to the constables and labourers in Kew Gardens. The deputation was introduced by Sir J. WHITTAKER ELLIS, M.P. Mr. PLUNKET, in reply, said he had the greatest sympathy with any poor men who were justly discontented with their wages, or who were hardly dealt with. But it should not be forgotten that he had to answer in the House of Commons to the taxpayers of the country. He agreed that there ought to be nothing shabby or unfair in regard to the

Gladioli in one nursery establishment, Mr. ALLEN's, of Long Island, in full bloom, must, as he observes, have been a "gorgeous sight." Mr. LAING spoke in warm terms of the high state of horticulture generally in the United States, and the very hearty reception he met with everywhere.

FLOWERS FROM LEAVES.—M. CASIMIR DE CANDOLLE has lately studied several cases of so-called epiphyllous inflorescences, in which the flowers are borne on the upper or lower surface of the leaf. The explanation usually given of such cases is that there has been an adhesion, or more strictly, a want of separation, between the flower stalk and the adjacent leaf—that the two have, in consequence, grown together. But from the relative position of the stipules, when present, as well as from the anatomical structure, M. DE CANDOLLE concludes that the inflorescences in question are real outgrowths from the leaf and not axillary shoots conscript with the leaf. These cases, with other considerations advanced by M. DE CANDOLLE, show once more that the distinction between stem and leaf, or caulome and phyllome, is purely arbitrary.

C. S. RAFINESQUE.—Mr. MEEHAN has, in the public press of Philadelphia, rendered justice to the memory of this botanist. He went to the United States in or about 1802, and died in Philadelphia in 1842. Owing to certain peculiarities, his botanical labours were not highly valued by his contemporaries; indeed, he was looked on by some of them as a literary madman. Alluding to some 562 imperfectly described species launched by various authors in three volumes of the *Prodromus*, and designated by DE CANDOLLE as botanical enigmas, RAFINESQUE has the credit or discredit of twelve, which is not a very large number after all. More serious is the fact that four doubtful genera are attributed to him. It must be remembered that errors or enigmas of this character remain for ever. In a literary work, or in many departments of science, if an error be made, it is soon forgotten in the advancing tide, but in matters of classification these enigmatic names turn up to worry each successive monographer, who must, at least, take note of them, and in many cases must, at least, endeavour to unravel the perplexity if he has the chance. In many respects, however, RAFINESQUE seems to have been in advance of his age; he was a great advocate for the adoption of the natural system at a time when the Linnean system held sway, and he taught what was heresy at the time, but which is accepted doctrine now that "new species and genera are continually produced by derivation from existing forms." His will, which is dated May, 1833, is a lengthy document, but does not indicate any mental derangement, though he evidently thought, with what reason we do not know, that he had been wronged.

ROSE SHOWS IN 1891.—We append the following list of Rose shows, kindly sent by Mr. E. MAWLEY, to supplement the one given by us in an earlier issue. June 27 (Saturday), Eltham and Reigate; 30 (Tuesday), Diss. July 1 (Wednesday), Bagshot, Brighton—two days, and Brockham; 8 (Wednesday), Dursley, and Tunbridge Wells; 9 (Thursday), Bath and Woodbridge; 11 (Saturday), New Brighton; 15 (Wednesday), Ealing. The following Mondays are, as yet, altogether unrepresented:—June 29; July 6, 13, and 20, also Wednesday, July 22. Fridays, June 26; July 3, 10, 17, and 24; and Saturday, July 11. The next list of Rose show fixtures will appear early in April.

"PLANTÆ EUROPEÆ."—Under this title, Dr. RICHTER is preparing a complete enumeration of the wild plants of Europe, together with their synonyms, and indications of the countries whence they come. The first volume now before us begins with the Conifers, and passes on to the Monocots from grasses to Orchids. As a book of reference, this will be exceedingly valuable. Of course, there is plenty of room for difference of opinion. To give one illustration. *Pinus peuke*, of GRISEBACH, is entered as a synonym of *P. excelsa*. At one time, no doubt,

when material was scanty, and the plant had not been seen in growth, the Albanian plant was considered identical with the Himalayan species; but as further material has accumulated, and the trees have been grown together, side by side, it is no longer possible to consider the two as conspecific, though they are sufficiently alike to justify the conjecture that they may have been derived originally from one stock. Had Dr. RICHTER consulted the figures and descriptions given in these columns of the two plants, he probably would not have combined the two. By the way, the indication (Asia) as the habitat for *P. excelsa* is not a little vague. The Silver Fir becomes *Abies alba* of MILLER, and *A. Nordmanniana* is referred to it as a synonym. We should have preferred to rank it as a variety. Similarly *Abies numidica*, which is ranked as a variety of *A. Pinsapo*, is quite distinct enough to rank as a species. But these are matters of opinion, and it is not to be expected that the compiler of such a book as this should verify the synonyms of the plants he is called on to marshal. Dr. RICHTER has undertaken a work of great importance, and we sincerely wish that the patience and care he has expended on this volume may be continued in those that are to follow. The book is published by ENGELMANN of Leipsic, and may be had from WILLIAMS & NORGATE.

THE VISIT OF THE TENANT-FARMER DELEGATION TO CANADA.—The delegation, comprising twelve gentlemen connected with the landed interest in the United Kingdom, which visited Canada last autumn by invitation of the Dominion Government, has now issued its report on the agricultural resources of the country, and its suitability as a field for the settlement of agriculturists and others. The inspection of the various provinces appears to have been both thorough and complete, and the experience and recommendations of the delegation cannot fail to be of interest, both to those who may contemplate emigration and to those who are interested in the growth of this important part of the British Empire. We understand copies of the report are to be had, free of charge, on application to the office of the High Commissioner for Canada, 17, Victoria Street, London, S.W.

THE STORM IN THE WESTERN COUNTIES.—Great havoc has been wrought at the country seats of gentlemen in the neighbourhood of Plymouth. In Mount Edgcombe Park, the seat of the Earl of MOUNT EDGCOMBE, many magnificent trees have been torn up by the roots. In the plantations between Cawsand and Penlee, hundreds of trees lie prostrate. At Warleigh Wood at least a thousand trees have been destroyed, the wind making almost a clean sweep of it. Cotehele House, Calstock, another seat of Lord MOUNT EDGCOMBE, also suffered considerable damage, and hundreds of fine trees surrounding the house were either torn up by the roots or snapped off short. The rookery in front of the house was levelled. At Maristow, the seat of Sir MASSEY LOPES, the storm did almost irreparable damage. The grounds are described as being a scene of desolation. A beautiful avenue of Lime trees, about sixty in number, are all down, and there is scarcely a tree or shrub which is not either levelled or mutilated.

THE CAULIFLOWER DISEASE OF THE STRAWBERRY.—Great progress has been made of late years by those who have followed in the wake of Dr. BASTIAN, and studied the so-called "eel-worms." Almost weekly our attention is called to some new, or rather previously overlooked, case of the kind. One of the most recent instances is the discovery by Dr. RITZEMA BOS, a Dutch naturalist, of a creature of this description, which causes much damage and distortion in the Strawberry. In Miss ORMEROD's fourteenth report, just published by SIMPKIN, MARSHALL & Co., is an account of this pest, together with figures taken from the papers of Dr. RITZEMA BOS. As the pest has made its appearance in the Strawberry fields at St. Paul's Cray, it may be looked for elsewhere. Affected plants should be burnt as

soon as possible. Ammoniacal and alkaline manures, such as sulphate of potash, 3 cwt., and sulphate of ammonia, 1 cwt. per acre, have been found useful at Rothamsted in the case of Clover, and may be serviceable for the Strawberry also.

LONDON PURPLE AND PARIS GREEN.—In the fourteenth report of Observations on Injurious Insects, just published by Miss ORMEROD (Simpkin, Marshall, & Co.), is a useful summary of the experiments made at Toddington and elsewhere of these substances as insecticides, and on the use of various kinds of spray apparatus.

"HAMBURGER GARTEN ZEITUNG."—Dr. EDMUND GOEZE, the Inspector of the Botanic Garden at Griefswald, has retired from the editorship of this journal, which is now conducted by Dr. KLATT.

SOUTH SHIELDS CHRYSANTHEMUM AND WINTER FLOWER SHOW.—We are informed that an attempt will be made to resuscitate the above show, and, we hope, with success. The last exhibition was in 1884, and amongst the reasons for giving it up was the small size of the hall in which shows were held, and the death or removal of several of its chief supporters; but, thanks to the private enterprise of Mr. F. M. LAING, the Royal Assembly Hall has been built, which is well adapted for exhibition purposes. The committee of the Society met on Friday, the 13th inst., when it was resolved unanimously to hold annual exhibitions again. J. T. Eltringham, Esq., was elected President; T. G. Mabane, Esq., and Mr. Wood, Vice-Presidents; Messrs. Graham and Hope, Treasurers; and Mr. Bernard Cowan, Secretary, and Mr. H. Hinde, Assistant-Secretary. The Society this year intend offering £100 in prizes.

THE HIGHGATE HORTICULTURAL SOCIETY.—The thirty-first annual general meeting of this Society was held at Highgate Literary and Scientific Institution on the 6th inst., Mr. A. J. REYNOLDS, the President for the past year, in the chair. In his report for the past year, the President alluded to the loss incurred by the heavy downpour of rain on the show day, which resulted in the smallest amount of gate-money they had ever received, viz., £12 14s 3d., notwithstanding which the finances of the Society were still in a satisfactory condition, and the balance in hand was £80 17s. 3d. The various classes of foliage plants, fruits, and vegetables were well filled, and the display of flowers and plants was very good. The show this year will be held in the grounds of Holly Lodge, kindly lent for the purpose by the Baroness BURDETT-COUTTS.

THE ROYAL WESTERN HORTICULTURAL SOCIETY.—We gather from the *Western Daily Mercury*, that this old Society is to be resuscitated under new, and it is to be hoped more favourable auspices, with its headquarters at Plymouth, and Mr. F. J. WINTER WOOD officiating as its honorary secretary. It had long been mooted, and the necessary financial impetus was afforded by the £100 allotted by the Royal Show Local Fund.

LIVERPOOL HORTICULTURAL ASSOCIATION.—The last but one of the papers on horticultural subjects to be read in the session of 1890-91, was given by Mr. GLOVER, steward to Sir A. B. WALKER, Gateacre Grange, on the 7th inst. Mr. GLOVER took for his subject *Dendrobiums*, giving names of species and varieties, best methods of culture, and general management, his remarks being highly appreciated by the large gathering of members present.

ODONTOGLOSSUM ROSSII ALBENS.—Two charming sprays of a very close approach to the typical form of this come from the gardens of Thos. L. CATER, Esq., Clifton Park, Birkenhead, who remarks on its delicate beauty. The flowers are white, with pale brownish-green freckling on the sepals, and two or three similarly coloured spots merging into one at the base of each petal, so close to the column as to be almost out of sight in a

general view of the flower. The crest of the lip is lemon-yellow. It belongs to the majus form of (*O.*), *Rossii*, and is one of its rarest and most attractive forms.

ROYAL APPOINTMENT.—Messrs. WILLS and SEAR, of South Kensington, have had the honour of receiving the Royal Warrant, dated March 10, appointing them Florists and Bouquetists to Her Royal Highness the Princess of WALES.

CUPRESSUS LAWSONIANA VAR. ERECTA VIRIDIS.

THIS is one of the handsomest spiral trees (fig. 83) that I know for single plants on lawns or for the side of terrace walks and the centres of beds, and a very hardy and free grower, and it will thrive in almost any kind of soil; and the beautiful pea-green colour of its foliage makes good contrast with that of most other trees. It is a plant readily propagated from cuttings put into pots of sandy soil, surfaced with sharp clean sand, and placed in heat. Cuttings will also strike if put into cool frames; and I struck a fine lot in a border under a north wall. I cut a trench 5 inches deep, put the cuttings into it, filling up the trench with sand, and then made them quite firm. October is the best time to put in cuttings, and nice little plants are made in about twelve months from that time. *Wm. Smythe, Basing Park, Alton.*

HOME CORRESPONDENCE.

SEEDLING MELONS.—Another Melon, which has the merit claimed for Sutton's Monarch, is the *St. Blaise*, which was sent out by Messrs. Daniel of Norwich. It ripens later than other sorts, and will keep in a dry room for a long period, and retains its fine flavour. In fact, the name, I believe, was bestowed on it for its admirable adaptation for growing for the shooting season, when gardeners are often at a loss for a supply of Melons. Seedling Melons ought never to be sent out without being isolated for two years previously, no other sorts being cultivated in the same house. It is very annoying to buy a packet of seeds, every one of which comes up different, or in which the type does not seem fixed. *C. A. M. C.*

ORIGIN OF STIRLING CASTLE PEACH.—Mr. Carmichael's account of the origin of this Peach (p. 244) is no doubt perfectly correct, and the only point on which there may be a difference of opinion is the date of its origin. Having lived at Dunmore for several years as foreman, and in that capacity having had charge of the "old tree," I took some pains to trace its origin, and in giving 1822 as the year it was raised, I do so on the authority of the late dowager Countess of Dunmore, who had a label attached to the tree on which was written the following inscription:—"Original Dunmore Peach, syn. Stirling Castle, raised at Dunmore, 1822; gardener, John Taylor." The tree itself, from its immense size and girth of trunk, fully bears out the fact of its being raised in 1822, and I would ask Mr. Carmichael if the tree was not an extra large one when he took charge at Dunmore? If this Peach was raised in 1840 (see editorial note, p. 309), it could not have been raised—as Mr. Carmichael says, and as I believe it was—from a stone sent from America to George, a late Earl of Dunmore, because Earl George died in 1836. If the tree is dead, it must have died very recently. I hope this correspondence may be the means of drawing the attention of growers to this fine Peach, which, although, perhaps, not quite equal to *Noblesse* or *Grosse Mignonne* in flavour, is, taking it all in all, second to none in cultivation. *Alex. Miller, Reed Ashton Gardens, Trowbridge.*

THE WEATHER AND ITS RESULTS IN CORNWALL.—We have passed through the coldest winter that the oldest inhabitant of this part can remember, and it is not yet at an end. At the present time we are snowed up, and the cold is very great, the usual mildness of Cornwall having been exchanged to northern rigour. The Broccoli crop, which so many get their living by in this part, is almost a failure; and, unless the Potato crops, which are now planted,

turn out well, a great many of the market gardeners will be made bankrupt. *J. Maears.*

GREASE BANDS AND THE WINTER MOTH.—As we are about to take off the greased bands from our fruit trees, the time has come for a note on their results. At Oakwood, where the winter moths have in past years been a real plague, we have this season caught a large number, but in the garden here, and in our cottage garden near, a very few. On October 13 last, all the fruit trees at Oakwood had their bands on. On the 30th of that month the first moth was found, on November 13 a few moths were observed; in the week beginning November 21 they came in hundreds, the frost then checked them, and but few have appeared since. The bands we used were made of the Willesden Paper Co.'s canvas D.D., extra brown. Some grease gets through these to the tree; as some object to this, it may be well to state that with a slip of Willesden waterproof brown paper 2-ply placed once round the tree before putting on the bands, the bark was clean on the tree on which this was tried. I have been told by an old



FIG. 83.—*CUPRESSUS LAWSONIANA*, VAR. *ERECTA VIRIDIS*.

Australian that in Tasmania the orchards are visited by an inspector, and the owner fined if trees are found unbanded. *George F. Wilson.*

ACACIA DEALBATA.—(See p. 334.) It is useless to plant this lovely tree where lime forms an important part of the soil. I had a fine plant here in prepared soil, sand, or granite and peat, but it was killed by being watered with spring water containing lime, in default of rain water. Cannes is on granite, and the *Acacia* thrives; Nice is on limestone, and the tree dies, or lingers, with foliage almost as yellow as its flowers. *R. Milne-Redhead.*

MELONS IN 1890.—These fruits were notoriously of poor flavour, whilst their development was very fine, and nothing was indicated by the exterior or the aroma of the disappointed that awaited on partaking of the fruit. Doubtless the lack of good flavour was due to want of sunshine and overmuch watering. It would have been better if the quantity of water afforded had been greatly reduced, as then there would have been some better chance of the fruit acquiring a slightly greater amount of flavour, of course at the expense of size. As it is, we are in this, as in other matters, wiser after the event. Another thing—manure mixed with the soil is bad for Melons, excepting the loam be of a very hungry

kind; and so is a mass of fermenting materials under the plants, unless the hills the plants are put out upon are made 15 inches high—and even then it is desirable to cover the bed with large slates, boards, or tiles to keep the roots out of the manure. Plants over hot-water tanks, if no manure is placed under them, do not suffer in that way. *A. F. E.*

LATE MELONS.—I think Mr. Allen's note, p. 308, March 7, on the above would have been more satisfactory had he told us how many fruits of Melons he stored in November, and how many fruits he lost in the three months they were stored. I have been unable to keep Melons of an excellent flavour even up to the end of the year, as those fruits which are cut from the plants in the late autumn months are always deficient in flavour, so that I do not see how they can improve some months later. The variety he mentions as possessing such good late qualities, is not different to many others, as any good Melon can be readily grown late if desired, and they will be about equal in flavour. What many would consider a good-flavoured Melon, others would consider flavourless. Perhaps Mr. Allen would give your readers a description of his method of preserving fruits of excellent flavour three months after cutting. He would have done well to forward his last fruit for the committee of the Royal Horticultural Society to test its flavour and late-keeping qualities. *A Melon Grower.*

FOGS AND GARDENING.—I have read the remarks of Mr. A. Dean, p. 342, under the above heading, with much interest, as these soot-laden fogs reach farther into rural England than is commonly supposed. The last ten or twelve days of February last were the worst for dense raw cold fog we have had for the past ten years of my residence here. The fog was worst from February 20 to 25, and it was quite a new experience to us to find our trees and shrubs coated with a blue-black deposit from the fog, such as one might expect to find at Isleworth, or within a mile of such busy centres as Newcastle-on-Tyne, Sunderland, or Birmingham. We are 50 miles south-west of London, our nearest town of any size being Reading, 12 miles east, and of course, this is only in a limited sense a manufacturing town, and we are 450 feet above sea level in a thinly populated district, undulating and well-wooded. The past month of February, 1891, was no doubt a very remarkable one, we registered '01 of rain and '02 of fog, and I can only account for the sooty deposit left by the fog by the east wind which wafted the London fog to us. It was very remarkable how it froze on to the trees, particularly the Oak and the Elm; the trees being fringed on every twig, half an inch wide, of a dirty ashen-grey. *R. Maher, Tattenden Court, Newbury.*

GALVANISED IRON-WIRED WALLS.—A great deal of late has been written by various correspondents, and by some asking for information on the subject. Having had a long experience in gardening, also a great deal to do with wired walls, I will give you my opinion on the above. I quite agree with Mr. Sheppard, of Woolverstone Park (see p. 277, February 28), on its usefulness, &c., but cannot understand how others have their trees so injured by the supposed action of the wire. I wish to state that on taking charge of these gardens twenty years back, one of the first things I had done was to have all the walls wired inside and out for all kinds of fruit trees, so that no nailing in any form has been required since, and I must say it has given me the greatest satisfaction from the day it was done to the present time. And more, it has never cost a fraction for repairs in the whole time it has been in use. Having had the Peach walls finished last week, that is, all the trees untied, pruned, and retied, I find, by close examination, that no wood has been injured in any way by coming in contact with the wire. On the other hand, if any shoots received injury it was a few projecting ones that had been slightly touched by the severe winter. Our wire was never painted, only the iron supports for straining purposes. The same applies to trained Peaches, Nectarines, Vines, &c., under glass, and I never found any ill effects. The only point, if any, is to keep a sharp look-out when the men are tying the trees to see they are not tied too tight to the wire, as injury is soon done to the young growth, and barrenness follows. All our fruit trees on walls and standards are most promising. I never saw any show of bloom better. *James Teag, Bearwood.*

THE LUCOMBE OAK.—Mr. Poynter is evidently unaware that the dead specimen at Exeter Nursery,

referred to at p. 278, was not the ordinary *Lucombe Oak*, but a fine variety of that famous kind, and named *Quercus cerris Lucombeana crispata*. There are plenty of noble examples to be met with of the ordinary *Lucombe tree*, the finest known to me being by the lodge gates of Trevarrick, St. Austell, Cornwall; and there were some fine ones at Aliphington Rectory, and at Carclew, Perranarworthal. *W. Napper, Chelsea.*

A PRETTY COMBINATION.—Last year I grew white Sweet Peas and scarlet *Nasturtiums* round the columns of my verandah, three Peas and one *Nasturtium* to each, and very pretty they proved. As I do not remember seeing them mentioned, I thought you might like to do so, the cost being very trifling. *G. Rawlings, Pen-y-Ohan, Whitebrook, Monmouth.*

TACSONIAS FOR OUTSIDE WALLS.—The best kind of treatment, after many years' trial, I have found is to take them up and pot them into 10-inch pots, and place them at the back of ainery or greenhouse, about the end of October, and the plants soon recover from removal, and lose but a few of their largest leaves. We plant them out the first week in the month of May, on a south wall, and they soon make growth and flower freely, and extend over large spaces. I know of no other climber which is their equal in beauty. There are three plants which are planted on a south wall each year, and where they over-run some small-leaved Ivy—two kinds the gold and the silver variegated, and the effect is very pretty. In spring, the old leaves are trimmed off the Ivy quite close to the wall, and the first week in May the *Tacsonias* are put out. The best varieties for outdoor walls are *T. Van Volxemii* and *T. exoniensis*. All the *Tacsonias* grow freely, and bloom well, if planted in a mixture of light sandy loam and peat or leaf-mould. Cuttings strike freely in sand, under a bell-glass, in a gentle heat, and seeds germinate freely if placed in heat, and make good plants. As soon as they are potted, they should be hardened off by removal to a greenhouse. *Wm. Smythe, Basing Park, Alton.*

THE LATE SEVERE WEATHER.—Snow fell in great quantities in South Devon, accompanied with high wind. All traffic was suspended, the roads being blocked with uprooted trees and snow. The wind blew from the north-east and east, causing great drifts in many parts. It commenced to blow hard on Monday morning, the 9th inst., and at noon sleet and rain began to fall, but towards evening the wind increased in violence, snow fell fast, and did not abate until late on Tuesday night. All communication whatever with the world outside Plymouth was stopped, telegraph wires broken down, and trains snowed-up. The storm did a great deal of damage in our garden, where there are a large number of trees, not a third of which are left standing, they having been blown down one on top of the other, the larger ones destroying many small trees and shrubs in their fall. Several fine conifers planted about forty years ago, have been uprooted. A great number of trees of all kinds have been blown down in the avenues and plantations. The snow was so deep as to almost bury the greenhouses and frames, and to get at which, passages had to be cut. Wednesday, 11th inst., was quite warm and sunny, without a breath of wind. *H. G., Plympton.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MARCH 10.—Present: Mr. D. Morris, in the chair; Dr. Masters, Mr. McLachlan, Professor Church, Dr. Müller, Dr. Scott, Dr. Oliver, Rev. W. Wilks, and Mr. Blandford.

Branches Injured by Cold.—Dr. Masters showed branches of Rose trees with injuries similar to those shown at the last meeting. These had not been in contact with wire, showing that this is not the only cause of the injuries. Professor Church suggested that the appearance pointed to the rubbing of branches on each other.

Fog Investigation.—Mr. Morris stated that he, as the recipient named in the Royal Society's grant, had sent in a short report, and had made formal application for a further grant of £50. This course was agreed to. Dr. Oliver announced that the interim report promised would be produced at the next meeting of the Committee.

Growths on *Yucca flaccida*.—Dr. Scott said that he had received very good material from Mr. Burbidge, of Dublin, and promised an investigation into them.

Mildew on Vines.—The Council referred to the Scientific Committee a letter from Mr. Tait, of Oporto, in which he states that he has discovered a remedy for mildew on Vines, which has been successfully used in Portugal, and which he is anxious to have tried at Chiswick. They wished to know if the Scientific Committee were prepared to appoint someone to conduct an investigation.

The committee were of opinion that the main constituents of the remedy should be known first, so that no investigation should take place unless they were new and not previously tried. Dr. Masters said that particular form of mildew did not occur at Chiswick, but it could be tried on Tomatos. Professor Church pointed out that the composition being patented, there would be no difficulty in ascertaining its constituents, and the committee then resolved to communicate with Mr. Tait about the composition, on the understanding that if new it would be experimented with.

Death of *Wellingtonia*.—A letter was read from the Duke of Wellington, asking for information as to the cause of death of a *Wellingtonia*, roots of which were forwarded. There was no obvious cause of death in these, and it was resolved to write for further information as to the history of the tree, character of soil, &c.

***Rhododendron Falconeri*.**—A plant was shown from Mr. James Bateman, of Worthing, described in a letter as "a dismal specimen of *Rhododendron Falconeri*, which, with many other things, perished miserably in the late winter. The first to attract attention was a fine specimen of the wild Olive tree, which had been raised from a cutting taken from the one that marks the site of the ghastly well of Cawn-pore. It was nearly 20 feet high, and had flowered last summer for the first time; moreover, it retained its freshness after the winter was more than half over, when his gardener accidentally discovered that it had lost all its bark on the lower part of the stem, and was, in fact, a corpse. The next to succumb was a New Zealand *Olearia Haastii*, which perished in exactly the same manner. It was then the turn of a large *Fuchsia*, of which the bark under precisely similar conditions, was stripped off the stem. After the *Fuchsia*, a brigade of Sikkim and Bhotan *Rhododendrons* was destroyed. And now as to the cause. Before winter set in," said Mr. Bateman, "we had a delicious Indian summer in portions of October and November, and to such an extent that our thrushes and blackbirds took to singing, and, I believe, to nesting. The exceptional warmth, no doubt, set the sap rising, and in this state it was caught, as in a trap, by the sudden change of temperature." Dr. Müller said he had seen the same thing in plantations of *Rhododendrons* near Bagshot. Mr. Wilks said the outer bark of *R. Falconeri* scaled off normally as in a Plane tree. From examination, he doubted if the plants were quite dead. He himself had had a very large plant of *Erica mediterranea*, which was throwing its foliage; on examination, the stems were found split open longitudinally, and appeared as if full of cotton-wool. This was due to frost. Dr. Masters, after examining the leaves of the plant sent, concluded that the plant would not have lived if left in the ground. The Committee decided that its condition was probably due to the action of frost.

Egyptian Mealy Bug.—Mr. McLachlan showed twigs covered with this insect, and in addition to statements made on previous occasions (December 10, 1889, &c.), said that Mr. Douglas first described it as *Crossosoma aegyptiacum*, but had since concluded that it was probably no other than a true *Icerya*. The Egyptian Government are taking steps to introduce the Australian and New Zealand lady-birds, which had been so successful in America. As the Egyptian species is not the same as the Australian and American pest, and as the climate is so different, the success of the experiment is doubtful.

Peach Yellows.—Dr. Masters produced twigs and leaves of Peach trees from the Cape of Good Hope suffering from this disease. It was common in America, and was supposed to be bacterial. This had not been determined, and the specimens were referred to Professor Marshall Ward.

Diseased Root of *Dracæna*.—A root of *Dracæna*, swarming with *Tylenchus*, was referred for examination to Dr. Masters. [Since determined by Dr. Ritzema Bos to be *Heterodera radicola*, which attacks many kinds of plants. Ed.]

Snowdrop Mildew.—The Rev. C. Wolley Dod sent

decayed bulbs of *Snowdrop*. He wrote:—"These are *Snowdrop* bulbs, of which the leaves last year showed slight symptoms of the *Snowdrop* mildew. Often there is no trace left of the bulb in the following spring. I lose all my best *Snowdrops* from it, and have as yet found no remedy. These were dressed with solution of sulphate of copper last year when in leaf." Dr. Masters said he had successfully prevented the disease by treating the bulbs themselves with sulphate of copper before planting.

Effect of Fog.—Dr. Masters showed panes of glass from glass-houses at Gunnersbury and Feltham with a dense black deposit due to fog. Mr. Morris stated that 18 square yards of glass at Kew produced, when scraped, 41 grammes of solid matter. This could not be removed by mere drenching with water, and the whole of the glass in the Royal Gardens would require scrubbing to cleanse it. Dr. Oliver said that an analysis of the deposit showed that 20 per cent. consisted of tarry and oily matters. Dr. Masters also showed Rose leaves which had fallen off under glass in consequence of the fog. No details had been sent.

Abnormal Mushroom.—A Mushroom with a very large gouty stem was shown. There was no history to it. The stem was much split longitudinally.

***Magnolia conspicua*.**—Dr. Masters showed a photograph taken last year of an unusually fine plant in bloom at Gunnersbury House.

ROYAL BOTANIC.

MARCH 18.—The first spring show of this Society was held on Wednesday last, when a pretty display of the usual quality and style was made. The non-competitive groups were the leading features, but generally bulbous plants were not up to the usual standard.

Messrs. B. S. Williams & Son, Victoria and Paradise Nursery, Upper Holloway, N., were exhibitors of a very extensive collection of *Hyacinths*, *Tulips*, *Lily of the Valley*, and *Daffodils*, together with several pots of forced *Lilac*, and a number of finely flowered *Cleaves*.

Messrs. Wm. Cutbush & Son, Highgate, contributed a charming collection of *Epacris* and *Ericas*, which included nice specimens of *E. persolata alba*. Hard-wooded flowering plants, *Acacias*, *Epacris*, *Gonistias*, *Thibaudia acuminata*, &c., and also a group of *Orchids* in flower, of which *Phalaenopsis Stuartiana* was the chief; a tasteful arrangement of *Orchids* in variety, with *Palms* and other stove plants. Mr. G. Phippen sent from Reading a large collection of bulbous-rooted plants, and also *Lily of the Valley*. Mr. J. Odell, Hillingdon, staged a collection of well-grown *Cyclamen*, and a similar group was contributed by the St. George's Nursery Co., Hanwell, the prizes in the competition going to Mr. D. Phillips, Langley Broom, Slough. *Camellia* blooms (twelve boxes) were very fine, from Messrs. W. Paul & Son, Waltham Cross. Messrs. J. James & Son, Farnham Royal, sent *Cinerarias* in variety.

Hyacinths, *Tulips*, *Daffodils*, and finely-flowered small *Azaleas* were sent by Messrs. H. Williams & Sons, Fortis Green, Finchley; and they were also very successful in the trade competition for bulbous plants, showing very well.

In the amateurs' classes, Mr. J. Douglas, gr. to Mrs. Whitbourn, Great Gearies Gardens, Ilford, led for *Tulips* and *Hyacinths* in a good competition with good solid spikes in the latter; Mr. R. Scott, gr. to Miss Foster, The Holme, Regent's Park, winning the honours for pots of *Crocuses*.

Messrs. Paul & Son, Cheshunt, were awarded 1st for six pot *Roses*, showing very nicely flowered specimens, and they also contributed a group, not for competition, in which were equally good plants. The same firm also sent a group of *Amaryllis*, and was awarded 1st in the competition. Mr. Douglas showed large and splendidly flowered *Deutzias*, for which he was again 1st. *Azaleas* from amateurs were best represented by Mr. H. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, the plants being fairly good.

Daffodils, &c., were good from Messrs. Barr & Son, Covent Garden, and from Mr. T. S. Ware, Tottenham; the latter also sending a nice lot of alpine, and received a 1st prize for bulbous plants, showing *Scillas* chiefly.

Messrs. Paul & Son, in the class for hardy herbaceous plants, contributed a lot of charming *Saxifrages*, also *Hepaticas*, &c., and were adjudged 1st. The pretty little hardy *Pr mula*, *Oakwood Blue*, was sent by G. F. Wilson, Esq., Weybridge. Mr. B. Phillips, gr. to F. A. Beavan, Esq., New Barnet, sent

a good collection of cut blooms of Orchids; and from Messrs. G. Bunyard & Co., Maidstone, there was a collection of over 60 dishes of Apples.

MANCHESTER ROYAL BOTANIC.

MARCH 17.—The opening spring show under the above auspices, was held in the Town Hall; it was a very good gathering of subjects, seeing that there were no prizes offered, and that the awards are more honorary than substantial. Mr. Bruce Findlay brought up from the gardens a splendid lot of plants, flowering and foliage, which gave a back bone to the whole exhibit. Without these tall handsome Palms, particularly in a building of the description of the Manchester Town Hall, the spring exhibits, however good, look commonplace. As it was, the whole was pleasing to look upon, and each exhibit reflected in some measure upon the importance of its neighbour.

Foremost among the rarities was a choice lot of Orchids from Mr. Statter, Stand Hall. It was re-

what with Squills and other dwarf subjects, the exhibit was an attractive one.

Mr. Jas. Mason, of Manchester, put up a fine array of Palms, confronted with the crested *Coleogyne*, full of flower. The whiteness of this Orchid is very remarkable, and always commands attention. It was associated with the common *Dendrobium nobile*, both species being about the best for the cut flower trade at the present time in the market.

Dickson, Brown, & Tait had a nice assortment of well-grown, large-headed Hyacinths, and some effective pots of Lily of the Valley.

Mr. T. Jannock, Dersingham, had a spacious display of Lily of the Valley, grown in pyramidal style—quite cones, in fact, of flower—3 feet high, a little too formal for most people. Their baskets with leaf embroidery looked much better. That firm showed, also, the pretty British Maiden-hair Fern in a form called *grande*, which is sure to take well, from its density of growth and its larger, lighter green fronds. Some of the pinnules are not so far behind *A. farleyense* in appearance.

plants of *Azalea amona*, of varieties of *Rhododendrons*, of *Cliveas*, of white Lilac, and a host of such things; these, again, were margined with a collection of Hyacinths and Tulips and other spring flowers. During the day the exhibition was largely attended.

WILLIAM RICHARDS.

MANY members of the Gardeners' Benevolent, the Gardeners' Orphan Fund, and other Institutions, in connection with which our late publisher did such active service, will feel a sympathetic interest in the portrait we now give, and which was executed from a photograph taken last year in New Zealand. Of his labours in connection with this journal we have spoken last week, but we omitted to mention that for some time Mr. Richards acted as one of the auditors of the Royal Horticultural Society. In whatever capacity he acted, he secured the esteem and hearty good-will of those with whom he was associated, as was evidenced by the attendance at his funeral at Kensal Green on Monday last.

FOREIGN CORRESPONDENCE.

HOLLAND.

THE DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.—This Society held its first winter Congress on February 28 last at Haarlem, Mr. Viruly Verbrugge in the chair. There was a good attendance, and several of the leading horticulturists and amateurs took part in the discussion. The principal questions treated were the following:—Systems of Heating for Greenhouses, introduced by H. Witte, of the Botanical Gardens, Leiden; Anthracite Coals, on which useful information was given by Mr. Gerdessen, President of the Haarlem Department of the Society; Publication of Names of Exhibitors and Jurors at Horticultural Exhibitions, introduced by Mr. Krelage, in consequence of which, on a proposal of the President, the idea was accepted with applause by the meeting; Horticultural Statistics recommended by Mr. de Lange from Rotterdam; Shading material for Greenhouses, introduced by Mr. E. Th. Witte, &c.

On the opening of the Congress, the President communicated the news that the Queen Regent had accepted very gracefully the Protectorate of the Society. Information was also afforded that on a request of the Society, the Minister of Interior Affairs had voted 2000 guilders a year, for a travelling lecturer on horticulture, passing proposals from the Committee of the Society as for the programme of execution.

Horticultural education has been put lately in Holland more in the foreground than formerly. In both the chambers of Parliament the Government has been questioned on the subject, and the minutes of the Interior Department has promised an examination. Dr. Catté, the former editor of the *Neederlandsche Tuinbouwblad*, has published a pamphlet advocating the establishment of a horticultural school, and the Royal Horticultural and Botanical Society has solicited the foundation of such a school by the Government, and the matter will be treated probably more closely by the horticultural Press.

The Dutch Government has lately paid much attention to the agricultural interests of the country, and in 1886 a Royal Agricultural Committee was appointed to watch over them. This committee published last year a report on the situation of agriculture, which is of very great interest, being compiled with much care by competent contributors, and on a good system. It consists of four thick volumes, with a great mass of statistics, &c., and proves the necessity that exists for the Government to relieve the taxes upon agriculture. The Dutch Horticultural and Agricultural Society has sent an address to the Government to promote the establishment of a Royal Committee for Horticulture, and



THE LATE WILLIAM RICHARDS.

markable for its choiceness, comprising the best of the *Dendrobiums*, a few *Cypripeds*, a number of *Odontoglossum Rossi*, and a fine sprinkling of *Sophranites coccinea*. What a very pretty form of *Odontoglossum* is *asperum*! and one allied to it, but they have yellowish instead of white petals, which although not specifically distinct, is a gain from a variety point of view. Mr. Lee's charming *Cattleya Trianae* was on exhibit, and a monster flower it is, having all the good qualities of the family to which it belongs, with a particularly brilliant crimson blotched lip, which will yet be seen to greater advantage under the hand of so good an Orchid culturist as Mr. Johnson undoubtedly is.

Dicksons, Chester, sent a charming group of *Narcissus* dressed up as cut flowers in triangular style, which, notwithstanding its formality, is yet the better way of exhibiting these charming Daffodils. The best were Countess of Annesley, which, with its white segments, looks even better than the well-known and much appreciated *Horae-feldii*, and Sir Watkin, and all of that ilk. The pretty *Bulbocodium* is always welcome among a collection, and

Mr. Hodley, Stockport, had a good lot of miscellaneous greenhouse plants, comprising *Azaleas*, Laurence's *Chorozema*, a capital flowering plant for this season of the year, and the white starry-lobed *Clematis indivisa*.

Mr. Broome sent a charming lot of border flowers from his Llandudno residence, fine Wallflowers, capital posies of Primroses and Polyanthus, and some of the early Anemones, of which *Pulsatilla*, with its livid corolla and crowds of yellow stamens, looked the more imposing.

Mr. Sam Barlow had, from the same quarter, a fine collection of Christmas Roses, chiefly of the duller coloured kinds, which are gains, if it were for nothing else than their deeply digitate or palmate leaves. Along with these, were the welcome bunches of *Hepaticas*, in blue and red and white, that so adorn an alpine collection at this season.

The Botanic Garden lot covered an area of 60 by 10 feet, and the great fronds of *Seaforthia elegans*, of Australian *Kentias*, of the plumose *Cocos*, of that handsome pinnated *Areca lutescens*, of *Hyophorbe Verschaffeltii*, &c., mixed with grandly-flowered

to make a similar enquiry about the present position of gardening in all its branches.

The programme of the Agricultural Congress at the Hague, which will be opened from September 7 to 12, 1891, has been issued. There are seven sections:—1. Agricultural Education (including Schools for Horticulture); 2. Institution for Credit and Precaution on the Fields; 3. Agricultural Industries; 4. Agro-botanical Questions; 5. Agricultural Economics; 6. Questions of Law; 7. Definitive Organisation of Congresses. It is suggested to use for discussion the French language—at all events, for the lectures. The executive committee is composed of a local committee at the Hague of thirteen members, and of thirty-four members in other parts of the country. The President is Mr. D. Bauduin; Secretary, Mr. H. Tillesen, 10, Koningsskade, The Hague.

The first meeting of the committees of the Royal Horticultural and Botanical Society of this year, took place February 14 last, at Amsterdam. Iris Bakeriana, received a First-class Certificate. There was a nice display of not generally-known plants, and to the Scientific Committee were submitted, among other entries, specimens of *Asteriscus pygmaeus*, which plant, by some botanists, is considered to be the true Rose of Jericho.

The regulations for the Flower and Plant Committee of the said Society have been revised, and in consequence the awards in future will be given as follows:—First and Second-class Certificates to new and little-known plants, or scarcely shown in flower, of decided commercial value; Botanical Certificates will be at the disposal for similar plants of interest, although without commercial value. Honourable mention will be voted for plants of superior cultivation, and for collections of special interest of plants or parts of plants (cut flowers, &c.) belonging to one family or one genus. Similar plants or collections, which, although not valuable enough to obtain such mention, if they have sufficient merit, may receive votes of thanks. This system of awarding will be put into use at coming meetings.

As for flower shows, the first which will be opened in Holland will be that of the department Benseberck-Vogelen, with that of the General Unsva for the promotion of bulb cultivation. It will take place from March 28 to 31, and a good schedule of prizes is issued, given with the expectation that it will be a good show, worth the attention of visitors from abroad. The society, of which the Department opens this exhibition, has its seat at Haarlem, and a few months ago, had, in all, about 450 members. This number is now increased to nearly 700. *Our Own Correspondent.*

SCOTLAND.

EDINBURGH BOTANICAL SOCIETY.

MARCH 12.—The Society met in the evening at 5, St. Andrew Square; Mr. Lindsay, President, in the chair.

Mr. Malcolm Dann, Dalkeith Gardens, exhibited cones of *Sciadopitys verticillata* (the Parasol Pine of Japan) from trees grown in Surrey, and gave an account of the introduction of the tree by Veitch and Fortune. It is quite hardy in this country, and makes an average growth in height annually of 6 inches. Dr. W. Watson remarked on its common occurrence in certain parts of Japan, and Professor Balfour referred to the leaf-like cladodes, which take the place of leaves, a feature closely studied by the late Professor Dickson. Rev. David Paul, M.A., showed a number of varieties of Maize brought by him from one place in South America, and also a spathe of *Manicaria saccharifera*. Dr. Cleghorn spoke of the varieties of Maize he had noticed on the banks of the Indus in the Punjab. The following plants were exhibited from the Royal Botanic Garden:—*Angræcum citratum*, *Galanthus flavescens*, and *Saxifraga Burseriana* *Boydii*, a form supposed to have *S. aretioides* in its parentage. Young

flower-shoots of Cotton-grass (*Eriophorum vaginatum*) were exhibited by a gentleman in Sutherlandshire, who stated that at that stage they form a highly nutritious food for sheep there. Mr. Dann had found that their value was also recognised in Wicklow, Ireland.

Rev. David Paul threw on the screen a fine series of photographs, taken by himself, in 1889, in British Guiana, illustrative of the characteristic vegetation of that region. The exhibition, which comprised Palms, Aroids, aquatics, &c., was prefaced by a lucid account of the scenery and botanical wealth of the country.

The concluding communication on the coarse anatomy of the wood of British trees and shrubs, was given by Professor Balfour and Dr. Macfarlane. By means of the lantern, the structure of the wood of the following genera was shown:—*Lonicera*, *Viburnum*, *Sambucus*, *Vaccinium*, *Erica*, *Calluna*, *Fraxinus*, *Ligustrum*, *Lycium*, *Thymus*, *Hippophaë*, *Daphne*, *Viscum*, *Rhus*, *Empetrum*, *Ulmus*, *Salix*, *Populus*, *Betula*, *Alnus*, *Carpinus*, *Corylus*, *Fagus*, *Castanea*, and *Quercus*. Dr. Cleghorn indicated the extreme value of the demonstration, as showing the connection between the microscopic structure and economic importance of the trees, and expressed the hope that the communication would be retained in some permanent form for the use of schools of forestry.

Dr. Wilson communicated a paper on the glandular stipules of *Larrea mexicana*, the creosote bush. The leaves and twigs are bathed in a viscid, strongly-scented secretion, which is the source of *Aizona* shellac. The stipules at an early stage become dull red, and lie so close to the stem as to resemble *Cocci*, and they are ultimately lost sight of in the resin which exudes from the nodes.

A resumé of plants received during 1890 from additional counties in Scotland was communicated from Mr. Arthur Bennett.

Professor Bayley Balfour communicated an extract from a letter received by him from Mr. J. Graham Kerr with the Pilcomayo expedition, giving an account of the fauna and flora of the region visited.

The Curator read the following report—

On Temperature and Vegetation at the Royal Botanic Garden, Edinburgh, February, 1891.—The month of February has been remarkable for the fine dry and mild weather which prevailed. Such dry warm weather is perhaps without parallel in the history of the month. Vegetation generally is not so well forward as might have been expected from the genial nature of the weather experienced. A large number of spring flowers are in blossom, but in every case they are later in coming into flower than they were last year. *Ribes*, *Thorn*, *Lilacs*, and other hardy shrubs are just starting into growth. The thermometer was at or below the freezing point on twelve mornings, indicating collectively 79° of frost for the month, as against 101° for the corresponding month last year. The lowest readings occurred on the 12th, 25°; 19th, 25°; 20th, 24°; 26th, 24°; 27th, 20°. The lowest day temperature was 42° on the 13th, and the highest 59° on the 24th. Of the forty spring-flowering plants whose dates of flowering are annually recorded the following fourteen came into flower, viz.:—*Corylus Avellana*, on February 6; *Crocus susianus*, 7th; *Scilla præcox*, 8th; *Leucojum vernum*, 7th; *Tussilago alba*, 10th; *Eranthis hyemalis*, 11th; *Scilla sibirica*, 12th; *Symlocarpus foetidus*, 12th; *Tussilago nivea*, 16th; *Daphne Mezereum*, 17th; *Crocus vernus*, 18th; *Arabis albidula*, 17th; *Nordmannia cordifolia*, 19th; *Bulbocodium vernum*, 25th.

On the rock garden, thirty-nine species came into flower during the month, as against twenty-five during February, 1890. Amongst the finest in blossom were—*Colchicum crociflorum*, *Crocus imperati*, *C. Olivieri*, *Daphne Blagayana*, *Hepatica angulosa*, *Hyacinthus azureus*, *Iris sophonensis*, *Narcissus minimus*, *Primula denticulata*, *Ranunculus anemoneoides*, *Saxifraga Burseriana*, and *S. imbricata*.

Mr. Bullen sent the following notes on temperature and vegetation during February in the Botanic Garden, Glasgow:—

"The weather generally was dull, and fogs were frequent, consequently the sun's rays were little felt, particularly towards the latter part of the month; but, taken as a whole, a more genial and favourable month has not been experienced for many years, being comparatively free of all wet or wintry associations. Frost was registered on fifteen mornings, the lowest reading was 7°, on the morning of the 9th. The total frost was 55°.

The day readings were all high, the mean being higher than for any corresponding month since 1884. There was just sufficient frost to prevent undue excitement in vegetation, which was little further advanced than at the close of last month."

CULTURAL MEMORANDA.

CARNATION MARGUERITE.

THE value of this sweet-scented Carnation is greatly enhanced by the fact that good-sized flowering plants may be had within six months from the time of sowing the seed. Last October, in looking through the glass-houses at Marston House, the Earl of Cork's residence, in Somersetshire, I noticed several well-grown plants of the Marguerite Carnation in flower, which Mr. Iggulden, the gardener, told me he had raised from a packet of seed sown in the previous spring. I took note of the name, and I have sown the contents of a packet to-day in a pan of light soil, over which a pane of glass and some moss were put, placing it in a forcing-house. The seedlings, when they have got a pair of true leaves, will be removed to a cooler place, the glass tilted up a little on one side, and in three or four days taken off. The pan should then be stood near to the light, to ensure sturdiness, and as soon as the seedlings are 1 inch high, they ought to be pricked into pans or boxes filled with the same kind of mould as the seed pan, and kept growing in an intermediate temperature till April, when a cold frame will suit them. They may be potted singly when the leaves nearly touch. *H. W. Ward, March 1.*

Obituary.

EDWIN FYDELL FOX.—Another well-known British Fern cultivator, and estimable man, has passed away. Mr. E. F. Fox, of Kensington Place, Brislington, near Bristol, died on the 13th inst., aged 76. He was educated at Shrewsbury, and became a member of the Royal College of Surgeons of England, having received his medical education at St. George's Hospital. Subsequently he took up as a specialty the subject of mental disease. In his early life he had a choice collection of Roses. He was active and enthusiastic to the last, taking the deepest interest in the development of new varieties of Ferns. He was one who worked with Jones, Clapham, Padley, Wills, Barnes, Grey, James, Wollaston, and Lowe, in searching the country (especially in the west of England) for new wild finds, and in raising new varieties. With the exception of the last two, all these Fern authorities are now dead.

Like Colonel Jones, the *Polystichums* were his favourites, and it was he who raised those charming *divisilobe* forms, from the bulbils of which have been produced those two most beautiful varieties, *Baldwini* and *imbricatum*, that attracted so much attention at the Fern Conference of the Royal Horticultural Society last July.

Amongst the varieties raised by Mr. Fox, may be mentioned *Polystichum aculeatum*, vars., *corymbiferum*, *grandiceps*, and *polydactylum*, *P. angulare*, vars. *cristatum-grande*, *grandiceps-coronatum*, *congestum*—*polydactylum*, *plumosum*—*grande*, *multilobum-lineare*, *multilobum-polydactylum*, *lacinia-*

tum-Foxii, grandiceps-coronale, polydactylum-Foxii, and acutibulum-invincere; Scolopendrium vulgare vars. unguiceps and lineare-multifidum; Athyrium Filix-foemina Evelynia, Helena, and cengere. Polystichum angulare var. decompositum-laxum and Athyrium flexuosum Foxii were both his wild finds.

It is, however, with the varieties of Polystichum angulare, in the section plumoso-divisulobum, that Mr. Fox's name will always be associated. A great interest is attached to those varieties because they are dissimilar to the parent in an extraordinary degree. In 1875, Mr. James Moly found the form decompositum-splendens in South Devon, and Colonel Jones gave Mr. Fox spores from this Fern, from which he raised densum, laxum, and robustum (three beautiful plumose varieties), and from a second sowing, others not yet fully developed.

The collection of British Ferns at Brislington is extensive, and many of the plants are of large size, and the excellence of this collection is so well known to Fern cultivators, that Mr. Fox received constant visits from them. His enthusiasm, zeal, hospitality, and liberality, made it a pleasure to those who were his guests, and his loss will be severely felt both as a valued friend and one from whom sound advice could be obtained. As a raiser of varieties he used the greatest care, and kept so accurate a record of all his experiments, that it could readily be seen how he had achieved his great successes. As a medical man, Mr. Fox was well known and esteemed in Bristol. He leaves three daughters and two sons, one of the latter being in extensive practice as a medical man in Bath. Men like Mr. E. F. Fox, though in course of time they pass away and are lost to us, still the results of their labour will always be present as a living monument more lasting than brass.

VARIORUM.

MELONS AND CUCUMBERS IN AFGHANISTAN:
THE MELON.—Melons are largely cultivated as a field-crop, but not to the same extent as the Water Melon. The variety, sarda, keeps well, and is exported to India in great quantity during the winter, where it is much appreciated by both Europeans and natives. Europeans in India and elsewhere have tried to raise from seed the sarda Melon. This has always proved a failure, the seed produced being of a very ordinary form, and never having the flavour of the Afghan fruit. The word sarda means cold, and subsequently came to mean the last fruits of the season left hanging on the trees, when the main crop had been collected. The Melon collected from the plants that yield the sarda, whilst the season is hot and there is still no frost, is, comparatively speaking, an ordinarily good Melon; but once the season is ending, and night frosts have set in, and the plants are beginning to be nipped, the gardeners carefully cover the fruit to prevent it from being injured by the frosts, and then collect it when not quite ripe; these fruits ripen very slowly, will keep through the whole winter, and in flavour seem to improve the longer they are kept. It is this treatment, I believe, that constitutes the difference between the ordinary Melon and the sarda, and why gardeners out of Afghanistan and Persia have not been able to produce the fine-flavoured Peshawur trade article, and which even in the old caravan, now railway, days were carried in perfection to Southern India. It is curious that another Melon, an early-ripening one, receives a very opposite name, viz., gamma, and which has come also to mean first fruits—gamma, meaning heat. The flesh of the Melon, after the rind is removed, is dried, when it is called kak; this is much eaten by the natives cooked along with other food, and is to be seen hanging up for sale in all bazaars. An oil, roghan-i-tukhin, is extracted from the seeds, and is looked upon as a delicacy.

The Cucumber is cultivated in all gardens, the fruit being eaten much raw, as we would an Apple;

it is a delicious fruit thus eaten on a hot day. The seeds are employed whole in native medicine. Notes on the Products of Western Afghanistan and of North-eastern Persia.

RESTORATION OF HEATHER ON GROUSE MOOR.—It is evident, from "J. S.'s" letter in the Field on this subject, that his moor is suffering from a want of Heather burning. If done judiciously, burning is the proper method of cultivating Heather. Evidently the Heather on "J. S.'s" moor was allowed to get too old before being burned, so, as a matter of fact, it is every year getting into a worse condition. If he would burn a little of his remaining Heather every spring, taking care to have it done in narrow strips, so as not to leave a great portion in one place bare, this would give a two-fold advantage. In the first place, the sooner it is burned the sooner will the young Heather be likely to grow again. Had it not been left too long without burning, it would not take seven years before beginning to grow, if the ground is at all good Heather land. Secondly, the laying bare a fresh portion of the moor will attract whatever animals may be grazing on it to the newly burned portion, thereby giving the already burned part a chance to grow, as the fact of animals constantly feeding and lying on it—as they will do until a fresh portion is burned—is very detrimental to the growth of the young Heather. I have seen Heather, that happened to be burned when young, springing the same season it was burned; but this was on very good Heather land. On the other hand, it is quite possible to leave Heather until it is too old ever to grow again after being burned; or, at least, it will take a great many years to grow. Heather, if properly burned every twenty or twenty-five years, should begin to grow in about two or three years; but the burning must be done when the ground is quite dry, so that it is burned close to the ground, otherwise a thick coating of moss, with half-burned stumps of Heather, is left, which prevents any growth at all for a long time. I would not like to venture an opinion on your North Wales correspondent's idea of cutting Heather. Ben Vorlich, Field.

MARKETS.

COVENI GARDEN, March 19.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. ED.]

Market quiet, with little alteration. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 6-6 0	Lemons, per case	15 0-20 0
— Nova Scotia, brl.	15 0-25 0	Pine-apples, St. Michael, each	2 0 8 0
Cobs, Kent, 100 lb.	4 0-4 5 0	Strawberries, p. lb.	8 0-16 0
Grapes, lb.	1 6-3 6		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ficus elastica, each	1 6-7 0
Aspidistra, doz.	18 0-42 0	Foliage plants, various, each	2 0-10 0
— spec. plants, each	7 6-10 6	Genista, per dozen	9 0-12 0
Azalea, per dozen	24 0-42 0	Hyacinths, per doz.	6 0-9 0
Bouvardias, p. doz.	9 0-18 0	Lily of the Valley, per dozen pots	9 0 18 0
Cineraria, per dozen	8 0-10 0	Marguerites, doz.	6 0-12 0
Cyclamens, dozen	9 0-18 0	Mignonette, per doz.	6 0-9 0
Cyperus, per dozen	4 0-12 0	Myrtle, per doz. pots	6 0-12 0
Dielytra, per dozen	8 0-12 0	Palms in variety, each	2 6-21 0
Dracena terminalis, per dozen	30 0-60 0	Primula sinensis, doz.	4 0-6 0
— viridis, per doz.	12 0 24 0	Roots for bedding, boxes, each, from	1 0-3 0
Euonymus, in var., per dozen	6 0-18 0	Spiraea, per dozen	9 0-12 0
Ericas, various, doz.	8 0-18 0	Solanums, per doz.	9 0-15 0
Evergreens, in var., per dozen	6 0-24 0	Tulips, per doz. pots	6 0-9 0
Ferns, in var., doz.	4 0-18 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4-0 6	Lettuces, per dozen	3 0-...
Beans, French, lb.	3 6-...	Mushrooms, punnet	2 0-...
Beet, red, per dozen	2 0-3 0	Mustard and Cress, punnet	0 4-...
Brussels Sprouts, lb.	0 6-...	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Seakale, per basket	2 6-3 6
Cauliflowers, each	0 9-1 0	Shallots, per lb.	0 6-...
Celery, per bundle	2 6-3 6	Spinach, per bushel	7 0-...
Cucumbers, each	0 9-1 0	Tomatoes, per lb.	0 9-1 3
Endive, per dozen	4 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemone (Fr.), 12 bun.	2 0-4 0	Myosotis, 12 bun.	4 0-6 0
Azalea, 12 sprays	0 6-1 0	Narcissus (paper white), 12 sprays	1 6-4 0
Bouvardias, per bun.	1 0-1 6	— French, 12 bun.	2 0-6 0
Callaethiopica, 12 l.	2 0-4 0	Narcissus (yellow), 12 bun.	3 0 6 0
Camellias, white, 12 blooms	2 0-4 0	— ant Eye) 12 bun.	6 0-8 0
— coldr., 12 blms.	0 9-1 6	Pelargoniums, scarlet, 12 spr.	0 6-0 9
Carnations, 12 blms.	1 0-3 0	Poinsettias, 12 blms.	1 0-2 0
Cyclamens, per doz.	0 3-0 6	Primulas, double, 12 sprays	0 6-1 0
Daffodils, various, 12 blooms	0 6-1 0	— single, 12 sprays	0 4-0 6
— (Foreign), 12 bun.	2 0-6 0	Roses, Tea, per doz.	1 0-4 0
Eucharis, per dozen	3 0-5 0	— coloured, dozen	3 6-6 0
Gardenias, per doz.	3 0-8 0	— yellow (Marechal), per doz.	3 0 6 0
Heliotropes, 12 spr.	0 6-1 0	— red, per dozen	6 0 12 0
Hyacinths, Rom., 12 bunches	1 0-2 0	— do, French p. doz.	1 0-3 0
Hyacinth, various, 12 spikes	3 0-6 0	Snowdrops, doz. bun.	1 0-3 0
Lily of the Valley, 12 sprays	0 6-1 0	Tuberose, 12 blms.	1 0-2 0
Maiden Hair Fern, 12 bunches	4 0-9 0	Tulips, various, 12 bl.	0 9-1 6
Marguerites, 12 bun.	3 0-6 0	Violets, 12 bun.	1 6 3 0
Mignonette, Fr. bu.	1 6-2 6	— Parma, Fr. bun.	2 6 3 6
Mimosa (French) 12 bun.	12 0-15 0	— dark, Fr. bun.	1 0-2 0
— (French) basket	4 0-6 0		

ORCHID-BLOOM in variety.

SEEDS.

LONDON: March 18.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., report business still quiet. A spell of favourable weather would undoubtedly cause a strong sowing demand. Prices this week show no important variation. Some unusually large export orders have materially enhanced values for the heavier perennials. There is no alteration in Italian Rye-grass. Sainfoin is just now remarkably cheap. Peas and Haricots point upwards. Linseed is also dearer. Rape seed firm. Bird seeds steady. Cables from New Zealand speak of strong markets for Cocksfoot.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending March 11, and for the corresponding period last year:—1891: Wheat, 33s. 2d.; Barley, 27s. 9d.; Oats, 18s. 6d., 1890: Wheat, 29s. 11d.; Barley, 30s. 8d.; Oats, 18s. 6d. Difference: Wheat, +3s. 3d.; Barley, -2s. 11d.

FRUIT AND VEGETABLES.

SPITALFIELDS: March 18.—Limited supplies of fresh vegetables. Demand good. Good supplies of Potatoes. Trade brisk. Fruit trade moderate. Prices as under:—Cauliflowers, 4s. to 5s. per dozen; Savoys, 7s. to 12s. per tally; Spinach, 2s. 6d. to 3s. per bushel; Brussels Sprouts, 2s. 6d. to 3s. 6d. per half-sieve; Turnip-tops, 5s. to 6s. per sack; Sprouting Broccoli, 4s. to 5s. do.; do., 2s. 6d. to 3s. per sieve; Curly Kale, 4s. to 5s. per sack; do., 2s. 6d. to 3s. 6d. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Greens, 4s. to 7s. per dozen bunches; Turnips, 2s. 6d. to 4s. do.; Carrots, 4s. do.; Celery, 4s. to 10s. per dozen bunches; Horseradish, 1s. to 1s. 6d. per bundle; Parsley, 1s. 3d. to 1s. 6d. per lb.; French Radishes, 1s. 6d. to 2s. per dozen bunches; Beetroot, 4d. to 6d. per dozen; Parsnips, 1s. 6d. to 2s. per score; Endive, 2s. 6d. to 3s. 6d. per dozen; Cabbage Lettuce, 2s. 6d. to 3s. 6d. do.; Leeks, 3s. to 4s. 6d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; English Onions, 7s. 6d. to 8s. 6d. per cwt.; Spanish do., 3s. 6d. to 4s. 6d. per case; Dutch do., 3s. 6d. to 4s. 6d. per bag of 110 lb.; Belgian do., 3s. 3d. to 4s. do.; Bordeaux do., 5s. to 6s. per case; Carrots, 25s. to 60s. per ton; English Apples, 4s. to 10s. per bushel; American do., 16s. to 25s. per barrel; foreign Tomatoes, 1s. to 1s. 9d. per box; forced Rhubarb, 1s. 6d. to 2s. per dozen bunches; natural do., 3s. 6d. to 4s. do.

STRATFORD: March 17.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 2s. 6d. to 5s. per tally; Savoys, 7s. to 14s. do.; Greens, 2s. 9d. to 3s. 6d. per sieve; do., 5s. to 8s. per dozen bunches; Cauliflowers, 2s. to 3s. per dozen; do., 8s. to 14s. per tally; Turnips, 3s. to 4s. per dozen bunches; do., 5s. to 7s. per ton; Carrots, household, 50s. to 65s. do.; do., cattle feeding, 35s. to 40s. do.; Parsnips, 9d. to 1s. 6d. per score; Mangels, 20s. to 23s. per ton; Swedes, 21s. to 27s. do.; Onions, English, 140s. to 160s. per ton; do., Dutch, 5s. to 7s. per bag; Apples, English, 3s. 6d. to 10s. per bushel; Celery, 8s. to 12s. per dozen rolls; Radishes, 9d. to 1s. per dozen bunches; Watercress, 7d. do.; Cress, hot and cold, 2s. per dozen baskets.

POTATOS.

BOROUGH AND SPITALFIELDS: March 17.—Quotations:—Hebrons, 100s. to 120s.; Magnums, 95s. to 130s.; Dunbars, 130s. to 140s.; Bruce's, 105s. to 135s.; Imperators, 100s. to 120s.; French Chandons, 80s. per ton; Belgian Whites, 3s. to 4s.; German Imperators, 4s. 6d. to 4s. 9d. per bag.

SPITALFIELDS: March 18.—Quotations:—Hebrons, 90s. to 110s.; Magnums, 90s. to 120s.; Regents, 100s. to 120s.; Champions, 90s. to 110s.; and Imperators, 90s. to 120s. per ton.

STRATFORD: March 17.—Quotations:—Magnums, 100s. to 115s.; Hebrons, 100s. to 120.; Imperators, 100s. to 110s.; Elephant's, 120s. to 125s.; Scotch Magnums, 100s. to 110s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior do., 40s. to 75s.; hay, best, 60s. to 87s.; inferior do., 23s. to 50s.; and straw, 20s. to 37s. per load.

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above 42° or below (—) the Mean for the week ending March 14.	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.						
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.			
1 11 —	0	100	+ 63	+ 19	5	49	12.8	51	22	
2 8 —	0	78	+ 11	+ 30	3	25	2.5	47	32	
3 8 —	0	67	+ 31	+ 60	3	26	2.1	36	20	
4 5 —	0	49	+ 25	+ 103	1	28	2.4	21	32	
5 8 —	0	62	+ 31	+ 80	1	23	2.6	20	31	
6 7 —	0	18	— 13	+ 124	7	25	4.1	9	31	
7 8 —	0	71	+ 45	— 1	6	36	6.8	55	26	
8 7 —	0	57	+ 54	+ 26	5	25	2.9	39	31	
9 8 —	0	55	— 3	+ 89	2	26	4.8	22	35	
10 9 —	0	63	+ 39	+ 12	2	34	3.3	67	32	
11 9 —	3	55	+ 25	+ 29	4	28	3.2	53	34	
12 8 —	0	27	— 9	+ 50	18	29	4.8	17	43	

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 14, is furnished from the Meteorological Office:—

"The weather during the week was very cold and unsettled. Soon after the commencement of the period, extremely heavy falls of snow, accompanied by severe gales, were experienced over all the more southern and south-western counties. In the north and north-west the conditions were generally dry and fine; in the Hebrides, however, very heavy snow occurred on the 10th.

"The temperature has been much below the mean in all districts, the deficiency ranging from 5° in 'England, E.' to 7° in 'England, N.W.' 8° in most other districts, 9° in Ireland, and 11° in 'Scotland, N.' The lowest of the minima were generally recorded on the 12th, when the thermometer fell to 1° in 'Scotland, N.' (at Lairg), to 10° in 'England, S.,' and the 'Midland Counties,' and to between 12° and 17° in most other districts. In the 'Channel Islands,' however, the lowest reading reported was 30°. The highest of the maxima, which were registered on the 14th, ranged from 44° over the northern parts of Eng-

land, to 50° in 'England, S.' and 51° in 'Scotland, E.' In the north of Scotland, the temperature has been lower than during any previous part of the winter.

"The rainfall has been much below the mean over the greater part of Ireland and Scotland, as well as in the north-west of England. In most other parts of England and in the 'Channel Islands,' it has been in excess; in consequence of the drifting of the snow, however, it is probable that the measurements recorded do not represent exactly the actual amount of the fall.

Bright sunshine has been very prevalent in Ireland and Scotland, and moderately so in the north of England; in all the more southern parts of England very little has been recorded. The percentage of the possible duration varied from 58 to 67 in Ireland, and from 47 to 55 in Scotland, while over England it ranged from 9 in 'England, S.' 22 in 'England, S.W.' and to 39 in 'England, N.W.'"

NOTICES TO CORRESPONDENTS.

ADANTUM WILLIAMSII: C. B. In a warm house it is evergreen; in a cool one, no new fronds would push during the winter, and those which it had of the previous year would probably die down.

APPLE, COX'S ORANGE PIPPIN: North London. The raiser was Mr. COX, of Colnbrook Lawn, Slough, Bucks. The variety dates from 1830, and is a seedling from the Ribston Pippin, the other parent, if any, not being known.

ARSENIC: C. W. D. Yes, it can be, and is absorbed by the roots, which constitutes a danger. Probably the arsenic is oxidised in the soil, and so absorbed in a soluble form. We should not like to use it in the manner you speak of.

BLACK CURRANTS: J. H. B. We do not see any maggot such as you describe, but the buds are affected with the Currant-bud mite, often figured and described in these columns. Burn all the shoots. We have never seen it on red Currants.

GREENHOUSE SELAGINELLAS: C. E. S. Galeottii, S. Kraussiana, S. Martensii and S. M. variegata, and S. denticulata.

MANURE FOR STRAWBERRIES: A. H. P. 1, 3, 4, of your list with sulphate of potash and sulphate of magnesia; 3 and 4 in the proportion of 10 to 12 per cent.; 1, 8 per cent. sulph., potash 13 per cent., and sulphate of magnesia 5 per cent. Decayed leaves, calcined garden rubbish, and dried blood are also good manure for the plants alone or mixed together, and these are not likely to impart an unpleasant flavour to the fruit.

MELON STEM CRACKED: J. G. Dust the wound with charcoal-dust, and bind it round with matting, when it will probably heal. If there is any tendency to further opening of the crack, before bending the bine in any direction, fasten a stout green Willow rod to it, you may then bend it where you please without injury.

NAMES OF FRUIT: W. F. Minshall Crab. — A. McDougal. We are unable to name such a poor specimen; send it again in its season. Others next week.

NAMES OF PLANTS: T. S. 1, Cedrus atlantica; 2, Sequoia sempervirens; 3, Forsythia suspensa; 4, Daphne Mezereum; 5, Jasminum nudiflorum; 6, Pittosporum undulatum. — Veritas. Daphne Mezereum. — L. J. If it retain its whiteness, Dendrobium crassinode album. — W. S. Odontoglossum Cervantesii, Morada hort., Odontoglossum Andersonianum var., Dendrobium nobile, probably from imported plants, interesting and various. — C. S. Helleborus viridis torquatus, of Archer Hind; 2, H. colchicus var.; 3, H. guttatus; 4, H. punctatus; 5, H. guttatus sub-punctatus, probably a seedling variety; 6, Habrothanas fascicularis. — A. H. B. 1, Abies concolor; 2, Abies magnifica; 3, A. numidica; 4, A. Pindrow; 5, A. balsamea; 6, Picea obovata. — J. R. Pteris umbrosa, or one of the garden hybrid forms of it. — G. M. 1, Dendrobium Pierardi; 2, D. superbum (macrophyllum); 3, D. aggregatum; 4, Veltheimia glauca; 5, Aloe verrucosa; 6, Adiantum concinnum latum.

OMISSION: In our issue of March 7, p. 302, under "Brussels," it should have been stated that the Catalogue compiled by Mr. Lubbers had reference to the Aroids.

ORCHIDS FOR A COOL GREENHOUSE TO FLOWER IN SUMMER: C. E. These Orchids, like those of the warm house, require a moist air, and almost constant ventilation, as indeed do most other plants, although gardeners have an invincible repugnance to giving air at night, for what reason it is hard for us to imagine. Provided you can therefore arrange the details of moisture in the air and the ventilation, you could cultivate some of the following:—Acineta Barkeri, May—July; Ada aurantiaca, spring and winter; Aërides affine, May, June; Aërides Fieldingi, April to June; Anguloa Clowesii, spring and early summer; Anguloa uniflora, the same; Calanthe veratrifolir, May—July; Cattleya citrina, April and May; Cattleya crispa, June—August; Cypripedium barbatum and its varieties, early spring to June; C. caudatum, C. Schlimii (C. villosum, C. venustum, and C. insigne, would do, but they bloom in winter); Disa grandiflora, July, August; Epidendrum atropurpureum, May—July; E. maculatum, May, June; Oncidium barbatum, June—August; Trichopilia coccinea, June; the hardy Cypripedium calceolus, pubescens, macranthum, acaule, candidum, would grow and flower in the greenhouse.

THUOPSIS BOREALIS: J. C. There is a pendent variety, that was in the possession of the late Mr. Maurice Young, of Godalming. Usually, it has several stems springing from the base. It is a handsome subject, and one that no animal cares to nibble.

TOMATOS IN BURMAH: Maulmain. According to Woodrow in his Gardening in India, Tomatos may be had throughout the year by a little timely attention to sowing. Sowing should be made in seed-beds monthly, and when a few inches high the plants should be put out in lines, 3 feet apart, and 1 foot from plant to plant. When the plants begin to grow they should be staked, tying them here and there to give support. During the hot season, a spot should be selected for them that is shaded at midday. The drainage must be good, and water may be applied freely twice a week, and when the plants are in bearing, manure-water at short intervals. As the fruits drop off your plants, a position on the north side of trees or buildings might be more suitable than a sunny one. Many kinds of plants, if saved from native-grown seeds, come out of all character, and resemble veritable weeds, so that it is desirable in such case to use imported seed. Is the Tomato one of these?

CATALOGUES RECEIVED.

JOHN PERKINS & SON, 52, Market Square, Northampton—Farm Seeds.

J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex—Dahlias, &c.

JAMES BACKHOUSE & SON, Nurseries, York—Alpine and Hardy Perennials and Florists Flowers.

A. M. C. JONGKINDT CONINCK, Royal "Tottenham" Nurseries, Dordrecht, Haarlem—Wholesale Trade List, Conifers, Fruit Trees, Hardy Perennials, Rock Plants, Ferns, Aquatics, &c.

DOBBIE & MASON, 66, Dean's Gate, &c., Manchester—Farm Seeds.

LITTLE & BALLANTYNE, Carlisle—Farm Seeds. FRATELLI ROVELLI, Pallanza, Lago Maggiore, Italy—Orchids, Palms, Pandanus, Ferns, Roses, Trees and Shrubs, Azaleas, Camellias, &c.

HENRY BROOKE, New Elvet and New Markets, Durham—Seeds and Florists Flowers.

W. & J. BIRKENHEAD, 19, Washway Road, Sale, Manchester—Ferns and Selaginellas.

CHAS. SHARPE & CO., Sleaford, Lincolnshire—Farm Seeds and Corn.

CHARLESWORTH, SHUTTLEWORTH & CO., Heaton, Bradford—Orchids.

COMMUNICATIONS RECEIVED.—R. T. C.—E. S.—N. E. B.—J. J.—R. T., Prague.—Prof. M'O., Cape Town.—B. F.—J. D. S., Baltimore.—C. N., Antibes.—R. B.—C. B.—F. Dr. Trelease, St. Louis.—T. M., Philadelphia.—Dr. M. Graz.—W. A. T.—W. B.—Baron von Mueller.—C. S.—R. J. L.—J. B. B.—F. M.—L. B., Bonn.—Captain O.—Vicente de St. L., Rio.—H. T.—E. J. L.—J. W.—G. W. B.—R. D.—E. A.—Geneva.—C. de B., Sierre.—Otto Pfeiffer.—J. Taibay & Son (we know of no such firm).—G. Covos.—R. E.—G. B.—C.—D.—H. G.—J. H. R.—D. G. Conwell.—W. H. S.—W. G.—Z.—J. H. G.—G. F.—J. W.—R. D.—W. H. A.—D.—N. E. B.—J. R. J.—J. H.—J. A.—C. B. Plowright.—H. H. D'Ombrian.—W. Watson.—C. A. M. C.—W. Dyball.—J. Tomkins.—A. B. (next week).

PHOTOGRAPHS RECEIVED.—D. M.

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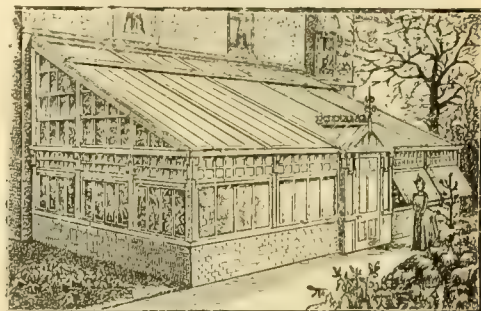
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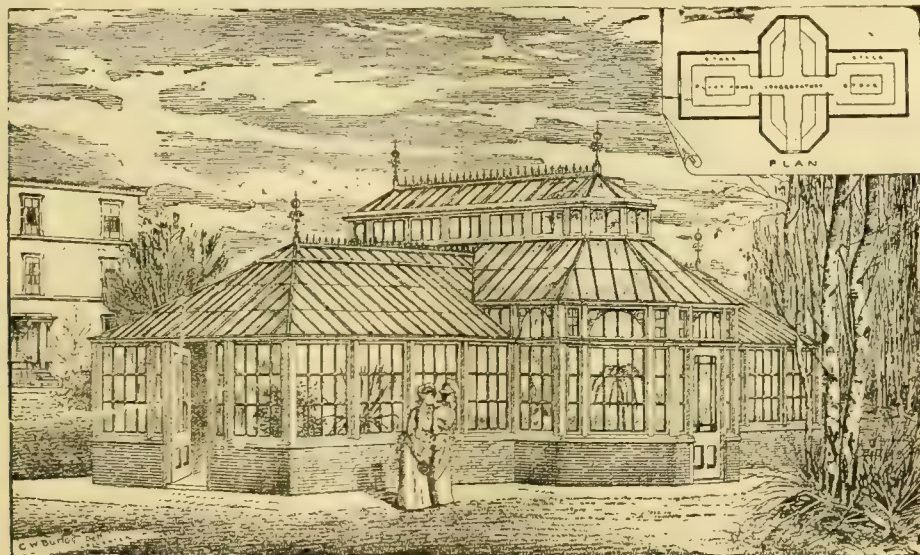
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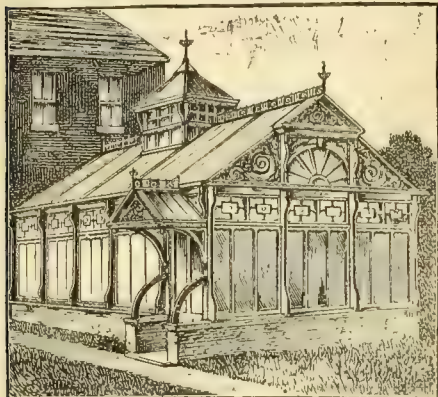
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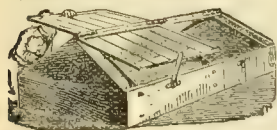
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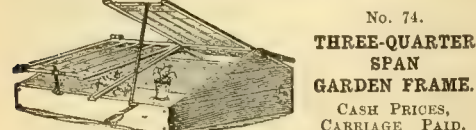
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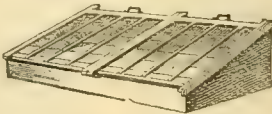


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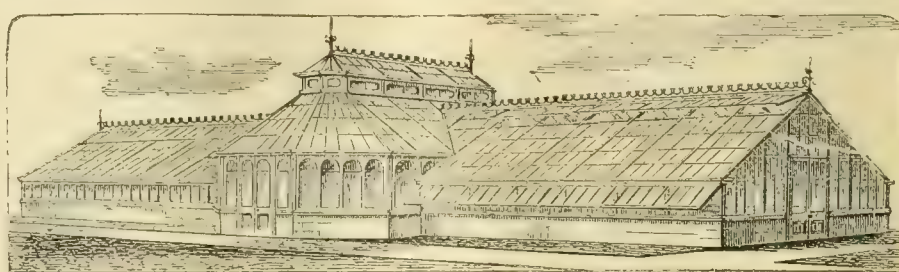
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Garden Walks, Carriage
Drives, Stable Yards, &c.

Kills Dandelions, and
other Weeds on Lawns.

Saves many times its
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Improves the colour of
the Gravel—has no smell.
One application will keep
the walks clear of weeds
for a whole season.

Can be applied with an
ordinary watering-can.

PRICE IN TINS.—½ gallon, 1s. 9d.; 1 gallon, 3s. each; 5 gallon, 2s. 6d. per gallon; 10 gallon, 2s. 3d. per gallon; 40 gallon
casks, 2s. per gallon (tins and casks free). Carriage paid on all orders of 10 gallons and upwards to any Railway station in the
Kingdom.

Sample orders sent Free on receipt of Postal Order.

Ask for the "CLIMAX," and take no other.

The "Climax"

CONCENTRATED

Weed Killer

IS MORE THAN DOUBLE
THE STRENGTH OF ANY OTHER

SOLE MANUFACTURERS
THE BOUNDARY CHEMICAL CO.
LONDON & LIVERPOOL

NOTE.—One gallon
makes 51 gallons for
use; but has been proved
efficient in half that
strength.

We guarantee this pre-
paration to do all and
more than we claim for
it, if our instructions are
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TO BE HAD FROM ALL
SEEDSMEN.

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A beautifully designed, well constructed, highly finished, English made, and almost noiseless Machine. Durable, easy to work, and eminently suitable for the Tennis Ground, and also for Ornamental Gardening. It has no equal—thousands are in use, giving unqualified satisfaction. Every Machine guaranteed.

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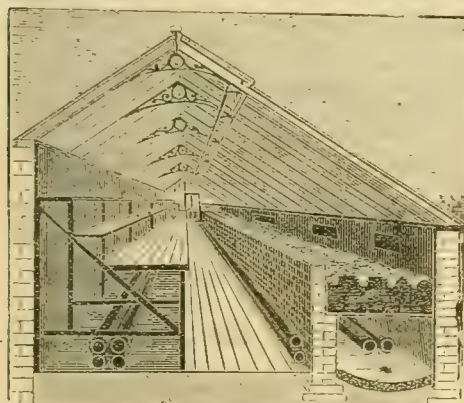
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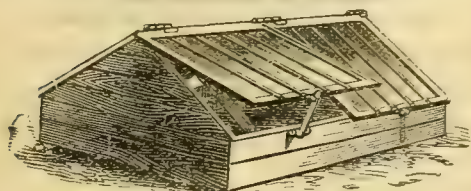


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6 feet long, 3 feet wide	CASH	2	0	0
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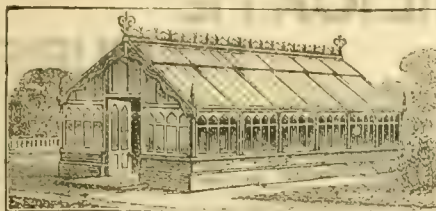
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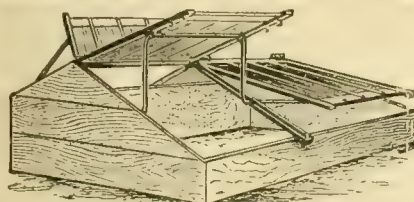
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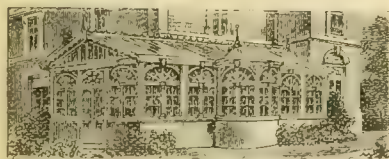
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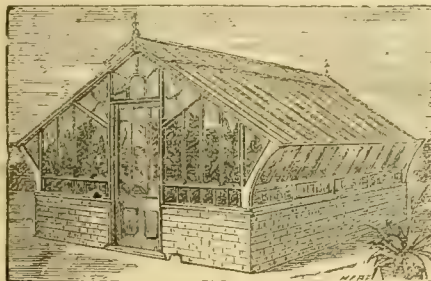
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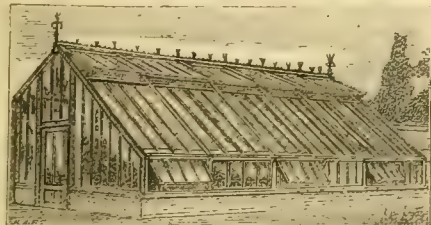
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In all sizes to meet every requirement.

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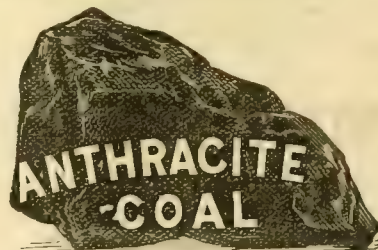


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"PERFECT"
SUMMER SHADING

Supersedes all Others.

FOR SHADING GLASS ROOFS OF ALL KINDS.

Is the Cheapest. Goes four times as far as the old preparations. Note its merits described below.

Messrs. CARLTON, Contractors for the painting of the Glasgow Exhibition of 1888, write:

"By order of the Directors we applied this Shading to the glass roofing of the Glasgow Exhibition, and found it possessed great advantages over all other preparations we had met with. Being applied cold it was most convenient to use, and while it resisted the action of the rain the whole season it was at once easily removed by gentle rubbing after wetting. It afforded a cool and pleasant shade, at same time admitting an abundance of light."

1 lb. (cost 1s.) makes half a gallon for use.

TRADE MARK.

Without which none is genuine.

THE
"PERFECT"
WEED KILLER

Trial sample post free.

Maintains its Superiority over all Riva's for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, etc.

Saves many times its cost in labour, and will keep Walks, etc., clear of Weeds for a year or more.

Used in the proportion of 1 gallon to 25 gallons of Water.

THE BEST TESTIMONIAL IS
A GUARANTEE OF COMPLETE EFFICIENCY.

And we hereby Guarantee all Weed Killer bearing our Trade Mark to be thoroughly efficient, and to give satisfaction.

SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

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21st June 1890, says:

Observations in several quarters in the past two years have convinced us that the "Perfect" Weed Killer of the Horticultural and Agricultural Chemical Company, 97 Milton Street, Glasgow, is the very thing that has long been wanted. This is at once simple, cheap, and effective, and requires only reasonable care to ensure perfect action and lasting results. At the Royal Gardens, Kew, the R.H.S. Gardens at Chiswick, and other public places near London, the "Perfect" Weed Killer is trusted for making a clean sweep of the road weeds, and, therefore, plays an important part in the keeping of the roads."

SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97 MILTON ST., GLASGOW.

CAUTION.—Please carefully note our name, address, and trade mark, and do not be deceived by imitations.

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Mr. W. C. LEACH, *Albury Park Gardens, Guildford*, writes:—"I must say your Insecticide is the best I have ever used, being death to all insect pests; in fact, a real gardeners' friend."

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In Bottles, 2/- and 3/6; ½ gallon Tins, 5/-
1 gallon Tins, 9/-; 3 gallon Drums, 8/- per gallon.

To be had of the Trade, or direct of
the Sole Manufacturer,

JOSEPH BENTLEY,
CHEMICAL WORKS,
BARROW-ON-HUMBER, HULL.

SLUGICIDE (Registered).—CERTAIN
DEATH TO SLUGS. Harmless to Plant, Vegetable, and
Animal Life. Delicate seedlings are absolutely secure when
sprinkled with "Slugicide." 1s. 6d. per box. All Seedsmen
wholesale.

The SLUGICIDE COMPANY, 6, Maryleport Street, Bristol.

THE PATENT SILICATE MANURE FOR VINES. THE MANURE OF THE FUTURE. FOR TOMATOS.

Eight-page Circular of First-class Testimonials, free
on application.

Ashford Vineyard, Fordingbridge, Hants, November 20, 1890.
DEAR SIR,—You will be pleased to hear that I was 1st at
Portsmouth for three bunches of Alicante, seven entries,
weight 7½ lb.; 2nd, close 2nd, at the Royal Aquarium, West-
minster, for three bunches of Alicante, ten entries, weight
8½ lb.; 3rd at Bournemouth for three bunches of Alicante, six
entries, weight 6½ lb. ALL FED ON SILICATE ALONE.
Those who see my ALICANTE say they never saw or tasted
such quality: the finish is superb, and flavour and firm flesh
excellent.—Yours truly,
(Signed) STEPHEN CASTLE.

The Gardens, Hardwick Hall, Chesterfield, November 6, 1890.
SIRS,—I find your Patent Silicate Manure a most valuable
manure for Tomatos, increasing them both in size and pro-
ductiveness in a most marked manner.—I remain, yours truly,
(Signed) E. WILSON,
Gardener to the Marquis of Hartington.

The Gardens, Wo'laton, Nottinghamshire.
GENTLEMEN,—I have tried your Patent Silicate Manure,
and am quite sure it is the best I have used for Vines. I may
say that many of the Vines here are very old, and I had
decided to cut them out; but as your Manure has produced
much good results, I shall certainly try them again, and con-
tinue to use your valuable Manure, which only requires to be
known to be appreciated. (Signed) CHARLES J. MEE,
Gardener to Lord Middleton.

AGENTS WANTED.

PRICES in Sacks, free on Rail:—
10s. per cwt.; £2 ¼ ton; £3 15s. ½ ton; £7 a ton.

Chemical Works,
Hemel Hempsted, Herts.



FOR PLANTS. QUICK. LASTING. ECONOMICAL.

LOWER EDMONTON, MIDDLESEX, November 18, 1890.
Dear Sir,—We have used your "INVIGORATOR"
on all kinds of plants, and have much pleasure in
telling you it has answered in every way to our
great satisfaction. We look upon your "INVIGORA-
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out to the public.—We remain, yours truly,

To Mr. S. C. Clay. J. & J. HAYES, F.R.H.S.

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7 lb. 14 lb. 28 lb. 56 lb. 112 lb.

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The above Trade Mark is printed on every Packet and Bag,
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NO CONNECTION WITH ANY OTHER FIRM.

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W. H. BEESEON, Carbrook Bone Mills, Sheffield.

NATIVE GUANO: BEST and CHEAPEST
MANURE for Garden use, NATIVE GUANO. Price
£3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt.
1 cwt. sample bag sent, carriage paid, to any station in
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Extracts from *Thirteenth Annual Collection of Reports*:—
NATIVE GUANO for POTATOS, VEGETABLES, FRUIT,
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found your Manure gave very satisfactory results."

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for any fruits or kitchen garden crops, also grass. In the 5 years
during which I have freely used it, I have gained over 560 prizes."

NATIVE GUANO for ROSES, TOMATOS, &c.—W. G.
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GISHURST COMPOUND used since 1859
for Red Spider, Mildew, Thrips, Greenfly and other
blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a
winter dressing for Vines and Orchard-house trees, in lather
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GISHURSTINE keeps Boods dry and soft on
wet ground. Boxes, 6d. and 1s. from the Trade.
Wholesale from PRICE'S PATENT CANDLE COMPANY
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EPPS'S selected PEAT,
For ORCHIDS, STOVE PLANTS,
Hardwood do., Ferns, and Rhododendrons, by sack, yard, ton,
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Rich fibrous LOAM, superior LEAF-MOULD, Coarse, Crystal,
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The Original Peat Depot, RINGWOOD, HANTS.

PEAT for ORCHIDS, RHODODEN-
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PEAT MOULD & LEAF MOULD,
VERY SUPERIOR.
POTTING COMPOST, LOAM, SPHAGNUM, &c.

For PRICE LIST, and Particulars, write to—
The FORESTER, JOYDEN WOOD, near BEXLEY, KENT.

ORCHID PEAT, best quality; BROWN
FIBROUS PEAT for Stove and Greenhouse use. RHO-
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LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half
ton; 26s. per ton, in 2-bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO
CLOTH, RUSSIA MATS, &c. Write for Price LIST.—
H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury
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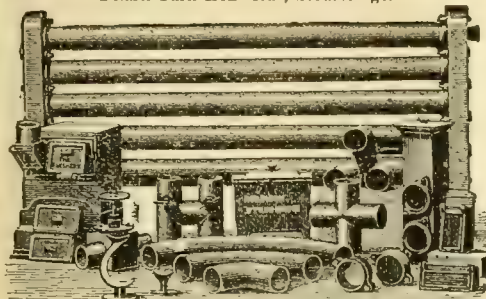
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CHARCOAL, 8s. per sack. BONES, 4-inch, 10s. per cwt.;
DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER,
10d. per lb.; 2d. lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 26s.;
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5s. per sack, 5 for 22s. 6d.; Black, 4s. 6d. per sack, 5 for 20s.
Coarse SILVER SAND, 1s. 6d. per bushel, 14s. per ton, 25s.
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each 3s. per sack. Prepared POTTING COMPOSTS, 5s. per
sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches
by 4 feet 6 inches, 16s. per dozen. PETERSBURG MATS,
12s. and 10s. per dozen. BAMBOO CANES, STICKS, and
SUNDRIES. List free.—W. HERBERT AND CO., Hop
Exchange Warehouse, Southwark Street, London, S.E.

NOTICE TO ADVERTISERS.

FRIDAY NEXT, *March 27, being*
GOOD FRIDAY, the "GARDENERS'
CHRONICLE" will be published on
THURSDAY, *March 26.*

ADVERTISEMENTS for NEXT WEEK
must therefore reach the Office not
LATER than WEDNESDAY MORNING,
March 25.

T H O S. W. ROBINSON
Dennis Park Ironworks, Stourbridge.



EXPANSION JOINT HOT-WATER PIPES
SOCKET HOT-WATER PIPES.
Illustrated revised Price List on application, free.



21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet
and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, delivered
free and sound in the country, in quantity.

"HORTICULTURAL PUTTY." Own Special Manufacture.
GEORGE FARMILOE & SONS,
LEAD, GLASS, OIL, and COLOUR MERCHANTS,
34, St. John Street, West Smithfield, London, E.C.

Stock Lists and Prices on application. Please quote *Chronicle*.

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and other PROVINCES of CANADA.—The reports of the
twelve British tenant-farmers who visited Canada in 1890, and
pamphlets issued under the authority of the Imperial and
Dominion Governments, containing full information as to land
regulations, bonuses granted to settlers, who take up land in
Manitoba, the North-west Territories, and British Columbia;
openings for capitalists, demand for labour, rates of wages,
cost of living, and all other particulars, may be had post-free,
on applying to the High Commissioner for Canada, 17, Victoria
Street, London, S.W.; to Mr. JOHN DYKE, Canadian Government
Agent, 15, Water Street, Liverpool; or to the Govern-
ment Agencies at Glasgow, Belfast, Dublin, and Bristol.

BOILING WATER OR MILK.
E P P S'S
GRATEFUL—COMFORTING.
C O C O A
BREAKFAST OR SUPPER.

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MR. J. WILLIAMS, formerly Gardener at
Cefn-y-Coed, near Carnarvon, as Head Gardener
to HARRY CLEGG, Esq., J.P., Plas Llanfair,
Llanfair, P. G., Anglesey, N. Wales.

MR. EDW. SKELTON, for the last three years
Foreman and Propagator in the Horticultural
Department of the Zoological Society's Gardens,
Regent's Park, is appointed Head Gardener to
the Corporation of Richmond.

MR. CRUMP, Madresfield, informs upwards
of sixty applicants that the FOREMAN'S PLACE is
FILLED.

P. DAVIDSON begs to say that he has
ENGAGED A JOURNEYMAN. Thanks to many
applications, too numerous to acknowledge by letter.

WANTED, a good WORKING FOREMAN;
must have a thorough knowledge of Cucumbers and
Tomatoes, and be able to grow soft-wooded Plants and Cut
Flowers for the London Market. House on the premises.
Must be a steady, sober, and industrious man, and be able to
take the entire charge of the place, with men under him.
None need apply who are not thoroughly competent, and
whose character will not bear strict investigation. State
wages and full particulars.—A. GOSS, 112, Shrubland Road,
Dalston.

WANTED, a MARRIED COUPLE, as
GARDENER and COOK. Gardener must be an
industrious and sober man, who thoroughly understands the
profession. Good vegetables and flowers required. Wife as
good plain Cook. In a gentleman's establishment; age 35
to 40; trustworthy couple, without children, as they would
live and board in the house. Wages, one guinea per week,
and all found, except beer and washing. Outdoor man kept
to attend to Cows, &c. Unexceptional references required.—
Apply at once, by letter, to Mr. STEVENS, 38, King Street,
Covent Garden, London, W.C.

WANTED, a GARDENER (WORKING),
without encumbrance. Willing to be useful. Help
given. Good Cottage. Wife care of house in absence of
family. Church of England. 18s. to 21s.—CAREFUL, May's,
162, Piccadilly, W.

WANTED, a thorough good GARDENER.
Boy kept. Must have first-rate character and testi-
monials, and not object to make himself useful.—Apply,
stating age and wages required, to D. COLEBROOK, The
Avenue, Beckenham.

WANTED, JOBBING GARDENERS.—
Apply personally to J. W. WIMSETT AND SON,
Ashburnham Park Nursery, Chelsea, S.W.

WANTED, an experienced MAN to grow
Grapes for Market.—J. PURROTT, Brookhill Road,
New Barnet.

WANTED, a steady, industrious young MAN,
to take charge of small branch of four houses; able
to grow General Stock, Ferns, Palms, Eucharis, &c. Highest
references required. Wages 20s. per week.—Full particulars
to EDWIN HILLIER, Nurseries, Winchester.

WANTED AT ONCE, a young MAN to
live in bothy with another, to work Inside and Out.
Wages 14s. per week.—GARDENER, Bohun Lodge, East
Barnet.

WANTED, AT ONCE, TWO good prac-
tical MEN. One to Propagate and Grow general
Market Stuff, also Cut Flowers; the other to be well up in
Vines, Tomatoes, Chrysanthemums, Ferns, &c.—State expe-
rience and wages expected to W. R. ARMSTRONG, Florist,
Newcastle-on-Tyne.

WANTED, a sharp active young MAN, to
take charge of Primula and Fern Houses, under a
Foreman, one from a Market Nursery preferred.—State age,
and where last employed, with references and wages required.
—TURNER BROS., Nurserymen and Florists, Garston,
Liverpool.

WANTED, a MAN, not under 30 years of
age, who thoroughly understands growing Grapes,
Peaches, Tomatoes, Strawberries, and Mushrooms for Market.
Good references. State wages.—W. GOULD, 13, York
Buildings, Adelphi, or Adelaide Lodge, Keymer, Sussex.

WANTED, for South of Ireland, a
GARDENER, where plenty of help is always given.
His chief object will be to Grow Tomatoes, Grapes, Peaches,
and Cucumbers for market, and flowers in winter.—Apply to
W. B. H., Ard-Cairn, Blackrock, Cork.

WANTED, a young MAN, steady and in-
dustrious, with a general knowledge of Gardening,
to go out Jobbing, and to make himself generally useful.
State Age, and Wages required. Abstainer preferred.
W. RATTRAY, Ash Vale Nursery, near Aldershot.

WANTED, a Married MAN, for Kitchen
Garden, and to make himself useful. Must know and
be able to do his work. Wages, 15s. per week; free house and
good garden.—WM. WHALLEY, Addington Park Farm,
Croydon.

WANTED, an active young MAN, experi-
enced in House Work. Age not under 20. Bothy
and Vegetables found. State Wages expected.—JOHN
CROOK, Forde Abbey, Chard.

WANTED, a young MAN, quick at Tying,
Watering, and Potting, and used to Firing. Wages
to commence at 18s. per week.—ISAAC MATTHEWS AND
SON, Nurserymen, Milton, Stoke-on-Trent.

WANTED, a young MAN, used to Cucumbers
and Soft-wooded Plants, as Second in the Houses;
must be sober and industrious, with good references. State
wages required.—RABY, 169, Dalston Lane, Hackney.

WANTED, a CLERK, must be well acquainted
with the Nursery Business, and have good references.
—Apply stating age, wages required, and full particulars to
H. ENGLISH, Clapton Nurseries, near Croydon.

A GREEN 4 1/2" WIDE
7/8" PER YARD

A WHITE 5 1/2" WIDE
7/8" PER YARD

N°1 WHITE 5 1/2" WIDE
5/8" PER YARD

N°2 WHITE 5 1/2" WIDE
5/8" PER YARD

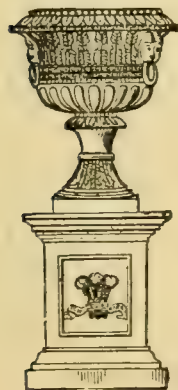
N°4 B CREAM
3 1/2" WIDE 5/8"
7/8" Do 18/4

N°1 B CREAM
3 1/2" WIDE 5/8"
7/8" Do 7/4

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CELEBRATED WESTON
FLOWER POTS
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HORTICULTURAL
POTTERY.

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Best quality and workmanship, 2 inches thick, 6 ft. by 4 ft.,
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London. Cash or reference with order.

CUCUMBER HOUSES.

Timber sufficient to build 100 ft. by 12 ft. house, light, door,
&c. put on rail in London. Low price. Send for detailed
specification, to

W. DUNCAN TUCKER,
HORTICULTURAL WORKS, TOTTENHAM.

WANTED, THREE or FOUR young MEN, quick at Potting and Watering, and used to growing Ferns, Carnations, Roses, &c. Age not under 25.—Apply personally, to G. MAY, The Nurseries, Upper Teddington.

WANTED, a steady and industrious MAN, to grow for Market and Cut Blooms.—E. GODFREY AND SON, Stourbridge.

WANTED, an active young Man, used to Potting, Tying, and Watering in a Market Nursery.—Mr. ORPWOOD, Cowley Mill Road, Uxbridge, Middlesex.

WANTED.—MAN and WIFE, as Gardener and Landress. Wages from 35s., Cottage, Coals, &c. Assistance given. Middle-aged couple without family preferred. First-rate characters necessary.—Write full particulars to Mrs. B. 2, Porchester Gate, Hyde Park, W.

WANTED, in a Nursery, a good all-round MAN, not afraid of work, chiefly outside; would have to attend to fire. Cottage on ground.—State wages required, F. E. S., Elm Lodge, Norwood Green, Southall.

WANTED, an OUTDOOR MAN.—Must be a good and quick Budder. Wages, £1 per week.—PERKINS AND SONS, Warwick Road and Park Nurseries, Coventry.

WANTED, a WORKING GARDENER, accustomed to grow all sorts of Vegetables and Garden Produce for sale.—H. WILLIAMS, 24, Hinckley Road, Leicester.

WANTED, young MAN well up in Ferns. Only those from a Market Nursery need apply.—J. WALTON, Florist, Lee, S.E.

WANTED, a competent young MAN, able to take charge of a few Houses of Palms. Must be quick at potting, &c., and able to make himself generally useful. Only those from a Market Nursery need apply. Wages to commence at 23s. Also a HANDY MAN, able to Paint and Glaze.—Apply personally to JOHN ROCHFORD, Nurseryman, Page Green, Tottenham.

WANTED, a MAN, who is a thorough good Grower of Soft-wooded stuff.—Apply, R. J. G., Stand 213 and 231, Covent Garden, W.C.

WANTED, a MAN, who thoroughly under-stands Growing and Propagating Carnations and Soft-wooded stuff.—Apply, R. J. G., Stand 233 and 234, Covent Garden, W.C.

WANTED, a strong, active young MAN, who has been used to a Market Nursery, and willing to make himself generally useful. Wages to commence at 15s. per week, and overtime.—J. MEINN, 94, James Street, Louth.

WANTED, at ONCE, young MAN, as IM-PROVER.—Must have a knowledge of Cucumbers, Vines, and Soft-wooded Stuff. Quick at Potting. State reference and wages required to JOHN PRICE AND SON, Kingstanley Nurseries, Stonehouse, Gloucestershire.

WANTED, SINGLE-HANDED GAR-DENER.—Must have good personal character from last situation. Wages, 1 guinea a week.—State age and full particulars to B., Messrs. Coudrey & Co., 6, Eastcheap, E.C.

WANTED, an IMPROVER, in a large Garden, under Glass.—Strong and healthy; not less than 19, with fair experience. Premium £5, to be paid on entry; 12s. per week, £5 the end of twelve months; 14s. the second year; bothy, milk, &c.—A. EVANS, Lythe Hill Haslemere.

WANT PLACES.

SANDERS, St. Albans, can thoroughly RECOMMEND several first-class HEAD GARDENERS.

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, Liverpool, are in a position to recommend a first-rate man as HEAD GARDENER, or GARDENER and BAILIFF; also a thoroughly competent man as HEAD GARDENER, who has a good knowledge of Orchids; unexceptional references in each case.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS.

JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

B. S. WILLIAMS AND SON beg to intimate that they have at present in their Nursery and upon their Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Victoria and Paradise Nurseries, Upper Holloway, N.

MESSRS. WOOD AND SON, Wood Green, London, N., can strongly recommend Robert Nelson (age 36), to the notice of those requiring the services of a trustworthy, practical man as HEAD GARDENER. Particulars on application.

GARDENER.—CHARLES WOODINGS, Gar-dener to J. Brinton, Esq., Moor Hall, Stourport, would be pleased to recommend to any Lady or Gentleman requiring the services of a good all-round Gardener. Understands the Early Forcing of Vines, Peaches, Cucumbers and Melons, Stove and Greenhouse Plants. Good Flower and Kitchen Gardener.

GARDENER (HEAD).—Mr. LEACH, Albury Park, Guildford, can recommend a good man, where two or three are kept.

GARDENER (HEAD).—J. W. SILVER can most confidently recommend a young man as above, who is well known to him as a most efficient all-round Gardener, and an energetic, honest, trustworthy man. The highest references.—Streatham and Norbury Nurseries, S.W.; and 3, Marlborough Mansions, Victoria Street, Westminster.

GARDENER (HEAD), or ORCHID GROWER.—Age 31; seventeen years' experience in Orchids, Stove and Greenhouse Plants, Early and Late Forcing, Hardy Fruit, Flower, and Kitchen Garden.—WILLIAM LAKER, Quorn Lodge, Loughborough, Leicestershire.

GARDENER (HEAD), where several are kept.—Age 33; married, one child. Eighteen years' experience in leading establishments, with Vines, Peaches, Orchids, Stove and Greenhouse Plants; Pleasure, Fruit, and Kitchen Gardening.—F. JEAL, Rawdon Hill, Arthington, Leeds.

GARDENER (HEAD).—Age 28, married. Thoroughly competent in all branches. Twelve years' practical experience. Excellent characters can be had from the present and previous situations.—J. CARPENTER, The Gardens, Langley Park, Beckenham, Kent.

GARDENER (HEAD).—Married, no family. Situation wanted by an energetic, trustworthy Man as above. Thoroughly understands his business; specially well up in the cultivation of Orchids. Excellent references.—D. M. R., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (HEAD), where another is kept, or good SINGLE-HANDED.—Age 35, married, no family. Excellent characters.—G. PALLANT, 58, College Street, Putney.

GARDENER (HEAD).—A Lady can highly recommend a superior and conscientious Man for the routine of establishment. Most excellent Fruit, Orchard, and exotic plant grower. Has served her over ten years; unimpeachable testimonials, and prizes may be seen.—M., 20, Pelham Terrace, New Eltham, Kent.

GARDENER (HEAD).—S. BOLTON, gardener to W. Tipping, Esq., wishes to confidently recommend his Foreman, W. Adams, as above. Sixteen years' experience; four years' in present situation. First-class references.—W. ADAMS, The Gardens, Brasted Park, Sevenoaks.

GARDENER (HEAD), where two or three are kept.—Age 34, married; good character and experience.—GARDENER, 7, Trenholme Road, Anerley, S.E.

GARDENER (HEAD).—Age 36. C. PENNY, late Head Gardener, Sandringham, wishes to recommend his late Foreman, Wm. Palmer, to any Lady or Gentleman wanting a thoroughly practical man in every branch of his profession.—C. PENNY, Belle Vue, Salt Hill, Slough.

GARDENER (HEAD).—H. MARKHAM, Mere-worth Castle, Maidstone, would be pleased to forward particulars to any Gentleman requiring a first class gardener with not less than eight under.

GARDENER (HEAD).—Age 30, single; fifteen years' good experience. Three years in present situation. Good references.—E. RUSSELL, Moray Lodge Gardens, Campden Hill, Kensington, W.

GARDENER (HEAD), where three or more are kept; Age 27.—WM. WOOD & SON, Wood Green, strongly recommend a young man for Head Gardener's position. Total abstainer. Well qualified for entire charge. Last situation for five years as Foreman where six were kept.

GARDENER (HEAD), and ORCHID GROWER, in good general place.—Married; upwards of twenty years' experience. Twelve years' character.—X. W., Gower, Tooting Graveney.

GARDENER (HEAD) and BAILIFF.—Thoroughly experienced in every branch of high-class Gardening, and Management of Dairy and other Stock, Land, &c.—X. Y. Z., 41, Wellington Street, Strand, W.C.

GARDENER (HEAD WORKING), where three or more are kept.—The recent Bishop of WINCHESTER wishes to recommend highly his Gardener as above. Thoroughly experienced in all branches. Left through breaking up of establishment.—SMITH, 25, Castle Street, Farnham, Surrey.

GARDENER (HEAD WORKING), where two or more are kept.—Age 35, married, one child; thoroughly experienced in all branches. Good references.—GARDENER, East Ashing, Chichester, Sussex.

GARDENER (HEAD WORKING).—Age 49, No incumbrance; can be well recommended by present employer.—J. BURTON, 30, Primrose Hill, Stanningley, Leeds.

GARDENER (HEAD WORKING).—G. CURTIS, six years Head Gardener to Hon. R. H. Dutton, seeks re-engagement; or in Market Establishment. Well up in Hardy Fruit, Forcing, and Management of Good Place. Married. Abstainer.—Timsbury Manor, Romsey, Hampshire.

GARDENER (HEAD WORKING).—Has had thorough practical experience in all branches, including Vines, Early Forcing, Plants, &c. Highest testimonials from last and previous employers.—J. R., 68, Great George Street, Liverpool.

GARDENER (HEAD WORKING), where three or more are kept; age 30, married.—C. J. GOLDSMITH, Head Gardener, High Trees, Redhill, will be pleased to recommend a man as above.

GARDENER (HEAD WORKING).—Age 44, married, no family; thoroughly experienced in all branches. No objection to Land. Eight years' good recommendation.—J. PENFORD THURXTON, Andover, Hants.

GARDENER (WORKING).—Age 43, married, 1 child; understands Flowers, and Kitchen Garden, Vines, Cucumbers, &c. Nineteen months' good character (seven years previous). Twenty-six years' experience.—T. H., Garden Cottage, Bishop's Road, Fulham, S.W.

GARDENER (HEAD WORKING); age 28.—J. FRIEND, Gardener to the Hon. P. C. Glyn, Rooknest, Godstone, can confidently recommend his Foreman, W. Penton, to any lady or gentleman requiring a capable and deserving man. Fourteen years' experience.

GARDENER (HEAD WORKING); age 45; Married; one boy at home, 11 years.—Thoroughly experienced in the cultivation of Vines, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardens. Eight years' good character; five years each from two previous places. State wages given.—E. C. GOODWIN, Crawley Road, Horsham.

GARDENER (HEAD, or SINGLE-HANDED).—Age 39, married; 26 years' experience in all branches of the profession. Three years' good character from last employer; seven years' previous.—EDWARD LEWIS, 50, Grove Street, Retford, Notts.

GARDENER (HEAD, or good SINGLE-HANDED).—First-class testimonials from previous and present situations. Married, no family; wife can assist in house, if required.—GEO. D. JONES, Lock Lodge, Harrow Road, London.

GARDENER (good SINGLE-HANDED).—Age 37, no family; wife good Landress. Both good characters from present and past situations. Understands Early and Late Forcing, Fruits, Flowers, and Vegetables.—GARDENER, Llanbarra House, Llanbarra, Pontyclun, Glamorganshire.

GARDENER (SINGLE-HANDED), or otherwise.—Age 25; seven years' experience in large establishments in Greenhouse and Flower and Kitchen Gardens. Good characters from present and previous employers.—B. B., 2, Lower Winchester Road, Catford, S.E.

GARDENER (SINGLE-HANDED), or otherwise.—Age 27; understands Stove and Greenhouse Plants, Flower and Kitchen Gardens. Good references. Disengaged.—J. T., Bourne House, Kenley, Surrey.

GARDENER (SINGLE-HANDED), or where several are employed.—THOS. JONES, gardener to Lord Calthorpe, Elvetham Park, Winchester, Hants, will be very pleased to recommend to any Lady or Gentleman, a young Man, thoroughly practical in his work, reliable and trustworthy.—A. BACKSHALL, Bude Cottage, Oakleigh, East Grinstead, Sussex.

GARDENER (SINGLE-HANDED or SECOND).—Age 22; seven years at present place, both Inside and Out.—For particulars, Mr. HILL, The Gardens, Tring Park, Herts.

GARDENER (PRACTICAL), age 29.—WILLIAM WALKER, Heath Road, Dersingham, Norfolk, is open to engage with any Lady or Gentleman as above. Sixteen years' experience, last situation Portnall Park (Rev. H. J. De Salis), Virginia Water, Surrey.

GARDENER (WORKING).—Understands Stock. Four years in present situation. Wife understands Dairy and Poultry if required.—B., The Manager, Claremont Nursery, Esher.

GARDENER.—A competent Gardener, age 25, wishes to change. Seeks a situation under modest pretensions.—Letters please send to M. N., 3, Lymouth Road, Stamford Hill, N.

GARDENER (age 30), where another is kept, or SECOND, in good establishment. Three and a half years in present situation.—J. MORRIS, Palace Gardens, Ely. Refer to Lady Alwyn Compton.

GARDENER; age 21.—Head Gardener would like to recommend late Under. Eight years' experience in Private and Nursery. Used to Hard and Soft-wooded Plants. Good character.—W. K., 41, Wellington Street, Strand, W.C.

GARDENER, age 39; two boys.—Thoroughly experienced and practical. Scotch gardener desires re-engagement. Wife has had management of Cows and Poultry.—GARDENER, Buller's Wood, Chislehurst, Kent.

GARDENER; age 25.—A competent Gar-dener wishes to change, and seeks a situation under modest pretensions.—Letters please send to M. N., 3, Lymouth Road, Stamford Hill, N.

GARDENER (SECOND).—Age 23. Strong and active. Eight years' experience Inside and Out. Excellent character. Highest reference from present employer.—W. LISNEY, The Gardens, Ashted Park, Epsom.

GARDENER (SECOND, or good THIRD), where three or four are kept.—Experienced Inside and Out. Eight years' good character. Near London preferred.—H. T., Arbourfield, Reading.

GARDENER (SECOND), in a good establish-ment; age 22.—A Gentleman wishes to recommend a young man as above. He is thoroughly respectable, sober, honest, and willing.—A. W., Post Office, Cheshunt, Herts.

GARDENER (SECOND), Inside and Out; age 23.—Mr. FOWELL, Gaywood Hall Gardens, King's Lynn, can conscientiously recommend his Second Man as above. Over four years' excellent character.

GARDENER (SECOND, or SINGLE-HANDED). Age 22, single; good character.—J. F. GOSBURY HILL, Hook, near Surbiton, Surrey.

GARDENER (UNDER).—Age 18; a young man seeks situation as above.—JAMES KIRK, Maddison's Row, Skirbeck, Boston, Lincolnshire.

GARDENER (UNDER), Inside and Out.—Age 22; seven years' experience; can be well recommended, anxious to improve. Please state Wages.—H. BRADLEY, Seacroft, Barry, Glamorganshire.

GARDENER (UNDER), age 19; seven years' character.—Understands Peaches, Nectarines, &c. Quiet, steady, and abstainer.—W. SALMON, near Chapel, Elmwell, Suffolk.

GARDENER (UNDER).—Age 22, single; good reference.—Please state full particulars to H. OUSELEY, 162, Wellfield Road, Streatham, London, S.W.

GARDENER, where two are kept, or SINGLE-HANDED.—Age 26. Nine years' experience in all branches. Good references.—F. C. SOWELL PARK, St. Albans.

GARDENER (UNDER), where three or more are kept.—Age 23; six years' good character.—WILLIAM WHEELER, Arbourfield, Reading, Berks.

GARDENER (UNDER), or FIRST JOURNEYMAN.—Age 21; two years' good character, two previous. Abstainer.—W. LEECH, Sprowston Hall, Norwich.

GARDENER (UNDER), or GARDEN LABOURER.—Age 24; good character.—G. SIMMILL, 2, Holmes Place, Fulham Road, South Kensington, S.W.

GARDENER (UNDER).—Age 25, single; eleven years' experience, Inside and Out. Good reference.—E. BISHOP, Dover's Green, Reigate, Surrey.

GARDENER (UNDER), Inside and Out.—A young man seeks a situation as above. Two years' character.—GEORGE GIBSON, Kirkby Mallory, near Hinckley, Leicestershire.

GARDENER (UNDER), in a Gentleman's establishment.—Age 23; has had eight years' experience both at In and Outdoor work. Can be well recommended.—A. B., Post Office, Winthorpe, Newark, Notts.

GARDENER (UNDER), Inside.—Age 25; seven years' experience. Would like situation for further advancement of Inside Work. Good character and reference.—S. WOODCOCK, Loddington Hall, Leicester.

GARDENER (UNDER).—Age 20; three and a half years' good character from last situation, where four are kept.—TAYLOR, Page, College Place, Finchley, London.

GARDENER (KITCHEN); age 27.—THOS. ROGERS, Frimley Park, Farnboro' Station, Hants, can with every confidence recommend the above to any one.

GARDENER (UNDER), in a Gentleman's establishment.—Age 18; steady and willing. Two years in present situation. Good references. Abstainer.—A. B., 7, Ann's Place, Greenhill, Harrow, Middlesex.

GARDENER (UNDER).—Age 20; two years' experience Inside and Out. Good references, if required.—C. E. COCKERILL, Holmpton, Withernsea, Hull.

FOREMAN, age 24; ten years' experience.—A. WATTS recommends J. Litton as above.—JNO. LITTON, The Gardens, Dyffryn, Neath, South Wales.

FOREMAN, in a good establishment; age 27.—W. PETERS, gardener, Givons Grove Gardens, Leatherhead, can thoroughly recommend Charles Cole as above. Five and a half years' character, two as Foreman. Twelve years experience.

FOREMAN, or PROPAGATOR and GROWER.—Seventeen years' experience in producing large quantities of Cut Flowers, Flowering Plants, and Hard and Soft-wooded Plants, such as Pelargoniums, Bouvardias, Cyclamens, Carnations, Double Primulas, and Chrysanthemums; also Stove Plants, Ferns, Palms, Roses, &c. Well up in Wreaths and Bouquets.—FOREMAN, 65, Bonchurch Road, Hassocks, Sussex.

FOREMAN or MANAGER in small Market Nursery. Thoroughly experienced in Grapes, Strawberries, Peaches, Cucumbers, Tomatoes; also Cut Flowers, Ferns, &c. Good references.—J. J., 10, Powder Mill Lane, Dartford.

FOREMAN, in the Houses; age 25.—A Gardener can thoroughly recommend a young man as above. Eight years' experience. Two years good character. Steady and energetic.—E., The Warren, Broadwater, Worthing, Sussex.

FOREMAN, or ORCHID GROWER.—Mr. GILKS, Gardener to A. Borwick, Esq., will recommend a young man as above. Eleven years' experience; five and a half in present place.—G. MORRIS, Glenthorne, Staunmore, Middlesex.

FOREMAN; age 26.—Mr. J. BEAMISH, Gorse Hall Gardens, Stalybridge, would be pleased to recommend his Foreman, Harry Lee, to any Gardener requiring a thorough practical, trustworthy man.—Address as above.

To Nurserymen.

FOREMAN (GENERAL), or MANAGER, in small Nursery.—Age 28; used to general Management of Plants, Wreath Making, Market Selling, Correspondence, &c. Eleven years' experience—five as General Foreman. Good Salesman. Good references.—A. S., 1, Mildmay Grove, London, N.

FOREMAN or FIRST JOURNEYMAN in good Establishment.—Age 23. Ten years' good experience. WILLIAM BROWN, Elmdon Hall Gardens, Birmingham, would be pleased to recommend Joseph Goddard as above.

FOREMAN; age 24.—Mr. WANT, The Gardens, Clare Lawn, East Sheen, will be pleased to recommend his First Journeyman as above. Ten years' experience in Orchids, Fruit, and Stove and Greenhouse Plants.

FOREMAN (INSIDE).—Age 29; experienced Inside and Out.—F. SWINDLEY, Christleton, near Chester.

FOREMAN (INDOORS).—Age 27; good character. Two years Foreman in last situation; can be highly recommended. Abstainer.—A. CHEESEMAN, Shoreham, Sevenoaks, Kent.

FOREMAN, in the Houses; age 24.—S. DAVIES, Head Gardener, Weybridge Park, Surrey, would be pleased to recommend a highly respectable and trustworthy man as above. Seven years' experience in good places.

FOREMAN; age 26.—Mr. TEGG, Bearwood Gardens, Wokingham, Berks, can with confidence thoroughly recommend W. Hammond, who has lived with me six years, two years as Foreman.

FOREMAN, or FIRST JOURNEYMAN.—H. HATTO, age 25, after several good places, is now leaving at own request, desiring appointment as above.—South Lodge Gardens, Horsham.

To Nurserymen.

MANAGER, or GENERAL FOREMAN.—Well acquainted with the general routine of the Hardy Outdoor Nursery trade, Cultivation, and Value of Stock. Thirty years' experience.—GEORGE CALLANDER, 41, Larkfield Road, Richmond, Surrey.

GROWER; age 26.—Situation wanted in a good Firm. Twelve years in the Trade. Well up in both Growing and Forcing Roses, Lily of the Valley, Gardenias Carnations, Show Geraniums, Ficus, Chrysanthemums, Dracenas, and Cucumbers. Excellent character.—A. B., Mr. Churchill, St. James's Villa, Hanworth, near Feltham, Middlesex.

To Nurserymen.

PLANT GROWER, in the Houses, to take charge.—Age 23; eight years' experience in London and Country Establishments.—BAKER, Coombe Cellars, Teignmouth, Devon.

PROPAGATOR under a Foreman, or where one or two Propagators are kept; used to Roses, Gardenias, Lappagerias, Euphorbias, Poinsettias, Primulas, and Nursery Stock generally.—C. HOLMES, 16, Dorset Street, Stretford, Manchester.

PROPAGATOR and GROWER, or GROWER, in a good Market Nursery.—Fourteen years' experience as above. Good references.—H. EDEN, Sharman's Cross, Solihull, Birmingham.

To Nurserymen.

JOURNEYMAN, in the Houses, in good establishment.—Age 25; nine years' experience; Stove, Greenhouse Plants, Palms, &c. Good reference.—H. E., 6, Baythorne Street, Bow, London, E.

JOURNEYMAN, Inside and Out, in a Gentleman's Garden, where others are kept.—Age 20; good character.—HEAD GARDENER, J. Bunney, Danny Park, Hassocks, Sussex.

JOURNEYMAN, or THIRD, in a good establishment.—Age 19; good reference.—G. HOOKEY, Staplefield Place, Staplefield, Crawley, Sussex.

JOURNEYMAN (FIRST).—Age 24; well posted in Orchids, Stove and Greenhouse Plants, and Vines. Three years' excellent character from present situation.—W. B., Langley Park, Beckenham.

JOURNEYMAN (FIRST).—Situation wanted in a good establishment, by a young man, age 21, as above.—For reference as to ability, &c., apply to HEAD GARDENER, Hill Bank, Frankby, Birkenhead.

JOURNEYMAN, in the Houses or otherwise.—Age 22; seven years' experience. Good character.—G. LEWIS, Little Faringdon, Lechlade, Gloucestershire.

JOURNEYMAN, in the Houses, in a good Establishment.—Age 21; two years in present situation, three years previous.—E. WHITTLE, Holly Bank, Emsworth, Hants.

JOURNEYMAN.—Age 20, Inside and Out; four and a half years' experience. Eighteen months, and three years' previous. Total abstainer.—BINLEY, Patrick Street, Market Harborough.

JOURNEYMAN (INSIDE).—Age 21. Over twelve months in present situation as Improver. Well recommended by Head Gardener.—C. CHUBB, Cromer Hall Gardens, Cromer, Norfolk.

To Nurserymen.

JOURNEYMAN, Inside or Out.—Age 20; good references. With a good knowledge of Cut Flower Work.—SUMNER, 2, Clarendon Terrace, Maida Vale, London.

IMPROVER, in a Gentleman's garden, Inside and Out.—Age 19; three years in present situation.—A. THATCHER, St. Ann's Road, Chertsey, Surrey.

IMPROVER.—Situation wanted by Youth (age 18) in Houses. Four years' experience. Can be well recommended by present employer. Abstainer.—H., Brown's Library, 366, Kingsland Road.

IMPROVER, in a Gentleman's Garden, or Nursery.—Age 17; good references.—A. BURGESS, 3, Elgin Terrace, Kilburn, N.W.

IMPROVER, in a good Garden, principally Inside.—Age 17; excellent character. Four years in present place.—H. REED, Wandale Road, Woking, Surrey.

IMPROVER.—Wanted, by a steady man, age 21, a situation in a large Garden; has a very good knowledge. Four years' excellent character.—E. REES, Glanhelig, Boncath, R.S.O., South Wales.

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IMPROVER, in a Gentleman's Garden.—Respectable Youth, with some experience, requires situation as above. Three years' good character. Abstainer.—R. JOHNSON, 19, The Avenue, Tottenham.

TO GARDENERS.—A GARDENER wishes to get a situation for his son in the Houses under a Foreman, where he will be able to improve himself. He has been with me five years Inside and Out. Age 18.—GARDENER, Warren Lodge, Finchampstead, Wokingham, Berks.

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TO NURSERYMEN.—Situation wanted in London Market Nursery.—Advertiser (age 23), has experience in Fruit, Chrysanthemums, and Soft-woods. Good references.—H., F. M. Sibley, High Road, Tottenham.

TO GARDENERS.—Situation wanted in a good Establishment, Inside and Out. Eleven years' experience. Age 25. Good character. Twelve months as Foreman in present situation.—FRY, Wharton Grange, Framfield, Sussex.

TO NURSERYMEN.—Situation wanted by a young Man, age 23, in Market Nursery. Used to Selling in the Flower Market, Covent Garden, and filling up time in Nursery. Good at Cucumbers, Tomatoes, and Strawberries. Ten years' character.—H. C. R., G. E. Nash, Manor Nursery, Bexley Heath.

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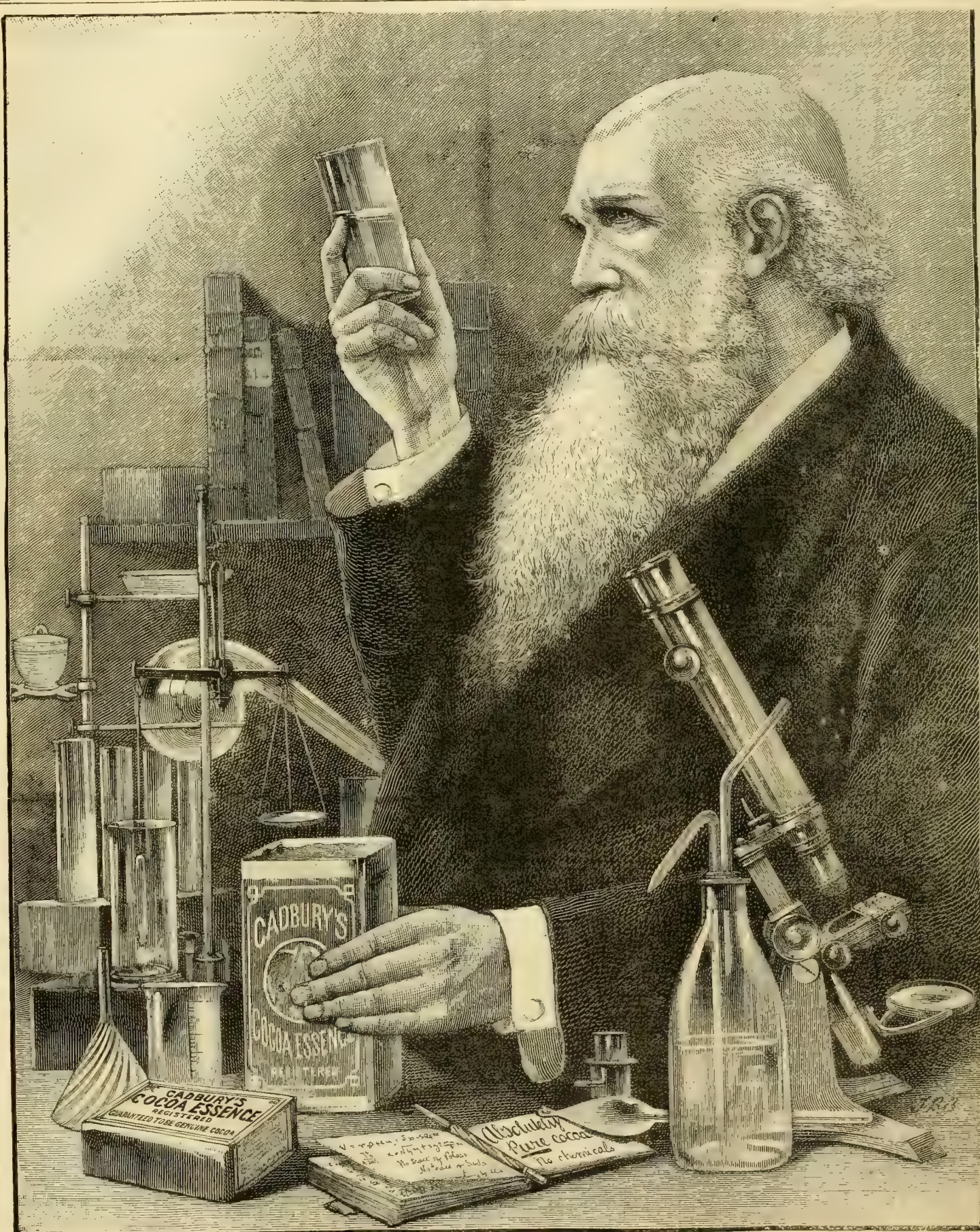
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"The Gardeners' Chronicle" in America. The Subscription to America, including Postage, is \$4.30 for 12 months. Agent for America, E. H. LIBBY, Manager, The Rural Publishing Co., Times Building, New York, to whom American orders may be sent.

Now Ready, in Cloth, 11s. 6d., "The Gardeners' Chronicle," Vol. VII., Third Series, July to December, 1890. The PUBLISHER, 41, Wellington Street, Strand, W.C.

"Paxton's Calendar." New Edition, "The Cottagers' Calendar of Garden Operations," Price 3d., post-free, 3½d. 41, Wellington Street, Strand, London, W.C.

SOUTH SHIELDS CHRYSANTHEMUM and WINTER FLOWER SHOW.—The above Committee intend to resuscitate their Show again, which will be held in Mr. F. M. Laing's Royal Assembly Hall, South Shields, which is lighted by electricity, and is 121 by 61 feet. The Society will offer £100 in Prizes. Schedules will soon be ready. Apply to—**BERNARD COWAN**, Hon. Sec., Harton, South Shields.

NEWCASTLE-ON-TYNE SPRING FLOWER SHOW, April 15 and 16. For Schedules, &c., apply to **JAS. J. GILLESPIE**, Secretary, Cross House Chambers, Newcastle-on-Tyne. N.B.—Entries close on Friday, April 10, 1891.

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GREAT GENERAL HORTICULTURAL EXHIBITION, under the patronage of the Government and the Provincial and Town Councils. From SUNDAY, August 23, to SUNDAY, August 30, 1891. For programmes and schedules, address—**ERNEST DELARUYE**, Secrétaire du Cercle V. H., Chaussée de Bruxelles, Ledeborg, Gand.

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MESSRS. PROTHOROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 1, at half-past 12 o'clock.
On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHOROE AND MORRIS will SELL by AUCTION, at their Rooms, 67 and 68, Cheapside, on FRIDAY NEXT, April 3, several new and scarce CIRRHOPELALUMS and BULBOPHYLLUMS, collected in the Shan States, in the neighbourhood of the Ruby Mines, some of them not hitherto in cultivation.
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Wednesday and Saturday Next.

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Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD, will take place at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, April 16, and he will be glad if Gentlemen desirous of entering plants for this Sale, will please send Lists as soon as possible.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 2, at half-past 12 o'clock precisely, a choice Collection of ESTABLISHED ORCHIDS chiefly in Flower and Bud, comprising some fine varieties and specimens of Odontoglossums, Oncidium, Dendrobium, rare Cypripediums, Cattleya Mendelii, Lælia, &c.
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It has been thought advisable not to remove the collection from "Ghyllbank" to Garston; it will, therefore, be on view at "Ghyllbank" (which is about 15 minutes walk from St. Helens or Thatch Heath Stations, London & North Western Railway), from March 16, and on Sale from April 6.

Descriptive and Priced Catalogues are being prepared, and will be sent, post free on application, to all who will send their name and address for that purpose, to THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool.

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- (1) Of a portrait to be placed in the Lindley Library, under the charge of the Trustees of that Institution.
- (2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned.

The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds, and amount in the aggregate to £205 12s. 6d. (March 11, 1891).

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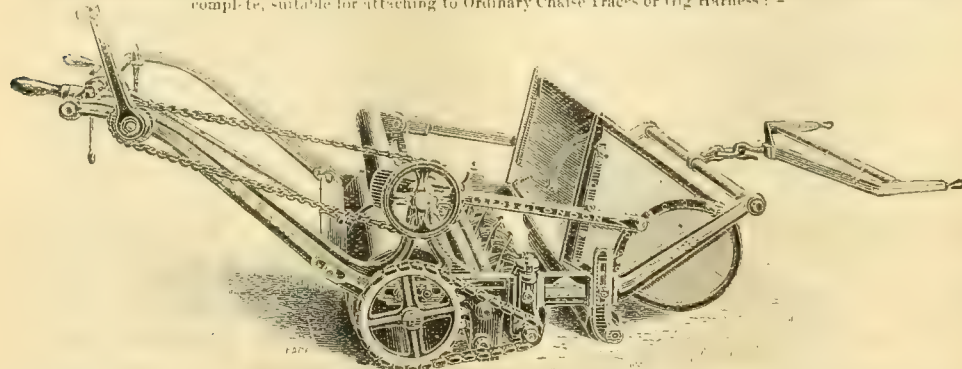
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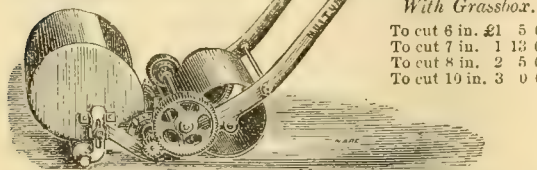
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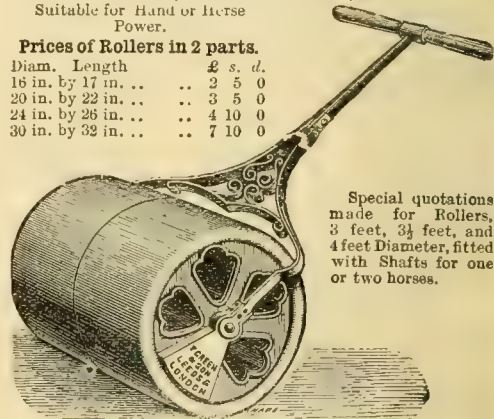
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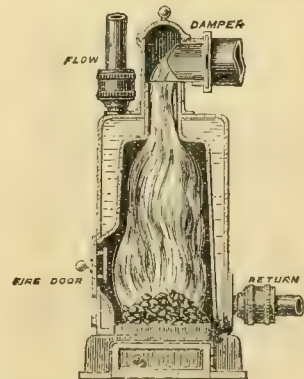
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 28, 1891.

ON THE EFFECTS OF URBAN FOG UPON CULTIVATED PLANTS.*

MY observations so far deal almost entirely with plants cultivated under glass.

It will be convenient for the purposes of this report, to take the several lines of enquiry, and to deal with them in successive paragraphs.

I. Urban Fog and Country Mist.—In an enquiry into the action of so complex a product as urban fog, it was of the greatest importance to obtain reliable data as to the effect on vegetation, if any, of pure country mists, uncontaminated by smoke. It was impossible for me personally to make the observations needful to establish the injurious or other action of mist upon plants; but, by the courtesy of correspondents in country districts, quite away from areas of smoke genesis, it would appear, so far as observations are as yet to hand, that little or no injury to stove or conservatory plants arises from this cause. Indeed, pure mists would seem to be beneficial to certain classes of cultivated plants. In those instances in which any injury occurred, it was, in most cases, referable to some other cause. The establishing of this point is of great importance, since foggy weather is so frequently attendant upon spells of frost, and it has been frequently suggested that the increased stove-heat needful to maintain the requisite temperature would have a harmful action. Indeed, I was quite prepared to find this to be the case at the outset of the enquiry. My own observations during cold weather in London without fog, and the evidence to hand from a distance, as to frost with and without mists, point to the fact that, with proper precautions, no appreciable damage is done to plants.

In general, the same remarks apply to small towns away from manufacturing areas. With the increase in size of the towns, the conditions more nearly approximate to those of London. The fog leaves the well-known deposit of filth on glass-houses and evergreen foliage; and if such districts escape the more serious effects, observable in or near the larger smoke-producing areas, it is due to the relatively small concentration of the impurities in those fogs. It seems to me desirable to obtain accurate analyses of fogs from some country town of say 50,000 inhabitants, in which manufactures are not carried on, for comparison with similar analyses from the metropolis.

* [With the omission of some prefatory remarks, the above paper constitutes the substance of the preliminary Report presented to the Scientific Committee of the Royal Horticultural Society, March 24, 1891, by Professor F. W. Oliver. The investigations in progress are made under the auspices of the Committee with the assistance of a Government grant accorded through the medium of the Royal Society.—Ed.]

II. Extent of the London Fog-area.—I have been at great pains to ascertain how far the London fog-cloud extends around the metropolis. In this I have had the most cordial co-operation of our nurserymen and cultivators, who have supplied me with detailed information as to the times of occurrence of fogs, and as to the nature and extent of the injuries sustained. In very many cases I have availed myself of the opportunity to visit their collections, and form an estimate of the damage done, valuable for purposes of comparison. The extent of the fogs is greatest in a westerly or south-westerly direction, and has been traced as far as 35 miles away westward, and 25 miles south-west, under special atmospheric conditions. Exceptionally, the London fogs are met with at even 50 miles' distance on this side. With the wind in an easterly or north-easterly direction, these outlying districts receive visitations of fog with the accompaniments of sooty deposits and sulphurous smell. No doubt the concentration is not so considerable, nor the duration so long, as nearer London, but it is sufficient to at once affect the buds and flowers of such sensitive Orchids as *Lælia anceps*, *Cattleya Trianae*, *Calanthe*, &c. The effect of the fog on foliage at these distances is, fortunately, small, though in certain instances it is sufficient to destroy the seedlings of *Cucurbitas*, *Tomatos*, &c., which are extremely sensitive. As one follows the effects of fog down the Thames Valley, from the most outlying stations affected, to London, the observed effects increase in severity, till they are indistinguishable from those noted at stations actually within the metropolis. At Kew, for instance, the destruction has been most disheartening, it having come to flowers, flower buds, and foliage alike. Effects of similar nature, but less in total magnitude, are reported from spots five miles further west. Southwards, the North Downs afford a valuable barrier, which in many cases would seem to filter off the more deleterious constituents of the fog. Indeed, the configuration of the country and the nature of the sub-soil have an important influence in determining the immunity of a given locality from damage. Eastwards, I have information as to damage from so great a distance as Maidstone, over 30 miles. All my correspondents emphasise the non-hurtful nature of the sea fogs prevalent in this quarter. To the north and north-east, the fog effects do not extend to such extreme distances, and the conditions for winter cultivation are consequently more favourable for cultivation on that side of the metropolis. Mr. E. Mawley, of Berkhamstead, has furnished me with some interesting meteorological details regarding fogs extending to this locality (26 miles N.W.).

The tabulation of the information bearing on the subject of this paragraph will form a valuable appendix to my detailed report.

III. The Fogs of the Winter 1890-91.—It is needless to say that the past winter has been one singularly favourable for the purposes of an investigation of this character. The season opened with a severe fog, of short duration, during the second week of October, which left its traces on vegetation in the London area. This was the only serious instance of a fog, on which observations of hardy plants could be made, as the conditions were not complicated by the presence of frost. I am indebted to Mr. C. T. Drury for an interesting account of its effects, unprecedented in his experience, upon his collection of hardy Ferns at Forest Gate. Though there were minor fogs during November, it was during the long periods before and after Christmas, and again in February, that all the worst effects were exhibited by vegetation under glass. These two spells differed considerably in their nature. The Christmas fogs

were accompanied by exceptionally severe frosts, were on the whole much darker overhead, and contained a larger amount of noxious matter. In addition to this, the duration of daylight was considerably shorter than in February. On the other hand, though in February the fogs were exceedingly opaque, the general average of light-reduction was not so great as at Christmas. The vertical extent of the fogs in February was such that on many occasions the sun was able to partially disperse them for a short period at noon.

Both fogs had a marked effect on flowers, but on the whole at Christmas, to instance only one genus of plants, *Cypripedium*, the effects were much more marked. *Cypripedium* is perhaps as little affected by fogs as any genus of Orchids I have met with. Yet, in a large collection, continuously under my observation, it was patent that the damage done was markedly less in February than at Christmas. In the collections of plants under observation, the damage to foliage was also greater during the former; this both as regards the dropping of leaves, which I have reason to believe to be greatly brought about by the reduction of light for a lengthened period, and also in the formation of actual corrosions of portions of the leaf-surface.

It must be remembered, in estimating the relative damage caused by these two fogs, that the earlier one destroyed a greater part of the foliage of very many soft-wooded plants, so that there was less surface exposed for attack at the second occasion. Nevertheless, so favourable were the circumstances during the latter part of January and the first week in February, that rapid growth had in many cases taken place. If we narrow the comparison to the damage (corrosions) sustained by young, and relatively unprotected leaves during the two periods, without doubt, that at Christmas was immeasurably greater than in February. These remarks are based on observations on collections continuously under my eye, and situate in the worst districts. Full details are not yet to hand from correspondents at outlying stations, so that it is possible I may have to modify these observations when I come to take a general survey. Thus, at Kew, the ill effects noted after the February fogs were quite as bad as at Christmas, whilst further east the reverse was the case. Other considerations confirm the view, that in February the fog-nucleus was several miles further west than at Christmas. I have in my notes full details of the damage obtaining from these fogs from many sources, but with these horticulturists are, in general, only too familiar, and they may well be reserved for the report on the whole question.

IV. Constitution of Fog.—On a purely chemical question, such as that of the constitution of fog, I am scarcely entitled to speak. However, since at the outset of this enquiry it was deemed advisable to obtain as much information on the matter as possible, with especial reference to those components deleterious to vegetation, I will state briefly what has been done.

The Meteorological Council very readily put at our disposal the pump and apparatus originally constructed for Dr. W. J. Russell's investigation. The whole apparatus was thoroughly revised and set up under the direction of Dr. Russell. Since the middle of December frequent washings of fog have been obtained with it. Those are now undergoing analysis. In addition, samples of many fogs have been aspirated through a solution of permanganate of potash—the volume of fog necessary to decolorise the pink solution being registered by a meter constructed on the wet system.

The permanganate is extremely susceptible to sulphurous acid, probably the chief agent of damage present in the London atmosphere. A comparison of the volumes of air, necessary to completely bleach a known amount of permanganate in foggy and in fine weather, is striking. Whilst during a severe fog as little as 1 or 2 cubic feet is sufficient in fine clear weather, 30 or 40 cubic feet may be aspirated without causing an appreciable decoloration. Even a rough

method such as this would become an instrument of some precision in the hands of a chemist, and would furnish results of the greatest value in comparing the damage to vegetation inflicted by separate fogs.

During the winter, collections of snow from equal areas were made at frequent intervals, and the amount of matter precipitated upon it from day to day estimated.

At the close of the February fogs, the opportunity was taken to make scrapings from 20 square yards of the glass roofs of plant houses at Kew and at Chelsea. The glass at both localities had been washed just before the commencement of the spell of fog. Each yielded an almost identical amount of deposit—i.e., 31 grains per square yard, or 6 tons per square mile.

Dr. G. H. Bailey, of the Owens College, Manchester, was good enough to analyse the samples, and furnishes the following as the result of a preliminary examination of that from Chelsea. "It consisted of about 40 per cent. of mineral matter 36 per cent. of carbon, and 15 per cent. of hydrocarbons. It was interesting to note that there was present also 2 to 3 per cent. of metallic iron in minute particles. The sulphuric acid present amounted to nearly 5 per cent, and the hydrochloric acid to $1\frac{1}{2}$ per cent. The presence of such large quantities of volatile oils explained the oleaginous character of the deposits which formed from London smoke, and it had been noticed that, especially in the districts of Manchester, where dwelling-houses were much crowded together (e.g., Hulme), the deposit has a similar character."

The deposits on both out-door and greenhouse foliage have been from time to time collected, as well as the daily accumulation on a single pane of glass during foggy weather. The examination of these deposits is not yet concluded. The presence of considerable amounts of iron oxide in these deposits is a fact of some importance.

The work this winter on this portion of the enquiry can only be regarded as preliminary in its nature. I will state here briefly what lines might be followed in future. Continuous observations from day to day, and sometimes from hour to hour, during dull weather, recording the fluctuating amounts of the hurtful components present in the atmosphere are much required. These should be obtained simultaneously at a number of selected stations—for the purposes of this investigation situate, preferably, near establishments where plants are under cultivation. A knowledge of the varying amounts of these components would be of the greatest value in making a comparison between the nature of the damage incurred by vegetation in different localities and at different times.

It is obvious that had we possessed, this winter, stations for fog analyses at, for example, Kew, Chiswick, and South Kensington, we should be in a better position to explain the differing effects of the Christmas and February fogs, respectively, at the last named, and their very similar action at the first named.

Dr. G. H. Bailey, of the Owens College, has been devoting himself to a chemical investigation of this character in Manchester. He has now perfected apparatus by means of which systematic records of the kind indicated can be obtained. The apparatus in question is being fitted up at numerous stations in Manchester, and fully justifies his anticipations, as a simple method which does not require manual labour, as is the case with the Meteorological Council's pump. My proposal is, that the balance of our grant be used in establishing a number of stations, in London and its suburbs, on precisely the same lines as those being employed in Manchester; the two enquiries, so far as the chemical investigation of fog is concerned, running *pari passu*. Dr. Bailey, with whom I have been in constant intercourse, is willing to co-operate in this undertaking, the experiments and analyses in question being made under his direction and control. This joint scheme has, I think, the additional recommendation of being likely to produce total

results of greater value, and at a less expenditure of energy, than if the investigations at Manchester and London be conducted independently. Dr. Bailey and his colleagues have just issued a preliminary report on the atmosphere of Manchester. I would call special attention to this, as indicating the method and scope of the undertaking. The report in question is now appearing, *in extenso* in *The Northern Gardener*.

V. Physiological and Microscopic Work.—The opportunity has been taken to have careful drawings prepared, exhibiting typical cases of damage attributable to fog. I have now a considerable collection of examples from the Royal Gardens, Kew, and elsewhere.

Large supplies of injured plant-organs have been forthcoming, and have been submitted to chemical analysis. These include the leaves of soft and hard-wooded plants, and of Orchids; also the leaves of Cattleyas and Dendrobiums, and the flowers of Cattleya Trianae. The results of these analyses will be valuable for publication when similar analyses of the uninjured parts have been obtained.

In addition to the sulphur-salts, a large amount of iron is present in most samples of injured vegetation. What may be the physiological significance of this I cannot at present say. It may well be that a light deposit of an iron salt on the surfaces of the leaves injuriously affects the subjacent tissues. In addition to this the sulphurous acid has to be considered.

The histological characters of injured tissues, as exhibited by the microscope, have been carefully studied, and drawings and notes made. Many of the facts thus obtained are still obscure, and require experimental elucidation. In the case especially of Orchid flowers, the distribution of the stomates would seem to have a definite bearing on the distribution of the fog-injuries. In both *Phalaenopsis Schilleriana* and *Cattleya Trianae*, for example, the sepals are much sooner and more easily injured than the upper petals and labellum. Microscopic examination shows that whilst stomates are frequent on the sepals of both plants, the petals have relatively few, comparing equal areas of surface. The labellum of *Cattleya* in many cases was found to be destitute of stomates. This part is usually the last to show actual injury. The action of the stomates here is probably to afford increased access of sulphurous acid to the part, which then directly attacks the soft, unprotected cells within.

The effects of a slow current of fog, and of sulphurous acid, of various dilutions, upon living protoplasm, have been very carefully followed under the microscope. The procedure in both cases was identical. A slow current was drawn by aspiration through a specially devised chamber on the stage of the microscope. The transparent root hairs of *Limnium* with their actively-rotating protoplasm, and portions of the leaf of *Vallisneria*, were chiefly used. The effect of dense fog resembles, very nearly, that of dilute sulphurous acid. The rotating protoplasm is found gradually to swell up and invade the vacuole, its defined margin becomes less and less distinct. Finally, the protoplasm becoming granular, and breaks down entirely, the rotation during the process gradually slowing, ultimately ceasing. The whole process with fog occupies several hours. This line of research, to which I attach importance, will be continued during the summer with sulphurous acid and other substances.

A considerable series of experiments has been made in the closed chamber, which was constructed for this, as also to serve as a fog-proof chamber for cultural purposes. As a fog-proof chamber it has not been used so far. At an early period I found that certain defects which could not be remedied forthwith disqualified it for this purpose. Since then it has served as a closed experimental case, in which plants were exposed to sulphurous acid gas of varying strength. It was possible, also, to draw off a current of the special atmosphere, to which the plants in it were exposed, and study its action upon

living protoplasm, under the microscope. A comparison could thus be effected between the macroscopic and microscopic phenomena simultaneously. The amount of sulphurous acid present was under control, and frequent estimates of its amount were made by aspirating air from the chamber through permanganate, the volume required to decolorise being recorded. These experiments are not yet concluded, but it can be definitely said that increase of temperature, other things being equal, aggravates the poisonous action of the sulphurous acid, a difference of a few degrees of temperature being apparent.

During the summer these experiments will be continued. An attempt will also be made to estimate the influence of varying amounts of sulphurous acid gas and other poisons, upon the plant functions, transpiration, assimilation, and respiration.

VI. Possible Remedial Measures.—It is too soon to speak of these with confidence, until a more complete knowledge of all the conditions of damage to vegetation from this source, have been obtained. Many of the results obtained in the physiological enquiry are still obscure, and it will be necessary to carry out a series of experiments before some of these are elucidated. Since October, I have had opportunity of inspecting many collections of stove and greenhouse plants, and growers have most freely communicated to me any methods which they employ to combat the fog. The placing of canvas, &c., over the plant-houses in foggy weather, has in some instances mitigated the damage, the fog being in this way to some extent filtered. The regulation of the temperature has an important bearing. Some cultivators keep the temperature during a fog as low as can be done, having regard to the safety of the collections in the houses. Others raise the temperature in the hope of, to some extent, excluding the fog. There can be no doubt that a high temperature augments the damage, whilst a lower one, to some extent, hinders it.

Sulphurous acid acts more violently and immediately in a hot, than in a cool, atmosphere. Again, in a long, dark fog heat unnecessarily stimulates the plants, when (from the prevailing darkness), their transpiring capacity is limited. Everything should be done to tax the vegetative organs of a plant to the least possible extent when any of the vital functions are interfered with, as in dull, foggy weather. In this connection it is important to supply water to the roots with a sparing hand. Heat and moisture at the roots stimulate absorption, whilst the leaves are unable to throw off an excess of moisture, as they can in sunny weather. I know that in many establishments these precautions are taken, and I believe, with relatively beneficial results. The evidence on which this opinion is founded is derived (1) from observation of the behaviour of plants under different conditions of cultivation during foggy weather, (2) from actual experiments in which the special conditions were under control.

The action of a continuous drip of moisture on foliage in a closed experimental chamber, containing small quantities of sulphurous acid gas, is to mitigate the immediate damage so far as the leaves, thus continuously moistened, are concerned.

The degree of humidity in a house, where sulphurous acid is present, is a matter well worthy of attention, and one which I have under observation. The problem is a complex one, and I hope to be able to communicate my results later.

In a dry atmosphere the sulphurous acid, for the most part, acts as such directly on the living protoplasm. In a humid one it is more rapidly oxidised into sulphuric acid, which has an entirely different action, I apprehend, on vegetation, histologically distinct from the first mentioned. It would, however, be improper for me to draw any general conclusions from observations, as yet incomplete.

Another measure, which may be ultimately shown to be practicable, is that of absorbing the most poisonous substances in the fog by using some

substance as an absorbent, itself innocuous to vegetation.

A more practical method is to keep the fog out of the plant house, rather than to try and neutralise its action after it has entered. So long as cultivators grow plants, susceptible to the impurities of fog, in houses with open glazing in winter time, of course this is impossible. It is to be hoped some metropolitan grower will pluckily face the situation, and construct a range for winter use, which can be made at will absolutely fog-proof, with close glazing, triple doors, and padded ventilators. The horticultural engineer could easily manage this. Filtered air could be supplied, as it is to the House of Commons, by pumping through several inches of cotton wool, or by some other method; whilst the illumination could be supplemented by a judicious use of the electric light. Hervé-Mangin showed, so long ago as 1861, that a plant could manufacture organic matter by the aid of artificial light, and the results of Siemen's more recent experiments are familiar.

An ingenious person has suggested to me an alternative method for excluding fog without interfering with ventilation, by an arrangement of tricklers, such as one sees on ice factories in summer for cooling. In this way a greenhouse might be completely enveloped in a thin mantle of dilute hydrogen peroxide, permanganate of potash, or other absorbent, which could be collected in gutters, and pumped up again and again. A considerable objection to this plan would be the liability of the absorbent to freeze in cold weather, fog and frost being very frequently concomitant. *F. W. Oliver*. [The reporter concludes with expressions of thanks to his assistant, Mr. W. Weiss, Mr. J. T. Leon, and other friends.]

NEW OR NOTEWORTHY PLANTS.

ELEODENDRON SPHÆROPHYLLUM, Presl,
VAR. *PUBESCENS*, N. E. Br.

This is rather an interesting plant in its way. It is quite a novelty so far as the name is concerned, and is perhaps altogether new to English gardeners; but is evidently no novelty so far as some of the continental gardens are concerned, since it was sent to Kew recently by Prof. Caruel for a name, with the information that it is "grown in many gardens in Italy as *Guevina avellana*," to which of course it has no affinity. On dissecting it and comparing it with the Kew material, I found it to be identical with the plant described by Ecklon and Zeyher as *Mystroxydon pubescens*, but which differs in no particular—except in having the stem and leaves softly pubescent—from the *Mystroxydon sphærophyllum*, Eck. and Zey. The genus *Mystroxydon* does not differ in anything from *Eleodendron*, to which genus *M. sphærophyllum* was referred by Presl in his *Botanische Bemerkungen*, p. 34 (1844). *Eleodendron sphærophyllum* is a South African shrub that is not rare in the south-eastern part of Cape Colony, since it has been collected by several botanists; but this particular variety *pubescens*, would seem to be much more unfrequent, as so far as known to me it has only been collected by Ecklon, Zeyher, Burchell, and Drège. It is a branching, leafy, evergreen shrub, but is scarcely likely to be hardy in England. The closely-set leaves are elliptic, obtuse, or slightly emarginate at the apex, rounded or slightly cordate at the base, $\frac{3}{4}$ to $1\frac{1}{2}$ inch long, $\frac{1}{2}$ to 1 inch broad, finely denticulate, somewhat bullate, the few veins being more or less deeply impressed above; the petioles are very short, and together with the shoots and underside of the leaves, are softly (velvety) pubescent; sometimes the upper surface of the leaves is also pubescent. The flowers are small and inconspicuous, in small axillary dense cymes. Possibly the typical *E. sphærophyllum* may also be in cultivation in Italy; it differs in having the stem and leaves glabrous, *N. E. Brown, Herbarium, Kew*.

DISEASES OF PLANTS.*

(Continued from p. 362.)

It was stated previously, that Potato slices dipped into water containing conidia were almost sure to become affected with the *Phytophthora*. We have just seen that they must not be kept at too high a temperature, but between 40° and 77° Fahr. But even if maintained at the proper temperature, it not very rarely happens that, instead of the *Phytophthora* developing, the slices fall into a condition of "wet rot" before its mycelium has had time to develop. This condition of wet rot is due to the action of various microbes upon the tissues of the tuber. It may occur without *Phytophthora* mycelium at all, but its induction is certainly favoured by the presence of the mycelium. The *Bacillus* which has most to do with the production of wet rot is *B. aniylobacter*, and is identical with the *Vibrio butyrique* of Pasteur (figs. 86, 87, p. 395). This microbe, in the presence of water, first attacks the parenchymatous cell-walls, and, by destroying them, permits the starch granules to escape. These in turn become attacked and disintegrated by the action of the *Bacillus* (see fig. 85), the result of which is that the solid tuber becomes filled with a diffident mass. The starch grains float about in a creamy offensive pabulum, resisting, as they do, the action of the *Bacillus* for some considerable time, yet eventually they, too, become disorganised. It is clear that these conditions must be fatal to growth of the mycelium of the parasite, for the *Phytophthora* cannot exist excepting upon the living tissues of its host. Wet rot is often the cause of great loss to Potato growers, but this is to some extent compensated for by the check it gives to the existence of the fungus. To show that this really does take place, I once collected a basket of diseased Potatoes, kept them through the winter, and in spring planted them, or rather the remains of them, in my garden. They were placed inside an iron hoop, so as to mark the exact spot—not one germinated; and moreover, a sound tuber planted with them inside the hoop, produced a healthy plant. This leads us to the question of how the *Phytophthora* exists from the autumn of one year till the summer of the next. Much has been written on this point, and controversy has run very high indeed upon it. The parasitic fungi allied to *Phytophthora infestans*, including the only other species of *Phytophthora*, viz., *P. omnivora*, are provided not only with conidia but also with sexual spores, which have the power of lying dormant during the winter months, and of germinating in spring or summer, when their appropriate host-plants are ready to receive them. All of us who have studied the Potato disease have hunted for these resting spores. A few years ago, Mr. W. G. Smith thought he had found them, and most of us thought so too, but it was subsequently shown by the late Professor de Bary that spores closely resembling Smith's resting spores very commonly occurred in Potato plants kept in damp situations which belonged to a species of *Pythium*. Since this time we have been unable to meet with a sexual spore, which upon germination is capable of giving rise to the *Phytophthora*, and although the probability is that such a spore does exist, yet there the matter rests. We have to fall back upon the theory that the mycelium of the *Phytophthora* hibernates during the winter in the tubers. Even this does not afford a satisfactory explanation of the process. For, in the first place, the action of the *Phytophthora* mycelium upon the tissues of the living Potato plant is essentially destructive, and in this differs absolutely from the action of other perennial mycelia, such as that of *Puccinia trago-pogonis*, *Gymnosporangium juniperum*, *Ustilago violacea*, &c. Then again, tubers affected with *Phytophthora* in autumn almost invariably pass into decay if they be kept in situations as moist as would be the case in Nature; and even if infected tubers be suc-

cessfully preserved during the winter, it will be found that the mycelium dies, so that when a tuber is cut open, and placed in a damp atmosphere at the proper temperature, conidia are not produced. The best explanation of the last-named difficulty seems to be, that by being kept sufficiently moist in the Potato stores, conidia are produced on their external surfaces (as Kühn has shown takes place when they are kept sufficiently damp), and by this means healthy tubers in contact with them become infected. Anyone who has planted diseased tubers, and observed the number of diseased shoots which they succeed in sending above-ground, cannot but have been surprised at the small proportion of instances in which this happens. Thus, fifty diseased tubers, planted on May 11, gave only six diseased shoots. The majority of shoots were either healthy, or else failed to reach the surface of the ground; very many were healthy, but were cut off below by an extension of the mycelium from the tuber itself into the base of the shoot. This aspect of the subject is one which would amply repay careful work.

Protective Expedients and Remedial Measures.—This constitutes not only the most important, but the most generally interesting aspect of the question, and it is the one which always ensures the attention of one's hearers. The idea that some drug or some chemical can be applied to the Potato plants as soon as they evince symptoms of the disease, which shall arrest the disease and not injure the plant, is the panacea which every cultivator longs after.

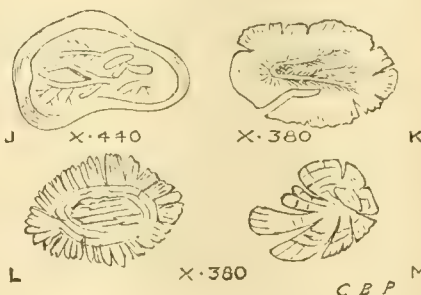


FIG. 85.—STARCH GRAINS ATTACKED BY BACILLI.

J, K, L, M, grains in various stages of disintegration.

With the mycelium eating its way along the interior of the plant, and throwing up at frequent intervals its myriads of conidiophores, such a remedy seems past hoping for, yet there are certain circumstances connected with the culture of the Potato plant, which, when rightly understood and duly appreciated, enables the intelligent cultivator to resist to a great extent the ravages of the disease.

We were all taught, when we were young, that wilful waste leads to woeful want. Judging from what one often sees in the way Potatoes are grown and gathered, one is almost tempted to think this good old proverb has lost its veracity. The waste is woeful, and although it is brought about in ignorance, yet it is none the less lamentable. An immense number of Potatoes are lost every year, or at least every year in which the disease is prevalent, from ignorance of the fact, that perfectly healthy tubers become diseased from the spores falling upon them after they are taken out of the ground. This is well recognised on the Continent by those who have studied the disease, and is the condition to which Mr. Jensen applies the term "after-sickness." The explanation of the fact is simple enough. When the tubers are first dug, the skins are tender and moist. The moisture is enough to cause the germination of the conidia, and the cuticle is tender enough for the germ tubers to penetrate. Any one may convince himself of this by the very simple proceeding of dividing a given quantity of freshly-dug tubers

into two lots—dashing one lot with a Potato-top having diseased leaves, and keeping the other lot apart for comparison. At the end of from four to eight days, on comparing the two lots, it will be found that those tubers which the conidia were applied by dashing the diseased foliage upon them, will be diseased; the other tubers will be sound. In actual practise this "after-sickness" causes immense loss. It can be obviated by either not lifting the crop till all the foliage is thoroughly destroyed; or if it be necessary to lift the crop before this takes place, by cutting off or pulling up the haulms, and removing them before the tubers are taken out of the ground. While they are in the ground, those which are unaffected by the disease are safe; but as soon as they are brought into an atmosphere full of conidia, they are exposed to the almost certain risk of infection.

It is evident, from the fact that zoospores being produced in the normal germination of the conidia, that the dissemination of the disease must, to a great extent, depend upon moisture; without a thin film of moisture, the zoospores cannot travel. True, the amount of fluid they require is but small, still they are essentially a spore-form whose distribution is aqueous rather than aerial. It is by rain-drops that they travel from one part of a leaf to another; it is by rain-drops trickling down the stem that they are carried from the foliage to the roots; and it is by rain that they are washed through the soil to the tubers. Not that they are passive agents. On the contrary, by the action of their cilia, they wriggle themselves about, and, especially by this means, do they work themselves into the soil until they come in contact with the tubers. The infection by zoospores of the young cotyledons of the Crucifere by *Cystopus candidus*, as shown by De Bary, is a parallel case.

The mass of Potatoes becomes diseased in three ways, either, as has been just pointed out during the act of lifting, or by the zoospores being washed down the stems, or by their making their way through the earth to the tubers. Hence, it follows, that in the last case, which is the most common, the thicker the earth-covering the tubers have, the better will they be protected from their enemy. It has been found that certain kinds of soils protect the tubers better than others. Practically, it is well known that, *ceteris paribus*, Potatoes grown in sandy soils are less liable to disease than those grown in heavy soils. This is because sand by its physical structure, forms not only an effective filter, in which the zoospores are retained, but also because it adapts itself more readily to the shape and form of the growing tubers. With regard to the last point, what is meant is this: that in a heavy or clay soil, the rapid growth of the tubers causes the soil to crack by their expansion in bulk; while in light soils this cracking does not take place, as the sandy particles adapt themselves to the growing tubers very readily. At first sight it seems difficult to understand how such a porous medium as sand should be able to act as a filter capable of separating and retaining such minute bodies as the zoospores, which are so much smaller than the grains of sand themselves. In order to understand this, it must be borne in mind that it is not the size of the sand grains, but of the interstices between them, that has to be considered in determining the efficacy of the filter. Further, these grains are not of uniform size. Some few years ago, when this subject was first mooted, I conducted a series of investigations upon the manner in which sand acted as a spore-filter. What happens is this: when the rain falls upon a sandy surface, each drop, when it reaches the surface, mechanically disturbs the position of the particles, these being for a momentary period suspended in the rain-drop. We all know that the shaking up of a number of bodies free to move amongst themselves, cause the larger to come to the top—as, for instance, when a basket of Apples is shaken. We may regard the effect of a rain shower, then, to be to lift up, and for an instant to hold in suspension a thin layer on the surface of the sandy field. But this lasts for an instant only, because the water sinks away almost as soon as it has fallen.

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.

Having then lifted the upper layer of sand grains, the water, as it percolates downwards, carries with it the finer particles, and wedges them into the interstices between the sand grains immediately beneath; thus the sand becomes "set," and the filter locked. The more water which is passed through the filter now, the tighter are the particles packed together. In this the zoospores become arrested, they are retained here, and in a very short time become harmless by germination amongst the sandy particles, and not in contact with the tubers. More or less, this spore-retaining power exists in all soils, but it is best marked in sand, least in clay.

From the above facts, Mr. Jensen has suggested the method of Potato culture known as high mounding (see illustrations, Aug. 30, 1890, p. 249), which consists of utilising the spore-retaining power of the soil. It consists of giving the Potatoes a second mounding just before the advent of the disease may be expected, or as late in the season as is compatible with the growth of the tops. It is found that 4 inches of earth form an effectual barrier against the descent of the spores, and although it may not be possible always to obtain this amount of earth cover, yet the second mounding increases the protective action of the soil, for two reasons. In the first place it fills up the cracks and fissures which the growth of the tubers has caused, as well as filling in the funnel-shaped openings in the soil through which the stems emerge, which are caused by the movement of the tops by the wind. In the second place it actually increases the amount of earth covering the tubers, and when properly applied renders the summit of the mounding acute, whereby the subsequent rain runs down between the ridges, in place of soaking through the flattened top of the ridge. The spores are thus, many of them, carried into the hollows between the ridges, where they germinate harmlessly at a distance from the tubers.

(To be continued.)

POTATOS.

THERE is, in the present admirable condition of the soil, much to induce those who grow Potatoes to plant early. We have rarely had the soil so dry as now at this particular season. The comparative dryness of the autumn extended into the winter, and February signally belied its old appellation of Fillditch. But we have a treacherous month to get through yet before we can fairly hail the advent of summer; and April may prove as productive of rain as the first three months of the year have been of dryness. Should that be so, those who realise the need of heavy rainfalls before the heat of summer is upon us, will be satisfied; whilst those who dread a wet spring-time as the heaviest of cultural misfortunes on stiff lands, will have too much cause to regret the excessive moisture all the rest of the year. But whilst it may be just now specially attractive to the planting of Potatoes, there is the possibility of a Nemesis in April, in the shape of some sharp, white frosts, to destroy the growth which, from early Potatoes planted in February, must then be above ground. We may be sure that tubers recently planted will hardly remain quiescent in the soil for more than a month, and should natural precocity but cause top exposure to frosts, then is all the labour of the grower discounted materially, if not wholly ruined.

On the whole, therefore, those have been wisest except in some few exceptionally favoured localities, who have allowed the seed tubers to remain in the store, for, as a rule, the middle to the end of March is about the best average planting time, and, on the whole, is most productive of satisfactory results. But in the interim, very much may have been done to produce in Potato sets that element of growth called sprouting, which is so effective, not only in producing even, but also accelerated growth. Just as there is nothing new under the Sun, so is there nothing new to be said about Potato culture:

but gardening is an old story, and its numerous branches require to be oft repeated, lest we forget the first principles of culture, and omit observance of what is, if stereotyped, at least the best practice.

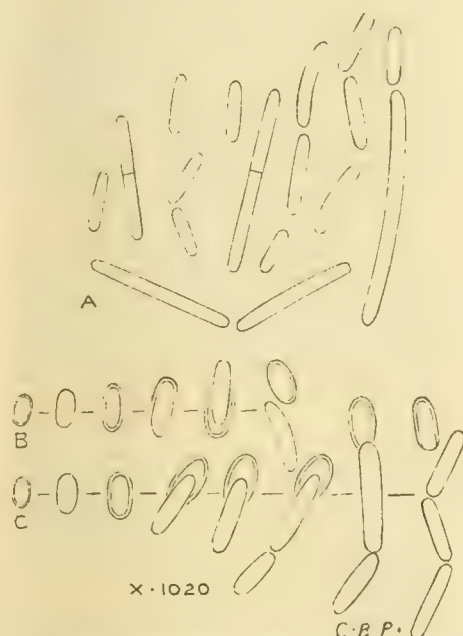


FIG. 86.—BACILLUS AMYLOBACTER. (See p. 394.)

A, various forms of the Bacillus; B, germination of spores produced in three-quarters of an hour; C, other spores after an hour and three-quarters.

Now we want, for success in Potato culture, two distinct elements—good soil and good seed. The soil we cannot well change; but we may at least do something to create comparative change by planting,

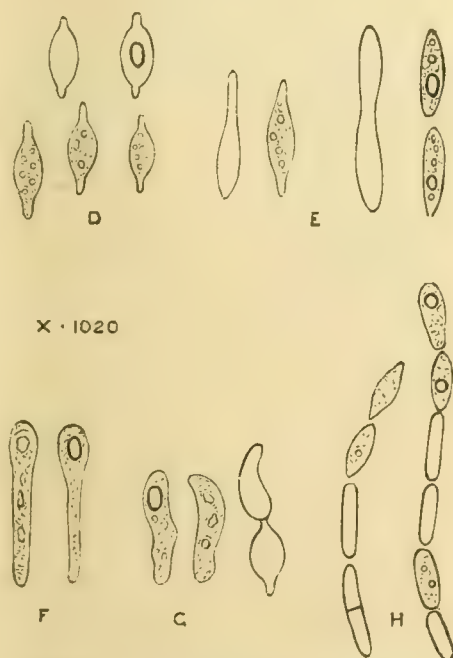


FIG. 87.—BACILLUS AMYLOBACTER. (See p. 394.)

D, spindle-shaped; E, elongated and ellipsoidal forms; F, capitate forms; G, vibrio-like forms; H, two linear series, with separate swollen joints.

after diverse crops, which have taken from the soil their own special requirements, but have left behind, perhaps in abundance, the elements of Potato production. It is different, however, with seed tubers. These can be changed yearly, if need

be, and in many cases are; although it is hardly to be regarded as gospel, yet, without doubt, there is some force in the oft-repeated assertion, that a change of seed is best. It may not follow that such change is essential every year, because the fact is somewhat overlooked, that, when a variety, in the form of seed-tubers, is brought from afar, and grown in totally diverse soil, that undoubted strength is for the time given to the stock, and what can give better seed than this same improved stock the following year?

But after some two or three years' growth, the stocks revert somewhat to the old form, and a change of air and soil becomes desirable. We have during a long experience noted the very instructive effects produced with what are called seedling varieties, which, grown for several years in the same garden or field, to enable stocks to be produced, have, when sent out and got into totally fresh soil, produced truly wonderful crops. Still seed stocks, if of robust strains, have remarkable productive power, as it not at all infrequently happens that to be assured of absolutely true stock, the same stock has been grown some ten or twelve years in succession in the same soil, until perhaps other kinds have arisen, and the older ones have been relegated to obscurity. It may be hard upon many a fine Potato which has done good service on our dinner-table in its day thus to be elbowed out of popularity into obscurity; but it is the fate of all things mutable, and Potatoes cannot escape the common rule. But whilst ground is being prepared for planting, and the present weather favours that procedure admirably, the same kindly elements favour also the getting in of seed-stocks, and preparing them for planting.

If we have our own, they can be overhauled, sorted, and set up on shelves or in shallow boxes for sprouting. The practice of sprouting is a good one, if it be performed in a proper way. Tubers set up in dark stores or cellars, from which the outer air is also excluded, are not likely to prove very serviceable. When set out thinly, no matter in what utensils, they should have plenty of light to induce the production of stout green or purple shoots, short and vigorous. With light will of course be found air, but the light is the chief requirement. Where there is a suspicion that the seed tubers are a bit mixed, the sprouting does materially help to the recognition of rogues, and that is considerable gain. No gardener likes to see his Potato breadths dotted with rogues, because that is a reflection upon his cultural care, if not upon his skill. Apart from that benefit, the sprouting enables the grower also to detect any blind tubers, and thus prevent the production of numerous blanks in the breadths. We can, by employing boxes holding pecks, as these are of a very convenient size for planting from, easily have several bushels of good sound sprouted seed tubers at disposal, and yet occupying but a very moderate space.

What is the best method of planting? Here is a question to which many diverse replies will be given, all suited to peculiar conditions and soils. To tell the truth, it hardly matters how the tubers are planted, so long as they are properly buried some 4 or 5 inches below the surface, and the soil be not trodden hard, or otherwise rendered difficult of after-cultivation. The grower of Potatoes in fields ridicules the objection to treading the soil in the planting. To him there is always a resource against the perpetuation of solidity in the soil in the horse-hoe or cultivator, which, sent along the lines after the Potato tops are well through the ground, loosens and pulverises the soil readily and most beneficially. Those who plant small breadths in gardens, if they have the light, loose, deep, rich soil so common in such limited enclosures, have no fear of bad results from a little treading of the soil in planting; it rather does good than otherwise, whilst the free use of the hand-hoe later renders the surface all that can be desired for earthing. When the soil is naturally stiff, it is bad policy to tread it in planting, especially if in planting-time it is wet. Stiff soils are invariably

bad for Potatos, but too many growers have to choose between stiff soils or worse. Really, it is better to wait a week or two, that the soil may dry, than plant whilst both soil and weather are wet. A stiff clayey soil, the surface being as hard as a road, presents about as bad conditions for Potato culture as can be devised. As to sorts, their names still are legion. Who would wish to recommend any dozen of varieties, and raise about his ears a hornet's nest? Really, there does not seem to be a variety found in seed lists of which everything complimentary may not be said—and perhaps truthfully. We hear very much less about Potatos now than we did in the days when the International Potato Exhibition kept them so admirably before the public. Since then, tubers have become wonderfully cheap and plentiful. The past year was one of the worst found for several seasons, but still it left us plenty of tubers, and but for the frosts, we should not have suffered in any way. We have now ordinarily such abundant crops, that the old foreign competition has long been killed; and of Potatos—at least, of main crops, it may be said that Great Britain satisfies her own requirements.

FOREIGN CORRESPONDENCE.

BELGIUM.

A GHENT CATTLEYA-HOUSE.—The subject of our notice is a fine house, 65 feet long by 19 feet wide, which has been erected in the horticultural establishment of MM. Edm. Vervaeet et Cie., at Mont St. Amand, lez-Gand. About 400 specimen plants, each raised on a special support, occupy two tanks of masonry, partly filled with water, and separated one from another by a central path, and from the outer walls by narrower paths. Among these 400 plants, there are fifty which each occupy a tank, and are at least 2 feet across. Even without the flowers, these enormous clumps of large and handsome foliage are quite an ornament. A great number of the Cattleyas are in full bloom, and the general *coup d'œil* is unequalled in Belgium. We will specially mention, among the specimens shown at the meeting of the *Chambre Syndicale*, a species of Cattleya found in a consignment of *C. gigas*, and somewhat resembling *C. labata autumnalis*; twelve blooms of unusually distinct-looking colours, borne on four supports, render this plant very artistic.

Also Cattleya Trianae, Reine des Belges, the lip of which is of a wonderful shade of dark purple, verging into bright golden yellow, bordered with ivory white; Cattleya Trianae delicata, with thirty fine blooms. Certainly it is not only Azaleas which bear great masses of flowers of glowing and beautiful colours; Orchids compare with them very favourably. The very rare *Lælia elegans* here opens its much-valued blooms.

In another house, 91 feet long by 26 feet wide, are many specimens of Cattleya, Vanda, and Cypripedium in bloom. Of great value to the firm is the Cypripedium obtained by crossing *hirsutissimum* and *atratum* Boxalli. The hybrid is remarkable for great improvement in form and colouring. The dorsal and other sepals are like those of Boxalli; but more glossy, and bordered with white. It also exhibits many features common to *hirsutissimum*. *Odontoglossum Edwardii* promises an unusual display of bloom. The branch is nearly 5 feet long, and bears about two hundred buds. MM. Vervaeet follow the English fashion of using in their greenhouses labels of glass, on which the name of the plant is written, with a special style; this to us seems an excellent idea, both for botanic gardens and in the open ground. They also suspend the Orchids grown in pots in a way which proves as practical as it is original. Before potting the Orchid, they pass a galvanised iron wire through the hole at the bottom, twisting up one end into a knot; the pot rests upon this, and the other end of wire is brought up and made into a loop by which the pot is hung up. This is a very easy way of handling Orchids.

BLETIA VEREUCUNDA ALBA.

This hitherto undescribed species, which comes from South America, is now in flower in one of the houses of a well-known amateur Orchid grower at Ghent—M. Alfred van Imshoot. In one of his greenhouses is to be found also, *Vanilla aromatica*, which has been planted two years, and has grown to a length of 65 feet; the plant is remarkable for the exceptional vigour of the stem and leaves; it is a variety which certainly deserves the surname of robusta. A specimen of *Calanthe vestita gigantea* is noticeable for its fine show of flowers, the large clusters each bear thirty blooms, the specimen is fine, and the leaves of great size.

EPIDENDRUM WALLISII.

Reichenbach described this plant in the *Gardeners' Chronicle* of 1875, p. 66, and in that of 1878, p. 462. It is now in flower in one of the houses of M. Van Imshoot. The flower is wonderfully beautiful, and the plant in vigorous health. The habit of this distinct variety differs greatly from that of other species of *Epidendrum*.

TOXICOPHLEA THUNBERGII.

A beautiful plant, bearing clusters of white sweetly-scented blooms. It is but too seldom cultivated. Under glass it blooms from January to March, in the open air during the summer. The fine specimens which we saw in the houses of M. L. De Smet-Duvivier, prompted us to mention the plant to lovers of good varieties.

ABUTILON INSIGNE, DUC DE MALAKOFF.

M. De Smet-Duvivier raised this fine variety, which is curiously coloured; the ground is dark green, with golden yellow spots; it is a valuable acquisition.

DENDROBIUM KINGIANUM.

A very robust plant, if not the most robust in Belgium, is now in bloom in the establishment of M. De Smet-Duvivier, where we also admired *Odontoglossum crispum* from Patchu, which was of unusually perfect habit; and *Odontoglossum virginialis* and *Pescatorei*. *Ch. de B.*

NOTES FROM OAKWOOD.

We have just dug up a bed of seedling *Gladiolus*, about 10 feet by 5. The seed was given me by my old friend, the late Mr. McIntosh, a good many years ago; the label is illegible, so I cannot tell how many. The plants have never been touched since the time when the seed was sown; many have bloomed well, with good flowers. The bulbs were much crowded, and some of them had two of the hard formations under the bulbs. We took up 378 bulbs of different sizes, leaving many quite small ones behind. This would seem to show that *Gladioli* may be grown in suitable soil with very little trouble.

At Oakwood we are finding some rather unexpected survivals. *Arnebia echioides* is pushing up very strongly. *Narcissus cyclamineus* has many buds. *Hypericum aureum* has stood much better than *H. oblongifolium*, which, in many parts of the garden, though not in all, is killed. *Veronica Traversii* is still a puzzle; a great bush is killed, while others are hardly touched. There is no obvious reason for this, so the dead man shall be left standing, in hopes that some of my scientific friends may solve the difficulty.

Among the best of the early spring flowers which are blooming with us for the first time are *Leucojum carpaticum*, much larger and finer than the old *L. vernum*. *Anemone blanda alba*, a good companion to the beautiful blue form which Mr. Ingram has done so much to introduce. *Muscari Szovitsianum* is in good bud in the open; in flower, in a frame, it shows itself to be a very valuable acquisition. *Iris reticulata* is finer in the open border than ever it was under glass. We have lately planted an acre with self-sown *Rhododendrons*, which were choking up their parents, or otherwise in the way. The leaves of many of them show good blood, so they should make a fine show next year. *George F. Wilson*.

ROSES.

NEW FRENCH ROSES.

ONE of the charms of horticulture is that it so largely, in these days, at any rate, satisfies the demand of the craving for novelty which so marked the Athenians of old times, but which, I think, is also characteristic of most people in these days of excitement and rushing to and fro. If one speaks with much favour of the old times, and of what we used to enjoy then, we are set down as "old fogies," having outlived our time, and such-like complimentary phrases.

It must be granted to our French neighbours, that they have evinced a laudable desire to gratify us in this respect, although I suspect more interested motives have led their Rose-growers and Rose-raisers to flood us year after year with a large number of new sorts, of which if we hear of one in ten as taking its position as a leading flower, it is quite as much as we can expect. How many Roses they have sent out during the last ten years we can hardly tell, but certainly not less than 600 or 700; and the catalogue of the National Rose Society shows how very few of these are inserted in it as worthy to be classed as exhibition Roses.

The lists have now appeared of the new varieties named for 1890 (autumn). In some of the Paris catalogues which are annually issued, the names of the raisers have not been given. Was it because we were in the habit of guessing at the probable character of the new varieties by the antecedents of the raiser? If he had been in the habit of giving us good Roses, we expected, as we used to do in the case of old Lacharme, that we might confidently look for something good from him. And so with others who had given us much that was good, we were in no state of expectancy. Messrs. Ketten, the enthusiastic growers of Luxembourg, have, however, supplied what their Parisian *confères* have omitted to give us, and from their lists I derive the following information, which may be useful to rosarians here.

There is but little diminution in the number of new Roses announced. Of the two great classes most in favour with us, Teas and hybrid perpetuals, there are between fifty and sixty, besides a goodly number of hybrid Teas, and the Hungarian Roses, which are suggestive of rugosa, there being about thirty Teas and Noisettes, and some of these are sent out by Ketten themselves; where this is the case, the name of the raiser as well as the seller is given, and it would be a good thing if this were generally adopted with us, not only with regard to Roses, but also other flowers. I have never been a raiser of seedlings myself, and therefore write without prejudice; but when any one has been successful as a hybridiser, he ought to have the credit attached to such gain, without its being quite absorbed by the nurseryman who purchases it. It is done with some flowers, such as *Auriculas*, *Carnations*, *Dahlias*; and those who grow these flowers know the source from whence new varieties spring, and can judge of their possible merits accordingly.

Another point noticeable in this list is, that a good many new, British-raised Roses figure amongst their French rivals, and although amongst the Teas there are no English Roses to which this honour is given, for once we have none apparently this season; yet amongst the hybrid perpetuals the following are admitted into the list:—Crimson Queen (W. Paul), Dowager Duchess of Marlborough (G. Paul), Mrs. William Watson (Dickson & Sons), T. W. Girdlestone (Dickson & Sons), Jeanne Dickson (Dickson & Sons); and as there are only twenty new varieties announced altogether, this is quite a reversal of what used to be the case. There is not very much to excite hope in the announcements; Schwartz has two, E. Verdier several, but I do not think the name of the other raisers are those from whom we have as yet received any good Roses.

Turning to the Teas and Noisettes, of which there are thirty-two, showing how readily the supply is regulated by demand, for as of late years Teas have come

so much into favour here, so now the French raisers, instead of sending us ten or a dozen, manage to send out three times that number; but I do not fancy that here, either, we shall be much excited. There are firms here announcing Roses from whom we have never received a good Rose, and others who bear names unknown to fame. Guillot, whom some of us "old boys" recollect as young Guillot, but who is now called—familiarly called—old Guillot, only announces one, Christine de Noire. It is said to be dark purple, shaded with maroon, and imbricated in form; if so, I fear that it will not find much favour here, for these dark-coloured Teas are not much admired. Nabounaud has only five! quite a moderate contingent for him (5), and is equalled by Soupert & Notting, whose names I do not think are attached to one first-class Tea Rose. There is not one English-raised Tea Rose in this list, showing that as yet we have not done a great deal in this class, although probably some of the seedlings of

similarly placed, and the wonderfully thick and solid foliage, is not at all like that which we associate with the Tea. I noticed that exception was taken to my description of one of its parents, Merveille de Lyon, being merely a sport and not a seedling, and there is a good deal to be said for the contention that sports follow the type in the shape of their flowers. I went by what the great majority of French raisers say about it, and we have an instance in our own home-flowers that a Rose may be claimed by its raiser as a seedling, which, after all, is only a sport. I had a strong confirmation of my statement from a very decent professional rosarian, who told me that when it came out he had six plants from the vendor, and that one plant always throws the pale-coloured flowers of Baroness Rothschild, a fact very much in favour of its being a sport from that flower.

I had just looked round on my small rose garden, and said to my man that we had better begin pruning,

ing in the conservatory, and grown on into large specimens it is a grand exhibition plant, its fronds often attaining a length of 2 to 3 feet. Like all the other strong-growing Ferns, it does best in a compost made up chiefly of good turfy yellow loam, and during growth an intermediate house suits it best; but after the fronds are matured, it may be used for conservatory decoration or for any other purpose in a cool house for which it may be required.

THE ALPINE GARDEN.

ALPINES IN WINTER.

THAT portion of the choicer alpine which suffers so much during an average winter will be more likely to be better accommodated the whole winter through, and in particular those which are planted on the rockery, as prior to the frost we had a period



FIG. 88.—ADIANTUM PERUVIANUM.

Mr. Bennett, distributed at his sale, will before long be brought forward. So that after all, the eyes of rosarians will be more directed towards home-raised flowers, and in Margaret Dickson, Salamander, and Mrs. Paul look for the gratification of thus trying for novelty. By the bye, I see that my friend, Mr. W. J. Grant, in a contemporary, has, in drawing attention to the first of these Roses, of whose excellence he speaks in fitly correct terms, styles it a hybrid Tea, and this, I think, is misleading, as hybrid Tea, I consider, to be a Rose which is obtained as a cross between a Tea and Perpetual, not a Rose that has Tea blood in it. Now Margaret Dickson is a cross between Lady Mary Fitzwilliam and Merveille de Lyon, the former of these being itself a cross between a Tea and H.P.; thus there is undoubtedly Tea blood in Margaret Dickson, but it is not a hybrid Tea. If this were once admitted, I do not know where we should stop. Thus, Captain Christy, which has for years, ever since its introduction by Lacharme, been classed as a H.P., would have to be marked as a H.T., and there are others

when snow began, and has been going on for some hours. I do not think it will stay on the ground, and it will probably be favourable in promoting the pushing of the Roses, which are in a backward state, and so will, I hope, be kept free from the pernicious influence of spring frosts. *Wild Rose.*

ADIANTUM PERUVIANUM.

ONE of the most graceful Ferns we have, introduced by Messrs. James Veitch & Son over twenty years ago and the subject of our illustration (fig. 88), is still far from being a common plant in gardens. This is to be deplored, for properly handled, it is one of the most adaptable of Maidenhairs, its elegant drooping habit making it desirable for all the purposes of indoor decoration, as well as for arranging with flowering plants in the conservatory or in the Orchid show-house. Raised from spores, it makes elegant plants for dinner-table decoration; planted in baskets and carefully looked after in the matter of watering, it forms a noble object for suspend-

ing of dry weather, and soon afterwards the welcome covering of snow, which so materially protects these plants in the winter season. In their native mountains a deep snow covers them up snugly, the better to endure the prolonged and uniformly cold season. It is little wonder that plants fitted, so to speak, to bear such protection for long periods, they can ill bear the conditions under which we force them to grow in our lowland gardens. At present, however, they are safe, and greater danger may ensue where as is often the case with the rarer kinds, they are wintered in frames that are sometimes badly ventilated. Frame culture, with many growers, means coddling, which alpine cannot endure; though perfectly hardy under natural conditions, frame culture for alpine becomes a necessity for various reasons, and chiefly because the plants cannot endure the damp and the fogs of an English winter, and by cultivating them in frames during winter, we are enabled to give them one very essential condition of their well-being, that is, a covering overhead that will at least shelter them from rain. Upon no

account should the frame be closed up or covered with mats, no matter how severe the frost, for this they can and will endure if dry overhead at the time. Where the collection is sufficiently large to require an entire frame for their accommodation, there is nothing so simple, and at the same time so effectual, as a pit with brick walls, freely pigeon-holed back and front, so as to cause a continuous circulation of air, and if to this arrangement some props to keep the lights lifted 3 or 4 inches above the wall-plate of the frame be added, it will be found a decided advantage. To accomplish this, it will be necessary to have the divisional bars to project 2 inches both back and front, then screw a narrow strip of inch board to the wall-plate immediately under each of the four corners of the light. These should be 6 or 7 inches long, and so placed, that when lifted up, they will rest against the projecting divisional bars; upon these the lights will rest safely, will throw off the wet as effectually as ever, keep a dry atmosphere over the heads of the plants—also of much benefit to them. Prior to using this kind of frame, I found that many alpine suffered from damp when the frames were closed and sometimes matted; but with a free and continuous circulation of air, the rarest of alpine come through the winter bravely. Of course, we have still to endure the many fogs as of yore, the ill-effects of which extend to many things which are sheltered by a well-glazed roof, and for which there appears to be no remedy so far. J.

KEW NOTES.

ARISEMA SPECIOSUM.—A group of plants in flower of this handsome and remarkable Aroid is now one of the most conspicuous attractions in the T range at Kew. Considerable variation is shown in the size, form, and depth of colour of the spathe, the handsomest being of a deep claret-purple, with lines of rosy-white on the lower part inside. Several other species of *Arisea* are flowering in the same house, but none are so ornamental as *A. speciosum*, which is quite deserving of a place among popular spring-flowering plants for the warm conservatory.

Protea cynaroides.—Several plants of this species of *Protea* are showing for flowers at Kew, and one of them is now fully open in the succulent-house. It is the second time that this particular plant has flowered since it was raised from seeds forwarded from South Africa by the late Miss M. North, in 1883. This genus has almost disappeared from our gardens, although fifty years ago it was largely represented in the choicer collections of greenhouse plants. At Kew some efforts are being made to get together a good collection of *Proteas*. Among the species in cultivation are *P. cynaroides*, *P. longiflora*, *P. mellifera*, *P. nana*, *P. grandiflora*, and *P. marginata*. The handsomest of these is the first named. It grows to a height of about 6 feet, and the terminal flower-head is like that of the common Artichoke in size and form, and is coloured pale flesh.

Puya chilensis.—A large specimen of this gigantic Bromeliad is now flowering in the succulent-house at Kew. It has a stout stem, 4 feet high, bearing a double head of leaves which are 4 feet long, channelled, with hooked spines along the margins and glaucous green in colour. The flower spike is erect, stout, the lower part clothed with large brown bracts, the upper with crowded branches of flowers and buds, which open in slow succession. The flowers are as large as those of *Lapageria rosea*, but they are greenish-yellow in colour, and the anthers are of a bright orange colour. It is a handsome plant, and the flowers are decidedly ornamental. At the last exhibition held by the Royal Horticultural Society in the Temple Gardens, a huge inflorescence of this species was shown by Mr. Dorrien-Smith from his garden at Tresco Abbey, Isles of Scilly. The Kew plant has been for many years at Kew without a name, although it has been suspected to be *P. chilensis*. There is an excellent life-size painting of the flower-spike of this species in Miss North's Gallery. According to Mr. Baker,

the stems are used in Chili for corks and bungs, and the stout hooked spines by the Indians as fish-hooks.

Brownea Crawfordii X.—This name is proposed for a hybrid raised by the late Mr. W. H. Crawford, of Lakeland, Cork, between *B. grandiceps* and *B. macrophylla*. The collection of *Brownias* formed by Mr. Crawford was, on his death, which occurred in 1888, divided between Kew, Glasnevin, and other gardens. Amongst those which came to Kew was a large plant of this hybrid, another having gone to Glasnevin. In habit, stature, and form of leaf, the hybrid resembles *B. macrophylla*, whilst in its habit of producing its flowers in terminal heads on the branches it resembles *B. grandiceps*. A peculiar character of *B. macrophylla* is, that of flowering on the main stem almost at the base, and never on the branches. In the size, colour, and form of the flowers of the hybrid there is little to distinguish them from *B. macrophylla*. The Kew plant is 15 feet high, with leaves about 2 feet long, with from 6 to 10 pairs of pinnae, the largest of which are a foot long and 3 inches wide. The flower-clusters are as large as a child's head, as many as seventy flowers being counted in one cluster. Each flower is 3 inches long, about an inch wide at the mouth, and coloured a rich rosy-red.

Another hybrid *Brownea* raised by Mr. Crawford, and now in the Kew collection, is the result of a cross between *B. coccinea* and *B. latifolia*, but this has not yet flowered. W.

ORCHID NOTES AND GLEANINGS.

THE WOODHATCH ORCHIDS.

It is possible to find a new pleasure each visit in the house devoted to *Odontoglossum crispum*, one never seems to have fathomed before the loveliness of the violet blushes, or the exquisite gradation of tint with which they lose themselves in the glistening white. The delicate colouring was so pretty as almost to cause one to ignore the rich gold and brown of a splendid type of *O. Wilckianum*, and a huge scape of *O. aceptrum*. Another house was devoted to a collection of *Cypripediums*, in which are still treasured a number of the old varieties. The *Dendrobies* and *Cattleyas*, particularly the divers forms of *Trianae*, offered quite a glow of rich colouring; the hybrid *D. Ainsworthii* and its var. *roseum* being splendidly represented. A house was also devoted to the genus *Phalenopsis*, the wonderful butterfly-mimicking flowers of which are very charming to study. It would be interesting perhaps to others of your readers besides myself to know the cause why *P. amabilis* and *grandiflora* have twisting tendrils at the extremity of the lip, and *Schilleriana* lacks these appendages. We carefully tried by fertilising flowers to discover the *raison d'être*, but were baffled. I should like to ask at the same time the explanation of the curiously fimbriated labellum of *Dendrobium Brymerianum*? In fact, a series of papers on this subject would greatly be appreciated by a numerous section of your readers, viz., the young gardeners in the bothies, than whom there are no more diligent readers of horticultural journals, but who have not generally the means to procure Darwin's book on the subject. C. A. M. Carmichael. [The adaptations in question have relation to conditions prevalent in their native country, but not met with here as a rule. Ed.]

THE WEEK'S WORK.

THE KITCHEN GARDEN.

POTATO PLANTING.—This work may now be commenced, if the land will bear treading upon, and it is workable; at any rate, early kinds may be put into the soil at the base of south walls. Burnt earth and leaf-mould form a good dressing for early Potato

land, which should be light and rich. In exposed gardens it is best to plant the late varieties first, these being longer in starting into growth than the earlier, and not planting the bulk of the latter before the middle of the month of April, they being then ready for use almost as soon as if they were planted first instead of last. These and the midseason varieties of Potatoes should be planted at 2 feet apart in the rows, and 1 foot apart from plant to plant, and 5 inches deep. [Why do not some gardeners try the wide-apart method of planting, letting each Potato plant stand on its own conical hillock when moulded, thus allowing the fullest space for top and root development? With late kinds it might afford growers a useful lesson if the disease should appear this year, Ed.] Late varieties should be planted on well-tilled soil, and to obtain tubers of good table quality, they are best when planted on ground that has not been recently manured. Plant 5 inches deep, 15 inches between the rows, and 2 feet from row to row; and for robust varieties like *King of the Giants*, *Satisfaction*, *Abundance*, *Chancellor*, and others, 3 feet should be allowed between the rows, and 18 inches in the rows. Where Potatoes are grown for exhibition purposes, the best piece of ground should be selected for them, working it well with the digging-fork until the upper part for 6 inches in depth is thoroughly pulverised, and dressing it with burnt earth and wood ashes. There are different methods of planting, but after twenty years experience I find that the spade is the best tool, using a line to keep a straight row. I take out a trench about 5 inches deep, and wheel it to the other end of the quarter, wherewith to fill the last trench made. The tubers are laid in the trench with their eyes pointing upwards, and the trench is partly filled with burnt earth or charred garden refuse, then with soil, and by digging the ground over to the depth of 5 inches, until the whole plot is planted. By planting in this way, not a foot-mark is left upon the planted ground, and it is left in a lighter condition for earthing-up than by any other method.

BROAD BEANS.—A sowing should be made of *Longpod* and *Broad Windsor* varieties. If these are sown in double rows, a space of 3½ feet should be allowed between the rows, and 8 inches from plant to plant. Those early planted, which may be appearing through the ground, should have a little of the soil drawn up to them as a protection against frost, and to encourage growth. If slugs are troublesome, soot and lime dusted over the plants will tend to keep these depredators away. Peas should be dealt with in the same manner, and if Pea-sticks are in readiness, the rows should be stuck with them.

FORCED POTATOS, ETC.—The forcing structures should be freely ventilated in mild weather, and the plants kept in a genial moist condition. Earth up any that are well advanced in stem growth, with soil warmed up to the same degree as that in the pits. Carrots and other vegetables in frames must also be well attended in the matter of giving air, stirring the soil between the rows, syringing the plants at closing time, and keeping the soil moist.

French Beans may require the assistance of weak manure water at every alternate watering if in bearing. Top dress and stake succession plants, and sow more seeds in pots or on beds of soil in warm pits or frames. Canadian Wonder is a good variety, where space is no object; but in small pits or houses, Osborne's and Sion House are better at this part of the season. After sowing, keep the frame or pit closed until the plants come up, when air should be afforded them in accordance with previous directions. C. J. Waite, Glenhurst, Esher.

THE FLOWER GARDEN.

The system of bedding-out has now become very general, it is a boon to gardeners, who are relieved thereby of the task of raising and keeping a stock of tender plants for filling the flower beds, &c. *Funkia Sieboldii* is one of the best plants for an edging, on account of its bold-looking foliage. *F. ovata*, a beautifully variegated species with yellow and green leaves, or creamy-white and green, is valuable for planting for edging the beds, or to plant thinly as a ground-work for other kinds of plants of tall growth. *Funkias* admit of easy increase by division, each bit with a crown forming a plant. The same remarks apply to most of the herbaceous plants now employed in bedding—*Ajuga reptans*, *Violas*, *Sedums*, *Saxifragas*, *Thymes* of different species, of which *laevigata* is notably a useful one; *Aubrietias*, *Polyanthus*, *Mimulus*, and *Helianthemums*. Not only do most species of herbaceous plants admit of being divided

at this season, but they are the better for it, as when left long to themselves they exhaust the soil near and become overcrowded with shoots. [We would remind our worthy contributor that *Hebe*, *Gentians*, *Anemone japonica*, *Silene Schaffii*, *Spiraeas*, *Dielytras*, *Primulaceous* plants generally, and many alpine species, are not of this number. Ed.]

DRESSING BEDS AND BORDERS.—Where the borders are chiefly filled with perennials that do not require transplanting, or division of the roots, the ground should be lightly torked, and a light dressing of rotten manure worked in, or a top-dressing of rich material, without the pricking up of the surface of the border. Unoccupied beds should be deeply dug, and enriched according to the requirements of the plants to be grown in them, and if these are *Asters*, *Zinnia elegans*, *Stocks* of any kind, and *Dahlias*, rotten manure should be placed at the bottom of the trenches.

SOWING SEEDS.—Nothing can be gained by sowing seed if the state of the soil and weather is not favourable, merely because a certain date has been fixed upon. But when conditions are favourable, any hardy annuals may be got in, either where they are to flower, or under the protection of hand-lights or cold frames, the first method being the more preferable, as then there is no after check, which must follow when seedlings have to be removed from one place to another. In sowing hardy annuals in the open the better way is to sow in circles of about 6 inches diameter, and thin the plants to about half-a-dozen. The most desirable hardy annuals are *Godetias*, *Shirley Poppies*, *Calliopsis*, *Chrysanthemums* of the *carinatum* breed, *Clarkias*, *Collinsias*, *Convolvulus*, *Larkspurs*, *Sweet Peas*, *Lupins*, *Mal-lows*, *Stocks*, *Nemophilas*, *Mignonette*, *Schizanthus*, and *Tropaeolums*. All the half-hardy and more tender kinds, as *Zinnias*, *Asters*, &c., should be sown in pots or pans in a little heat.

BEDDING PLANTS.—The potting of these plants involves much labour, but pots for many of them may with advantage be dispensed with, these are *Lobelias*, *Alternantheras*, *Coleus*, *Iresines*, *Ageratum*, and *Calceolarias*, which grow better when pricked out on beds of light soil. *Calceolarias* after this date will hardly require the protection of glass if the plants are put out in about 3 inches of soil laying on a hard floor, with a little overhead protection at night—the plants may stand in rows 3 inches apart. *Alternantheras*, *Coleus*, and *Iresines* should have a little bottom-heat under them, but all the others will do well in a cold frame.

GLADIOLUS.—It is high time that these were planted, as if left out of the ground much longer, they shrivel and lose strength. The corms should be planted in well-enriched ground, about 4 inches deep, and with a handful of sharp sand scattered over them before the hole is filled in.

LAWNS.—The roller must be frequently made use of, and the mowing-machine got to work as soon as the grass has grown an inch. It is as yet not too late to apply top-dressings, if they consist of finely-sifted loam, wood-ashes, or soot, and are spread thinly and evenly. If grass seeds have to be sown where the grass is thin, loam alone should be used to cover it. *J. Sheppard, Woolverstone Park, Ipswich.*

THE HARDY FRUIT GARDEN.

GRAFTING FRUIT TREES.—Where grafting is to be done, the cut-back stocks should be looked over occasionally, and as soon as it is seen that the buds have begun to move, the scions should be put on the stocks. Attempts made to obtain good fruits by grafting old trees in not a vigorous condition are usually wasted labour; but vigorous trees of inferior or undesirable sorts may be grafted with those which are best suited to the district and the wants of the establishment. Standards which have been headed back should have the stumps left by the saw nicely pared, and prepared for crown grafting: pyramids, and any with small branches, are best whip-grafted; but in whatever way grafting is performed, the chief point should be to place the inner barks of both scion and stock neatly together, binding them with a broad strip of bast, raffia, or worsted, and encasing the whole with clay or wax. Some gardeners put damp moss over the clay and moisten it occasionally in dry weather, but it is not essential, although smearing the clay with the wet hands to close cracks in dry weather, helps to exclude rain and keep the scion fresh.

PEACH, CHERRIES, AND PLUMS.—If the buds of these trees are not far advanced, the trees may be thoroughly washed with soap-suds in which quassia chips have been steeped, this being one of the most effective washes that can be used. This application should be in a weak state if the buds are prominent, otherwise injury may be done them. Two dressings are usually sufficient to keep the trees clean for the season. *H. Mackham, Mereworth Castle, Maidstone.*

THE ORCHID HOUSES.

EAST INDIA-HOUSE.—*Phaius tuberculosa*, which is in flower at the present time, obtains admirers whenever seen for the first time in bloom. The plant, if afforded moisture and plenty of heat, and kept free from thrips, and grown in good fibrous peat and sphagnum moss, may be expected to give the best results. It is a plant that should not be exposed to direct sunlight, or the foliage quickly scorches; at the same time, the plant requires a fair amount of indirect light. Our plants are grown in boat-shaped teak baskets, suspended near the upper ventilators of the house, where a constant circulation of air is found. *Spathoglottis Kimballiana*, a charming Orchid, and a free grower, will continue to flower for three or four months from the same flower-spikes, and that without injuring the plants in the least. It must have plenty of root-space, and be potted in clean sphagnum moss and peat. The plants quickly grow into large specimens.

The spring-flowering variety of *Angraecum sesquipedale* now in flower is a very desirable Orchid, there being no loss of flower-buds as with the winter-flowering variety, in the time of fogs. At the present time, *Saccolabium Bellinum* may be re-basketed or placed in small pans, the compost used for it being crocks, fresh sphagnum moss, and coarse silver sand in small quantities. The plant does perhaps best, when kept rather dry than otherwise at all times, and hung near the upper ventilators. I have grown it successfully in the Cattleya-house in the summer time, but the temperature is not sufficiently warm for it there at other seasons.

CALANTHES.—Great care must now be taken in watering these plants, for should the young growths once get spotted, the appearance of the plants is spoiled for the remainder of the season.

No water need be given with the watering-pot at present, but if they are placed by themselves, the pots may be kept damp with the syringe, and this will be sufficient for their needs. *Calanthes* like a strong heat and moist atmosphere; a plant-stove suiting them better than any Orchid-house. Efforts should now be made to finish the repotting or re-basketing of all the occupants of this house as fast as they go out of flower. As I have before said, I do not like leaving plants for years in the same material, and if Orchids are left in the same materials until they show by their appearance that they are retrograding in health, much time will be lost in bringing them into a healthy state. Keep a watchful eye upon ventilation and shading, the weather being fickle; 12° of frost were noted here on Sunday night. A gentle rise in temperature may be given in the various houses, with moisture to correspond, so that the balance be preserved, a buoyant air prevailing in all of them. *A. G. Catt, Parkfield, Hallow.*

PLANTS UNDER GLASS.

THE STOVE.—Tubers of *Achimenes* that were started some few weeks since will be ready for potting or placing in the pans or baskets in which they will bloom. In doing this work be careful not to crowd them, that is, each plant will require a space of 3 or 4 inches from its neighbour for full development. More tubers may now be put into heat, so that a succession of plants may be kept up, using two parts half-decayed leaf-soil, one of sifted loam, and one of silver-sand as a compost. Put into heat tubers of *Gloxinias*, the soil in which they are placed consisting of equal parts peat, loam, with sharp sand in sufficient quantity to make it very porous, and make this compost moderately firm, especially just round about the tubers, the crowns of which should be on a level with the surface of the soil. When potted, place them in a house or pit where the temperature does not fall below 65° to 70° at night, and if a mild bottom-heat is available the results will be better still. The earlier-started plants will have to be kept in as light a position as possible.

Pot up more tubers of *Caladiums* to give a succession to those earlier started, using a soil consisting of equal parts of peat and loam, with

plenty of sharp sand. Place them in a house or pit where the night temperature does not fall below 65° to 70°; be careful not to give at first much water, but when they have commenced to throw up their leaves, there is less danger in watering them; and avoid potting the tubers too deep in the soil. As *Caladiums* are not benefited by repotting, the pots the tubers are placed in should be sufficiently large to carry the plants well through the season.

Begonias, which bloom in winter, are a most useful class of plants, although not so brilliant in colour as the summer-flowered and tuberous-rooted varieties. There are several that almost seem to be indispensable in the winter, and one of them is *Begonia odorata*, a free-flowering species, with large trusses of white flowers, produced on long stalks, and blooming much more freely when grown in small pots. *Begonia nivalis* is another very pretty and valuable species, resembling *B. odorata*, with the exception that the flowers are pink. *Begonia insignis* is another good old species not to be despised. Cuttings of these species, if put into heat forthwith, will make useful plants, to flower during December and January. The cuttings should be taken from the stems of old plants, inserted in sandy soil, and placed in the propagating-pit, where they will quickly take root. *Begonia fuchsioides* is a very pretty species, which blooms very freely in late autumn and winter, either in a greenhouse or intermediate-house; *Begonia Knowlesiana* is also a free-flowering variety. The shoots of these species should be pinched back occasionally up to the beginning of autumn, to give bushiness of habit, always remembering that much pinching of the shoots means also lateness of flowering.

Begonias are free-growing plants; still, to have them in good condition, regular attention is desirable. The plants from the first must be grown in as light a position as possible, giving them a slight shading during the hottest part of the day; and the soil most suitable for them should consist of three parts good loam, one of leaf-mould, and sufficient sharp sand, to keep it porous, the potting being done firmly, and the drainage given, abundant. *R. Milner, Penrice Castle, Swansea.*

FRUITS UNDER GLASS.

MELONS.—The earliest plants should be making rapid progress, and care will be necessary to prevent the scalding of the leaves after the late sunless weather and the fogs, they being thin in substance. The bottom heat must be maintained at 85°, and the soil kept moist also, frequently damping the floors, &c. When the fruit blooms show in sufficient numbers, the air should not be so moisture-laden; and when the setting has begun, it should be carried on daily for a time. In sunless weather at this period, the amount of water afforded must be lessened a little, but not to an extent that will cause suffering on the part of the Melon plants. No manurial aids will be needed until the fruits are of the size of a Walnut, when a little more soil may be added to the hills or on the pots, making it quite firm, for the firmer it is about the roots, the sturdier will be the bine. All new composts should be warmed before use. If the Melons are in pots, some pieces of slate or a rim of zinc or iron should be put round them, and then the soil put inside of it and made compact. A night temperature of 70°, and a day temperature of 80° to 90°, according as the weather is mild or otherwise, should be kept up, giving air in bright warm weather, and closing early in the afternoon. All side growths not needed should be removed, and not too much foliage allowed. Succession plants should have their shoots, the main ones, evenly trained in on the trellis, and if fruit be wanted at an early date the points of the leaders must be pinched out, so as to throw much of the strength of the plants into the side shoots, and thus get an early set of fruits. If a larger number of fruits are desired and later, the leaders may be allowed to grow long before stopping them. Do not allow stray fruits to remain, but get a general good set of fruit over all parts of the plant. After the set is finished, top dress and water with warm liquid manure, as advised for the earlier plants in fruit. Sow seeds of Melons at weekly intervals, so as to be provided with plants fit for planting out at any time. *G. Wythes, Syon House, Brentford.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

NEW-PAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Advertisements should not be sent to the Editors, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, APRIL 2—Linnæan Society, at 8 P.M.

SHOW.

WEDNESDAY, APRIL 1—Royal Caledonian, at Edinburgh (two days).

SALES.

WEDNESDAY, APRIL 1—Roses, Fruit Trees, Border Plants, Azaleas, and Camellias, from Ghent, at Stevens' Rooms.
Lilies, Roses, and other plants, at Protheroe & Morris' Rooms.

THURSDAY, APRIL 2—Established Orchids, in flower and bud, *Araucaria excelsa*, at Stevens' Rooms.

FRIDAY, APRIL 3—Established and Imported Orchids, at Protheroe & Morris' Rooms.

SATURDAY, APRIL 4—Roses, Fruit Trees, Border Plants, Azaleas, and Camellias from Ghent, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—45°.

THE subject of nitrogen in its relation to vegetation has occupied the attention of agricultural chemists, more or less, for nearly a century, and it is just about half-a-century since BOUSSINGAULT commenced experiments to determine whether plants did assimilate the free nitrogen of the air—his conclusions being that they did not.

Thirty years ago a series of experiments on the same subject was commenced by LAWES and GILBERT at Rothamsted, the results of which confirmed those of BOUSSINGAULT. The authors then stating that in view of the evidence afforded of the non-assimilation of free nitrogen by plants, when grown under conditions of sterilisation and of enclosure, it is very desirable that the several actual or possible sources whence they may derive combined nitrogen should be more fully investigated.

Since that time the question of the sources of the nitrogen of vegetation has continued to be the subject of much discussion and experimental enquiry, both at Rothamsted and elsewhere. But during the last few years, however, the discussion has assumed a somewhat different aspect. The question still is, whether the free nitrogen of the air is an important source of the nitrogen of vegetation; but whilst few now assume that green-leaved or chlorophyllous plants directly assimilate free nitrogen, it is nevertheless supposed to be brought under contribution in various ways. Coming into combination—by the agency of electricity, within the soil, or within the plant; or under the influence of microorganisms, or of other low forms, either within the soil itself, or in symbiotic growth with a higher plant.

In July last, Professor J. H. GILBERT delivered a lecture at the Royal Agricultural College, Cirencester, in continuation of a series on the results of experiments at Rothamsted with different crops, taking, as his subject, the "Fixation of Free Nitrogen," and giving a description and some of the numerical results of experiments made at Rothamsted in 1888, a description, and some illustrations of the growth in 1889, and also a brief account of the experiments still in progress. This lecture, with additions, has now been published, and the following abstract may be taken as giving the main conclusions:

HOW IS THE FIXATION OF NITROGEN TO BE EXPLAINED?

Revising the whole of the Rothamsted results, there can be no doubt they are abundantly confirmatory of those obtained by HELLRIEGEL and WILGARTH, which are, that plants of the gramineous, the chenopodiaceous, the polygonous, and the cruciferous families, depend on combined nitrogen supplied within the soil; while leguminous plants do not depend entirely on such supplies. Also, that the fact of the fixation of free nitrogen in the growth of Leguminosæ, under the influence of suitable microbe infection of the soil, and of the resulting nodule formation on the roots, may be considered as fully established. Although, as Sir J. B. LAWES and Dr. GILBERT admit, we must obviously know more of the nature and mode of life of the organisms which in symbiosis with the leguminous plant bring about the fixation of free nitrogen, before the nature of the action can be understood.

It is a point of importance that it should be established, as it appears to be, that in the development of the parasite, the cortex of the root of the host is penetrated, and so an intimate connection between the two—indeed, a symbiosis—is set up. Then there is abundant evidence that the nodules are very rich in nitrogen. So far as the facts at command go, it would seem that, in certain stages of their development, their dry substance may contain a much higher percentage of nitrogen than that of any part of the growing plant itself; and in some cases, even higher than in that of the highly nitrogenous leguminous seed.

But whether or not it may eventually be established that nitrogen is fixed by microbes within the soil independently of leguminous growth, there is evidence that in soils and subsoils containing organic nitrogen, lower organisms may serve the higher plants, by taking up, or attacking and bringing into a more readily available condition, combined nitrogen not otherwise, or only very slowly, available for the higher plants. For example, it is probable that fungi generally derive nitrogen from organic nitrogen; and in the case of those of fairy rings, there can be little doubt that they take up from the soil organic nitrogen, which is not available to the meadow plants, and that, on their decay, their nitrogen becomes available to the associated herbage. Then in the case of the fungus-mantle observed by FRANK on the roots of certain trees, it may be supposed that the fungus takes up organic nitrogen, and so becomes the medium of the supply of the soil nitrogen to the plant.

More pertinent still, is the action of the nitrifying organisms in rendering the organic nitrogen of the soil and subsoil available to the higher plants. It may well be supposed, therefore, that there may be other cases, in which lower organisms may serve the higher, by bringing into a more available condition the combined

nitrogen already existing, but in a comparatively inert state, in soils and subsoils.

As to the undoubted fixation of free nitrogen in the growth of leguminous crops under the influence of suitable microbe infection, and of the development of nodules on the roots of the plants, the alternative explanations seem to be:—

1. That the plant is enabled, under the conditions of the symbiosis, to fix the free nitrogen of the atmosphere by its leaves.

2. That the organisms become distributed within the soil, and there fix free nitrogen, the resulting nitrogenous compounds becoming available as a source of nitrogen to the roots of the higher plants.

3. That free nitrogen is fixed in the course of the development of the organisms within the nodules, and that the resulting nitrogenous compounds are absorbed and utilised by the host-plant.

Dr. GILBERT seems to think that the balance of the evidence at present at command is much in favour of the third mode of explanation.

PRACTICAL IMPORTANCE OF THE QUESTION.

In regard to the practical importance of this newly-established source of nitrogen to the Leguminosæ, considered in its bearing on the known facts of agricultural production, and especially on the question of the sources of the nitrogen, not only of Leguminous crops themselves, but of crops generally, it may be stated that both agricultural investigation, and direct vegetation experiment, have clearly shown that Leguminosæ do take up much soil-nitrogen, and, at any rate, in great part, as nitrate. But the evidence does not justify the conclusion that the whole of the nitrogen has been so derived, and while the balance of experimental evidence is against the supposition that the higher plants growing under sterilised conditions can assimilate free nitrogen; it is established that, at any rate, in the case of some leguminous plants, they may acquire nitrogen coincidently with the development on their roots of tubercular bodies with bacteroid contents; and the evidence points to the conclusion that it is the lower organisms, and not the higher plants, that fix free nitrogen. And further, that when such plants are growing in soil and subsoil containing an abundance of combined nitrogen, lower organisms may serve the higher, at any rate, in part, by bringing the already combined nitrogen of the soil and subsoil into a more readily available condition.

SUMMARY AND CONCLUSION.

There is no evidence that the leguminous plant itself assimilates free nitrogen. The evidence at present at command is in favour of the supposition that the observed gain is due to the fixation of nitrogen in the development of the lower organisms in the root nodules, and that the nitrogenous compounds produced are taken up and utilised by the leguminous plant. Further, the development of the supposed nitrogen-fixing bodies is obviously dependent on due infection with organisms essential to the setting up of the symbiotic life in the particular leguminous plant to be grown.

It seems probable that, in the growth in practical agriculture of leguminous crops, such as Clover, Vetches, Peas, Beans, Lucerne, &c., at any rate some, and in certain cases a considerable proportion, of the large amount of nitrogen which they contain, and of the large amount which they frequently leave as nitrogenous residue in the soil for future crops, may be due to free nitrogen so brought into combination by the agency of lower organisms.

It has yet to be determined under what conditions a greater or less proportion of the total nitrogen of the crop will be derived—on the one hand from nitrogen compounds within the soil, and on the other from such fixation.

Incidentally the question suggests itself—how far the failure of red Clover, or of other leguminous crops, may be due to the exhaustion of the organisms necessary for nodule development, and for the consequent fixation of free nitrogen, and how far to the exhaustion of combined nitrogen in an available condition, or of the necessary mineral constituents, within the range of the plant-roots.

PRIMULA OBCONICA.—MR. A. OUTRAM, who kindly furnished us with the photograph of the house of *Primula obconica*, says much has been written from time to time in the general and horticultural press on the supposed poisonous properties of this species of *Primula*. The plant is grown in the United States by the thousand, the flowers being highly valued for decorative purposes, one firm, viz., Fisher Bros., Montvale, Massachusetts, growing 30,000. I never heard, whilst in that part of the world, of anyone in the gardens and nurseries being affected by the leaves of the plant. The illustration (fig. 89), shows a house of these plants 100 feet long, 22 feet wide, containing about 4000. These plants are vigorous specimens, and presented a grand

Osmani, and especially in the rich velvety, dark violet-tinted crimson, of the front lobe of the lip. Its flowers, however, which on expanding the petals measure 8 inches across, are larger than those of *C. T. Osmani*. It is a far showier and better thing than many of the forms distinguished by varietal names.

THE GARDENERS' ORPHAN FUND.—The monthly meeting of the committee took place at the Hummums Hotel, Covent Garden, on the 20th inst. Mr. WILLIAM MARSHALL in the chair. Letters were read from Mrs. CUTLER and Mrs. GEORGE DOMINY in reply to the votes of condolence passed at the last meeting, the latter sending a donation of £10 to the Fund.

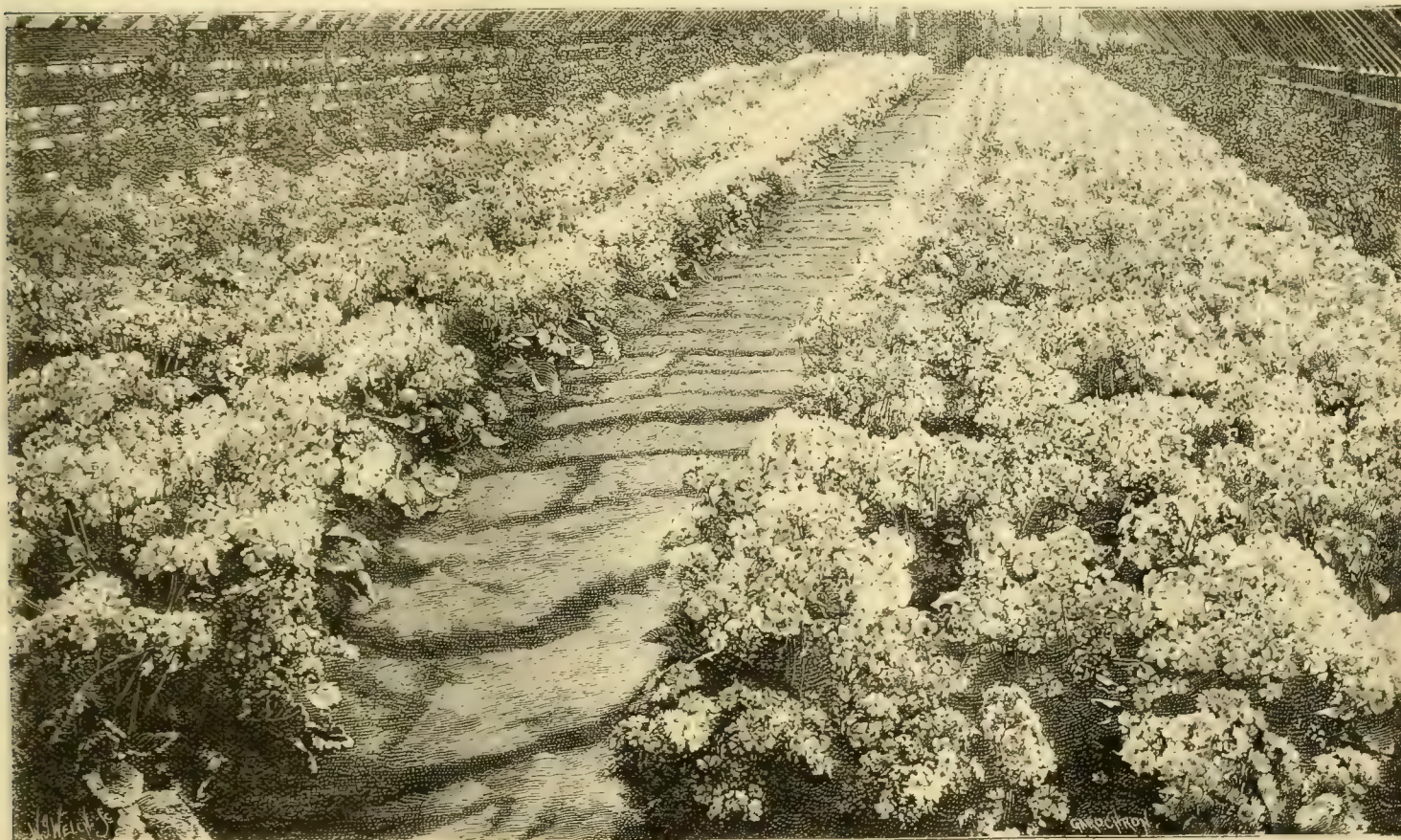


FIG. 89.—A HOUSE OF *PRIMULA OBCONICA*, AT MESSRS FISHER BROTHERS, MONTVALE, MASSACHUSETTS.

Assuming it to be established that a considerable proportion of the nitrogen of our leguminous crops is due to fixation under the conditions supposed, it is obvious that such a fact will not only serve to explain the source of the hitherto unaccounted-for amount of the nitrogen of those crops themselves, but it will also aid the explanation of the source of the increased amount of nitrogen which other crops acquire, when they are grown in association, or in alternation, with Leguminosæ. Lastly, it will help to explain the source of part of the accumulated combined nitrogen within our soils, and the comparative slow exhaustion of their stores of it, by cropping, drainage, and in other ways.

sight as I saw them in the month of March, 1889. The possibilities of *Primula*-growing indicated in Mr. OUTRAM's note should afford valuable hints to cultivators of the plant on this side of the Atlantic. The plants seen in our illustration appear to be planted out in a house, which may have sufficient means of heating to keep the temperature from descending too low, but not enough for any kind of forcing. *Primula obconica* is a plant that responds to liberal treatment as regards soil, &c., as is shown by the enormous size of the flower-trusses and the foliage.

CATTLEYA TRIANÆ VAR. HIGHBURYENSIS.—A noble form of this *Cattleya* is now in bloom in the gardens of the Right Hon. Joseph Chamberlain, M.P. It has much the appearance of *C. T.*

The Chairman proposed the following resolution, which was seconded by Mr. B. WYNNE, and carried by acclamation, "That the death of Mr. WILLIAM RICHARDS, a very active and zealous member of the committee of the Gardeners' Orphan Fund, having been reported, the Secretary be instructed to convey to Mrs. RICHARDS and family the condolence and sympathy of the committee, and their profound regret at the loss of such a sincere and valued friend." A donation of £2 was announced from the Wakefield Paxton Society. The quarter's allowance to children on the Fund, amounting to £120 5s., was ordered to be paid. A letter was read from Mr. HARRY WILLIAMS, Victoria Nurseries, Holloway, announcing the names of the two children he had nominated to the benefit of the Fund, in respect of the £250 contributed by the WILLIAMS Memorial Fund, viz., KATE

EMILY ROOT, aged two years, of Hampstead Lane, Highgate, whose father was foreman to Mr. F. SANDER, of St. Albans, and who died in April, 1890; and ROBERT DEGLISH NIXON, of Notting Hill, W., born in 1885, whose father had for a period of twenty years been gardener to Sir H. CHOLMELEY, Easton Park, Grantham. The addition of these two, brings the number of children on the Fund up to thirty-nine, at an aggregate annual charge of £507. A meeting of the growers and standholders in the wholesale flower market was held later in the evening, Mr. WILLIAM MARSHALL again presiding, there being an unusually large attendance of those immediately interested. The chairman having set forth the preliminary steps taken by the committee, stated that in accordance with the usual practice, the consent of His Grace the Duke of Bedford had been obtained for the use of the Wholesale Flower Market for a fourth annual *fête* in aid of the Fund; and the committee had called the growers together, in order to secure their co-operation, and settle upon a suitable date. It soon became apparent that the growers were unwilling to take part in another *fête* during the present year, and on their behalf Mr. E. SAWYER proposed the following resolution:—"That taking into consideration the very handsome way the growers have assisted the Gardeners' Orphan Fund during the past three years, the consideration of holding another *fête* be adjourned *sine die*." In proposing this resolution, Mr. SAWYER disavowed any opposition to the Fund, to which many of the growers subscribed; but he stated that the *fêtes* already held had been carried out with considerable loss to the growers, as, with a desire to contribute to the display, they sent on the occasions more plants than usual, which caused a glut in the market, and a reduction in price. The crowded state of the market from the visitors had an injurious effect upon the plants, and spoiled their sale, thus entailing a serious loss also. Great inconvenience is caused to the growers, as it is necessary to stage their contributions at an earlier hour than is usual at an additional cost of labour. Mr. SAWYER concluded by stating that the opinions he had expressed were those held by almost all of the growers and standholders in the Flower Market. The resolution was seconded by Mr. G. WARMER. The chairman paid a warm tribute to the growers for their valuable co-operation in the past, and said it was impossible not to feel the force of the objections put on behalf of the growers. At the same time, he regretted that the committee was in danger of losing the assistance of the growers for the present year, and especially so, as the consent of the Duke of Bedford had been obtained to holding the *fête* in the usual manner. An amendment proposed by Mr. H. B. MAX, that the consideration of the matter be postponed until that day month, was lost, and Mr. SAWYER's motion carried by a large majority. It was understood that a committee of growers would be formed to collect subscriptions, so that the Fund should be benefited notwithstanding the abandonment of the *fête* for the present year. We are informed that negotiations are being carried on with the managers of the Crystal Palace to hold a *fête* in aid of this Fund about the middle of July.

DENDROBIUM FRIEDRICKSIANUM, *Rehb. f.*—Sold originally, direct from the collector, Mr. ROBBELEN, by Messrs. PROTHOROE & MORRIS, and described in the *Gardeners' Chronicle*, November 26, 1887, this pretty Dendrobe, says Mr. O'BRIEN, does not seem to be yet much known. The first inflorescence I have seen comes from R. A. TODD, Esq., Honeyden, North Cray. It is a loosely arranged three-flowered spray of yellow flowers, with a faint suspicion of green in both sepals and petals, and brownish-purple merging lines in the centre of the lip. It is a native of Siam, and is allied to the showier *D. signatum*.

OLIVE CULTIVATION IN PERSIA.—From a report "On the cultivation of Olives in Northern Persia," recently submitted to the Foreign Office by the British Consul at Teheran, it seems that the dis-

trict through which the post road runs between Rastemabad and Manjell, includes forty-three villages, which are situated on the confines of the province of Gilan between Rastemabad on the north, Manjell, on the south, Tarum on the west, and Rahmetabad on the east. This group of villages is said to possess 80,000 to 100,000 trees, which yield on an average 6 to 9 lb. of Olives per tree per annum. This average is taken after considering the fact that the Olive bears plentifully only in alternate years. The average annual gross produce of Olives is therefore estimated at 750,000 lb., and the quantity of good Olive oil at 1,7,000 lb. The good oil having been extracted, the residue is again pressed, and an oil of a somewhat inferior quality is produced, which is used in the manufacture of soap. The refuse still remaining, after having been twice pressed, is used as manure for the trees themselves. After a good harvest the oil realises 1s. 2d. per bottle of 2 lb. weight at Resht or Teheran. The value of the average annual yield of Olives is estimated at £3850 sterling; but this does not include, on the one hand, the additional value of the inferior oil yielded after the Olives have been pressed the first time, nor any value the refuse may have; and, on the other hand, no deduction is made for the expenses of labour. The oil is obtained by a clumsy and slow process, which is thus described. The Olives are gathered in the late autumn, and at once sorted into a kind of large bin, where they are left to ferment till the first spring suns—that is to say, till about the festival of the Persian New Year, March 21. The Olives are then spread out to dry on the flat house-tops. When perfectly dried, they are again packed till they ferment; after this second fermentation they are trodden by men somewhat after the fashion in which grapes are trodden in the wine-press. They are next boiled, and afterwards crushed in a sort of press between flat stones, a receptacle for the oil being placed beneath the stones. By this clumsy and laborious method, all the oil is not expressed. A monopoly, however, having been granted by the Shah to a firm of Russian merchants for the working of all the Olives in Northern Persia it is intended to introduce European methods of expressing and refining the oil, by which the yield will be increased and the quality improved. It is stated that every Olive tree is subject to a Government tax of about three halfpence.

FLOWER GROWING IN LONDON.—Mrs. CHAMBERLAIN F.R.H.S., began a course of lectures on "London Gardening," on the 13th inst., to an audience of ladies. Mrs. CHAMBERLAIN inveighed against the monotony of the conventional West-end window box, and declared that, thanks to the Kyrle Society and other agencies, she had ascertained that the majority of flowers could be grown in London and the suburbs, but Roses were the exception. Even this flower, however, might be seen as near the metropolis as Leytonstone, Tulse Hill, and Sydenham. Oddly enough the West-end is less fortunate than the East. As far out westward as Chiswick, the Royal Horticultural Society find that their Creepers and Conifers suffer sadly from the sulphurous smoke, which the east wind brings over from the thickly-populated districts.

CHRISTIA.—Mr. CHRISTY, at a meeting of the Balloon Society, described the new material, which has been named Christia, which he has introduced as a substitute for oil-silk or gutta-percha tissue. The material is a membrane-like tissue, very light and strong, impermeable to water, spirits of all kinds, oils, and acids. It is made neutral, so that it can be rendered antiseptic with any desired medication. It will stand tropical heat and arctic cold without being in the least injuriously affected by the changes. It is particularly adapted for India and other hot climates, where gutta-percha tissue and oiled silk becomes in a short time adherent to such an extent as to be not only useless to the surgeon, but injurious to anything with which

it comes in contact. Another advantage is, that it is only about half the price of oiled silk. Christia itself is made by a process of felting the pure fibre of the Manila Hemp, but any other fabric may serve as a basis. Mr. CHRISTY showed cotton and silk gauze (Fibrine Christia), also felt treated for carpets, and felt backed with a coating of the solution employed in making Christia, so that it may be used for hot fomentations and other purposes. Specimens of building boards were also exhibited made upon the same method, which are not only waterproof, but rot proof, vermin and ant proof. The utility of "Randalite" (the name given to these boards) cannot be over-estimated; in tropical countries infested with the white ant and other noxious insects, it will prove a veritable boon for roofing and partitions, and we shall be glad to hear of its being largely used. Sacks treated with Christia without smell or taste, that are intended to supersede lead-lined tea chests, were also shown. The gain is in their costing half the price, being much more portable and always ready for use, especially in the case of dust tea, which is found to lose 5 per cent. in weight from leakage. The material, judging from the above statements, is likely to be useful for transmitting cuttings of flowers by post or otherwise.

LINNEAN SOCIETY.—On the occasion of the meeting proposed to be held on April 2, 1891, at 8 p.m., papers will be read on the following subjects:—1, On "Variations in the Floral Symmetry of certain Plants having Irregular Corollas," by W. BATESON and ANNA BATESON; 2, On "Two New Genera of Orchids from the East Indies," by H. N. RIDLEY, F.L.S.

HARDY PLANTS.—The lecture on hardy plants at the Royal Horticultural Society on Tuesday last by Mr. MAX LEICHTLIN, of Baden-Baden, and read in his absence by Mr. WILKS, dealt chiefly with the raising of hardy plants from seeds. He dwelt on the impossibility of acclimatising plants, although, as he said, they adapted themselves to a greater degree of cold than that which prevailed in their native country. The good results that follow the exposure of seeds of some kinds of plants when sown, to the action of frost was alluded to; and in respect to the seeds of bulbous plants, and seeds having hard shells, the desirability of sowing them immediately when ripe, was mentioned. The methods of sowing seeds were described, and the soils best suited for them indicated, as also the position of the seed beds as regards aspect and exposure. It was stated that the seeds of most plants with glaucous or spiny foliage like a sunny position, and that those of shade-loving plants dislike the sun. Many interesting details of culture were touched on, for a full account of which we must refer our readers to the journal of the Society.

PRESENTATION TO MR. F. C. GOODCHILD.—On the occasion of the retirement of Mr. F. C. GOODCHILD from the position of Secretary of the Nursery and Seed Trade Association, Limited, the members presented him with a dining-room suite, in token of their appreciation of his services.

THE FLORAL DECORATIONS at the Fancy Dress Balls, held at Covent Garden Theatre during the past season, under Mr. AUGUSTUS HARRIS' direction, have been very profuse, the entrance-hall, staircases, and lounges were almost filled with plants by Messrs. WILLS & SEGAR, of South Kensington, and as many as 300 hand-bouquets, for which 1000 yards of ribbon were used, were provided by the same firm for the last ball on the 18th inst.; large specimen Palms were also placed around the floor. Mr. WEEKS, Chelsea, supplied about a couple of hundred bouquets, and almost as many were sent by M. Gerard, of Regent Street, all displaying excellent taste. The bouquets, which

were made of all flowers in season, were placed around the floor, and a certain number in the front of each private box, making a very pretty display, and lightening up the building. This is an almost extravagant consumption of flowers for one night in one place.

CUPRESSUS NABIANA.

The Cypress, of which we give an illustration, is at once one of the most distinct, and one of the least known of the genus. It is a relatively low-growing, very bushy species, branched from the base, and was found by Lobb, and afterwards by Murray, in North California, and was first described by the late Andrew Murray in the *Edinburgh Philosophical Journal*, vol. i., p. 293, t. 11 (1855); see also *Gardeners' Chronicle*, 1855, p. 420.

The species has been mentioned, but with little additional information, by all subsequent writers on Conifers, including the most recent one, Bräsenner, whose *Handbuch der Nadelholz-Kunde* (1891), p. 100, comes to hand as we are writing this

Brewer, 863; and Pringle. Our illustration (fig. 90) originally appeared in the *Revue Horticole*, M. T. M.

FLORISTS' FLOWERS.

PANSIES.

PLANTS in the open air are now recovering somewhat from the severe winter. If a plant is vigorous and well rooted, it is a good plan after cutting away all decaying parts, and seeing that the soil is pressed firmly around it, to give a top-dressing of sifted soil; the siftings of the potting-bench are well adapted for the purpose. Some plants will show signs of decay, owing to rot having set in, in the main or tap-root. It is best to lift these at once, and pull them to pieces, when it will be found the side shoots have commenced to put forth roots, or will soon do so. If these are planted out in a nursery bed, a little cocoa-fibre placed about them, and the soil pressed down firmly, scarcely one will fail to root, if they have not done so; they soon make nice plants, and

Pansies were much more grown for exhibition than in our day, and when Pansy shows were frequent in the proper season about London, the rooted cuttings were potted into small pots, for the convenience of packing and sending a distance, or if not sent in pots, they were turned out with a firm ball of roots, and when rolled up with some damp moss would travel for a considerable distance in safety.

Slugs need to be closely looked after in spring; not that they destroy the plants, but they feed upon the flower-buds, and so disfigure the blossoms. The ample foliage of the Pansy affords a cool resting-place during the warmth of the day, and it is then slugs should be sought for and captured.

Will the day ever come when Pansies will be cultivated in pots as they were so successfully forty years ago? The finest of blooms can be had from well-managed pot plants. The most promising of the summer-struck cuttings were grown on for the purpose, shifted as required, and finally placed in their blooming-pots in the autumn. They were wintered in cold frames, carefully looked after, and as soon as growth commenced in spring, the closest attention was given to them. As soon as the buds began to expand, liquid manure was given, and highly-finished flowers resulted. If early Pansy exhibitions were again arranged, there is no doubt the Pansy would once more be cultivated in pots. R. D.

THE AURICULA.

At p. 149, I wrote of the Show Auriculas as having passed through the severe cold of the winter unscathed as far as could be observed, but the appearance of the plants at present points to late flowering, even if very fine weather should set in. I have about one dozen plants in flower, mostly selfs, which always open their flowers first, and they last but a short time—much shorter than edged flowers. Exhibitors should place a few of the best selfs in a frame, and not expose them freely to the sun; they will then come in with the edged flowers, and all of them will have about the same degree of freshness. This is a point of some importance, as trusses which have lost freshness will not compare with those in the first blush of bloom. To prevent weakly growth in leaf or flower, air must be admitted freely into the house by all the ventilators, taking care, of course, that the east wind is not allowed to blow directly upon the plants. The scientific observer will find much to interest him in the development of the Auricula alpinis, Traina Auricula. I thought that, perhaps, it was not hardy enough to withstand a very severe frost, and I have not as yet seen any living specimens on my plants; but Mr. Henwood informs me that the frost has had no effect upon it as far as his observations extend. Its life history is a study, because for many months—all the cold months in fact—it is to be seen clustering about the necks of the plants, at, or below the surface, and working downward through the least compact parts of the soil until every root-fibre is covered with them, and other colonies of the insect cluster round the hole at the bottom of the pot. In warm weather they will emerge from their downy covering and cluster on the leaves. Before the flowers fully open it is well to fumigate the plants to destroy green-fly. If this is done, the plants will pass through the flowering period without any more attention of this kind being needed. Offsets from the old plants, taken in February, having roots, will soon need to be repotted in a rather light, but rich soil. The offsets which were planted in late summer and autumn, have passed through the winter in unsheltered, cold frames, are looking well, and a short spell of fine weather lately allowed me to repot them. The seedlings are vegetating freely, and we are pricking them out as fast as they get large enough.

The alpine Auriculas affords the greatest satisfaction when grown in cold frames, the plants not being placed on the bare ground, but on light wooden trellises placed just so far distant from the glass that the movement of the lights does not injure them when they have their flowers. The plants are exposed to the sun, and protected



FIG. 90.—CUPRESSUS MACNABIANA.

paragraph, and which will demand early notice in these columns. *C. Nabiana*, of which specimens have been sent us from the Edinburgh Botanic Garden by the courtesy of the Curator, is remarkable for the dull purple-red colour of its tortuous branches, and the very densely crowded, closely appressed, deep green leaves. The globular cones have rounded or obtuse scales, each provided with a thick, projecting, recurved point.

It is the *C. Coulteri* of Glasnevin Gardens, where it was raised from seed that had been in Coulter's herbarium for twenty-one years, and has also been called *C. nivalis*. It is like *C. Knightiana*, but has less acute leaves.

In accordance with the decisions of the Paris Botanical Congress on nomenclature, we omit the particle "Mac," which is not in accordance with Latin usage, and of no botanical importance. In any case, if any one should prefer to use the prefix, no one will object!

The species is represented in the Kew herbarium by specimens from Murray; Lobb, 398, 430; Jeffrey;

come in very handy for planting out in May or June, to succeed the old plants that have lived through the winter. As a matter of course, the foregoing remarks apply to good named varieties worthy of cultivation, of which there are many.

Seed may now be sown in shallow boxes or pans, and be placed in a cold frame, keeping the surface nicely moist. The soil should be of a light sandy nature, and then the seedling plants can be lifted with nice little balls of soil adhering to their roots, and be planted out in nursery beds to grow into size before going into the beds and borders. Two or three sowings in the course of a year will keep up an adequate supply.

Cuttings of any favourite varieties may be taken in June, and inserted in a light sandy bed under a hand-glass or small frame, in a shady moist place. It is always well to attempt to root a few cuttings of a favourite variety, for rot may set in, or wire-worm destroy it, and the stock may be lost. Cuttings that are properly treated make fine young stocky, free-branching plants. In the old days when

from the north and east. They are now freely growing, and the trusses pushing up, but these as well as the show varieties will have a few flowers on a truss. The plants out of doors made an attempt to grow in the fine weather of February, but the cold nights of March brought them to a stand-still. It is well to notice that slugs or other depredators do not attack them at night when the weather happens to be mild. If the plants have not been cleared of decaying foliage, see to it at once, and place a surface dressing around them, pressing it gently with the fingers.

THE CARNATION AND PICOTEE.

It is now time to sow seeds for raising flowering plants for next year. I have a hot-bed prepared for this kind of work, and the seeds will be sown, in pots, in the first week in April. If there is a brisk bottom-heat, the seed vegetates in about one week, and it is a safe plan to prick out the plants as soon as the seed-leaves are formed; and if the advice given at p. 236 has been followed, the seeds would be already sown—full instructions for after-treatment are there given. The repotting of the layers of last summer was finished early in March; and it was well that I had the same cold frames in which to place them, severe frost having set in before the repotting was completed. I shall afford them but little water until the cold weather is past.

TREE OR PERPETUAL-FLOWERING CARNATIONS.

My earliest-rooted plants have been put into small 60's, and placed in a warm greenhouse, where they get plenty of light. Some varieties do not root very freely, and there is nothing to be done with them except to wait until it is seen by the fresh growths made, that roots are formed. Cuttings root well under a hand-glass over mild heat. *J. Douglas.*

HOME CORRESPONDENCE.

PSEUDO-NARCISSUS BULBS KILLED BY FROST, A MISTAKE.—A fortnight ago I announced that I had found in my Daffodil beds many rows of Trumpet Daffodil bulbs destroyed by frost. This was an event I had never before experienced, or even heard of. Mr. Peter Barr, who has the greatest knowledge of Daffodils amongst living men, wrote to me, asking whether I was sure of my facts, which, after careful investigation, I find to be these. In 1887, a cousin who lives at Bayonne, sent me a lot of collected Daffodils, which he had bought when in flower from some unknown wood-nymphs, who dig them up, and hawk them from house to house amongst English residents. They proved to be a very mixed lot, but contained some exceedingly fine self-Citron trumpets. I asked my cousin to find out, if possible, where they came from. The collectresses, who were traced with difficulty, told many different stories about them, but promised more of the same from a wood between Bayonne and Pau. These were brought in 1889, recently dug up, but with the flowers all gathered, the peasant-nymphs asserting that some one had forestalled them, and sent all the flowers to market, but had left the roots. These were purchased and planted, and sent to me in the end of summer. In spring, 1890, they produced healthy leaves, but, as far as I recollect, no flowers. It is this block which are all killed by frost. I have now had time to write to Bayonne, and find that some of them which were left in the garden there are now in flower, and prove to be *N. papyraceus*, which grows in profusion in all that district. So I have not sufficient evidence that any variety of *N. pseudo-narcissus* has had the bulb killed by frost. *C. Wolley Dod, Edge Hall, Malpas.*

YE OLDE PHYSICK GARDEN.—There is a charming double-page illustration of the quaint old physic garden at Chelsea, as it was in the days of George II., in this week's *Black and White*. The drawing seems to make our gardening forefathers to live and move before our eyes. We can really see them moving about in their calm philosophic way, enjoying to the full the peace and moral suggestiveness of the garden. The feeling which Evelyn and his contemporaries had for their gardens is unhappily too rare in this utilitarian and much-travelling age. The old-time gardens, even though they were

but gardens of simples, wear always a garb of quiet beauty—

"As if all the flowers and trees did close
To weave the garlands of repose."

The taste of our ancestors, too, for high-hedged walks and avenues is at one with this love of sweet simplicity. There they could saunter—

"Annihilating all that's made
To a green thought in a green shade."

It is quite cheering to know that, unlike old Tradescant's garden, there is no chance of the building fiend wresting this venerable relic of the past from the jealous hands of the Apothecaries' Guild. *C. A. M. Carmichael.*

THE DOUGLAS FIR.—I agree with W. C. Leach that the Douglas is one of the finest Conifers ever introduced for ornamental purposes. Trees of the true species were planted here in numbers about five years since, but owing to the chalky nature of the soil and the south-west exposure, they are not doing well; in fact, the greater part appear to be dying, whilst several other species of Conifers are growing well. [Please say which, Ed.] *R. Edwards, Beechy Lees, Otford, Kent.*

TOPIARY ART.—In an article in your issue of the 21st, on the subject of the scientific aspects of gardening, you quote Dr. Kny as saying, "The extinction of the topiary art was a subject for congratulation," surely this is wrong, the art is not extinct, but actively alive; practical gardening is full of it both here and on the continent. What use would the Belgian Azaleas, the sweet Bays, the Dutch Conifers, the shrub Evergreens, such as *Retinosporas*, &c., be without a frequent use of the art? What English market grower of *Genistas*, *Pelargoniums*, &c., could do without it! why some shrubs would have to be excluded from our gardens if it was not for the salvation of the knife and shears. *Cryptomeria* would not stand upright against the heavy snows without the constant use of the shears, not to speak of the impracticability of attempting to grow hedges without shears. If any nurseryman were scientific enough to grow his fruit trees without very frequent cuttings and prunings to make good pyramids, espaliers, &c., he would soon discover his mistake. Yews and Hollies would be useless for trade, and ungainly and slovenly in plantations or shrubberies without frequent application of the art. The only section that does not thrive appears to be the art of cutting peacocks and other natural and quaint designs in Yew, &c. But this is not extinct, and is a long while dying, being a very ancient art. What is more pleasurable than a walk in the country, and the discovery of a quaint old village, with its thatched cottages, its peacock cut in Yew, its old monthly Rose (Blush China), its hose-in-hose *Polyanthus*, and then its village inn, with the old Yew summer arbour, and the bowling green! There are many such villages, even within walking distance of where I write; and I rejoice that these old-world customs are not extinct, and that the villagers still take a love and interest in pruning and keeping quaint their ducks, geese, pigeons, and peacocks and carefully-cut Yew hedges. It carries one back, and seems history demonstrated. No, long live *Ars topiaria*, or the art of pruning trees! *John Pope, Northfield, Birmingham.*

FREESIAS.—At Barham Court, Maidstone, a very fine lot of flowers were to be seen, the bloom strong and abundant, the plants sturdy in a remarkable degree. The gardener, Mr. Woodward, said that the plants had even increased, and somewhat rapidly, by rootlets, a quicker mode of raising them than sowing seed. A cool method of treatment was pursued until the flower-spikes were visible, when a little heat was applied to bring up the blooms; and but little water is afforded the plants until the leaf-growth has made good progress. The soil in which the plants were growing was that similar to which is generally used for *Cinerarias*. *H. M.*

CAMELLIAS.—We have given to so many diverse flowers the designation of these—and to many with exceeding inappropriateness—that it is a wonder no one has ere now dubbed the *Camellia* the Rose of Spring. It is, perhaps, fortunate for the exact nomenclature of this hardy evergreen of Japan that it enjoys a somewhat pleasing, and almost feminine appellation, hence, largely the fact, that "*Camellia*" seems to be almost as well-known as *Rose*, or even *Laurel*. Whenever some local or Anglicised appellation is given to any plant or flower, the baptism so unauthorised almost invariably comes from

the possession by the plant of a title or name which is not euphonious, or is difficult to pronounce. Still, did we wish to describe the *Camellia* literally, it would be hard to find for it a better appellation than "*Rose of Spring*." How much the flowers resemble *Roses*, not only in form but in colour. Alas, how little they give us of the sweet perfume of the *Rose*. But we have in the *Camellia* a very hardy shrub without doubt. We have ample evidence in divers parts of the country that if only exposed and hardened it will endure any weather, whilst its bloom production seems to be best governed by the soil, and its capacity to produce growth early in the summer, which, naturally come in after the late spring frosts have disappeared, still is early enough to be well ripened during the summer, if situation as well as soil be correct, and develops bloom-buds freely for the ensuing year. Even apart from its bloom production, the *Camellia* forms a very handsome hardy evergreen shrub, but when fully in bloom, as I have seen noble bushes in April, it is one of the most beautiful of flowering as well as of foliage shrubs. Of course, to have the *Camellia* in its greatest beauty, we must have it under glass. Sometimes it is planted out, and so treated it grows and flowers superbly. In other cases, it is grown in huge pots or tubs, and still again does very well. It is an accommodating sort of shrub, but requires good peaty soil, plenty of air, very little warmth, and some shade in the summer. A good reason for having the plants in pots and tubs, is that they can be lifted outdoors in the summer, and thus be cleaned and ripened at once. The *Camellia*-house can, in such case, also undergo a thorough cleansing, and as certain obnoxious insects find acceptable resting-places in the plants if their proper cleaning be neglected, it is well to be able to give both plants and houses a thorough ablation occasionally. We have few nurserymen who exhibit *Camellias* in finer form or more abundantly than Mr. William Paul. That enterprising nurseryman has, at Waltham Cross, a wonderfully fine collection, and plants of great size. From these, as was seen at the meeting of the Royal Horticultural Society on the 10th inst., he cuts and exhibits truly remarkable displays of flowers. The one referred to, and which formed, further, so interesting a feature at the Royal Aquarium show the next day, comprised some 300 blooms. Of these, very fine whites were *fimbriata alba*, *Montironi*, *Princess Charlotte*, and *Madame D'Offoy*. Of rich hues, *L'Avenir*, rosy pink; *Countess of Derby*, very fine, flattish flower, pale pink; and *Beauty of Waltham*, blush, were very beautiful. *Gaillaume III.* is a rich reddish-carmine, medium-sized, and charming; *Lucrezia Gazzarini*, carmine, striped white, fine round petal, is excellent; *Marchioness of Exeter*, and the old *Mathotiana*, are very large, and of rich red hues; *Benney*, soft rosy-red, with thin white flake; *C. M. Hovey*, medium-size, very deep red; *Bealii*, cupped, deep red, are all very effective; *Mafia*, sharp, pointed petals, and a very perfect flower; and *Madame Lebois*, soft rosy carmine, should be included in any collection of *Camellias*. *A. D.*

EXHIBITION DAHLIAS.—A new departure in reference to the Cactus Dahlias has been taken by the National Dahlia Society. The Committee have recently decided to have classes for varieties only of the type of *Juarez* at their annual exhibition at the Crystal Palace in September next; and Mr. T. W. Girdlestone, M.A., the Hon. Secretary of the National Dahlia Society, offers special prizes for a similar class at the early Chrysanthemum and Dahlia show of the National Chrysanthemum Society, on September 9 and 10. Of late years there has been a considerable increase in the number of so-called Cactus Dahlias, many of which are practically only inferior forms of the exhibition Dahlias; and it is now felt some attempt should be made to differentiate those of the *Juarez* type at Dahlia shows. As a guide to exhibitors, there appears in the report of the National Dahlia Society, and also in the schedule of prizes of the National Chrysanthemum Society, a list of what are regarded as the true Cactus type, and they are as follows:—*Amphion*, *Beauty of Brentwood*, *Cannell's Favourite*, *Henry Cannell*, *Honoraria*, *Juarez*, *Marchioness of Bute*, *Mrs. J. Douglas*, *Mrs. Hawkins*, *Panthea*, *Professor Baldwin*, *Robert Maher*, and *Sir Trevor Lawrence*. Classes will include both the Cactus and decorative types, but this particular one will be only for flowers following the character of *Juarez*. *R. D.*

CŒLOGYNE CRISTATA.—Has any previous instance been noticed where this Orchid has given two

crops of flowers in close succession? I have never seen any disposition in the plant to flower again in less than ten or twelve months. On p. 333, "W. H. W." mentions a plant, at Clarendon Park, which showed a second crop of flowers. It will be interesting to hear if this has proved to be the case; or have the young growths, which start just after flowering is over, deceived your correspondent? *W. H. Divers, Ketton Hall Gardens, Stamford.*

INJURY TO FRUIT TREES BY WIRE.—I notice some of your correspondents complaining of damage to shoots of wall trees when tied to strained wires. Is it not the case that the slovenly practice prevails of merely passing the string or tar-twine once round the wire and the shoot, and making one knot. Instead of passing it twice (or even three times) round the wire first, and tying it as tight as it can be pulled, and then loosely round the shoot with a second knot? In the former case, the shoot rubs itself against the rough wire when moved by wind. In the latter case it is kept off the wire by the plies of string and the first knot. *F. S.* [In ordinary, it is sufficient to pass the bast, twine, or withy once right round the wire before putting it round the shoot, the first knot being unnecessary. *Ed.*]

POSTAL ANOMALIES.—As I usually pass the winter months abroad, and am in the habit of having Orchid blooms sent me as specimens, I should be much obliged for information as to the best means of having these sent out. If the ordinary post is used, a very small box costs somewhere about 3s. Parcel-post takes about a week. Last year and this I have tried "sample-post." The Postmaster and myself differ, however, as to the meaning of the word sample, and some boxes have been returned to the sender, and only forwarded on the receipt of money to the value of ordinary postage, when, of course, the flowers on arrival were useless. I have, however, recovered the difference on threatening legal proceedings if it were not forthcoming; but the same thing is constantly recurring. I contend that a bloom from a plant having more than one flower constitutes a sample in the ordinary acceptance of the term. Perhaps some of your correspondents, more versed in legal lore than I am, will come to the rescue. It seems absurd that for less than 3d. you can send a large box of flowers from here to London, and London is not allowed to send us one-hundredth of the quantity for the same sum. *R. B. W., Monte Carlo.*

PLANT NOTES.

CASTANEA CHRYSOPHYLLA.

This is related to the Sweet Chestnut, but is very different both in habit and growth. The plant is perfectly hardy, and deserves to be planted much more extensively than it is at present. If gardeners could only be induced to give it a trial, I feel confident it would soon take the place of some of our commoner trees. It is not a very fast grower, so, if space is limited, it is a tree to be recommended. Its leaves are rather smaller than those of the Sweet Bay, the upper surface deep green, and the underside a beautiful rich golden colour, rarely met with in hardy trees and shrubs. The young growths, too, are quite yellow, changing to green with age. In the State of Oregon, it attains the height of 40 feet. It should be planted in good rich loam and a little well-decayed farm manure, spreading the roots out, and making them firm, and afterwards staking as a preventive against strong winds. It is readily increased, about the middle of August, by cuttings about 6 inches long, taken from the previous year's growth. When the wood is thoroughly ripened, the cuttings should be put in cold frames, in peaty soil, with a good addition of silver sand to keep it open. The frame must be kept close until the cuttings are rooted, and by the following spring the young plants will be ready for planting into nursery rows. *H.*

JUSTICIA CARNEA ROSA.

This grand old plant should be grown by every one who has a warm house, as it is one of the prettiest plants we have in cultivation. It may be grown in pots, small or large, and it will flower equally in either. During warm weather the plant

will stand in the cool conservatory without injury; and it is of easy cultivation, and may be got to flower at almost any time of the year. I usually have some of them in flower here. To bloom this species in winter, they should be placed in heat, to make young wood, and this produces fresh spikes of bloom at its points. When the plant is removed to a cooler house, its flowers will continue to open, and they will remain in good condition for a long time; and as soon as the bloom is past, if the plant is put into heat it will again flower, after fresh growth has been formed. *W. Smythe, Basing Park, Alton.*

SALVIA.

For autumn and winter-flowering, few plants are more useful and showy. It is now time to commence their propagation, or to start old ones for the purpose of obtaining cuttings. To obtain good strong cuttings, it is necessary to head back the old plants a bit, but not so much as to denude them of foliage, and then place them in gentle heat, where there is a moist, genial atmosphere, and there they will soon break and start into growth; and when the shoots are about 4 inches long, they will be in a fit condition for taking off to be rooted. The best place for striking them is in a half-exhausted propagating frame, the chief thing to guard against being damping, but flagging must also be prevented; as soon as struck, removed to a pit or frame, or a light house, stood near the glass, in a temperature ranging between 40° and 50°, and, after a week or so, potted off singly, and grown steadily on under the same conditions of light, heat, and moisture. For moderate-sized plants, such as are used for furnishing, and to be grown in 6-inch pots, it is better to defer putting in cuttings till May, after which time *Salvias* should be grown outdoors, or in frames from which the lights can be withdrawn. *J. S.*

BRYANTHUS ERECTUS.

This plant is one of the most useful ones that we have for rockwork, and yet it is seldom observed. Its rosy-pink blossoms are produced in great profusion about the middle of May, and last in perfection quite three weeks. It is said to be a hybrid between *Rhododendron chamæcistus* and *Menziesii cœrulea*, and it is a very neat-growing and hardy plant, and one of its uses is as an edging plant to small beds. It prefers shade, should be protected from the fierce sun, and should always be planted in a soil composed of peat and leaf mould; but particular attention must be paid to drainage, and, under no consideration, must it be put in ground that is heavy and damp. [The hybrid origin of this plant was discredited by Prof. Asa Gray. *Ed.*]

COLONIAL NOTES.

SYDNEY.

"THE AGRICULTURAL GAZETTE OF NEW SOUTH WALES."—This is a Government publication of high importance and value, intended to promote scientific inquiry into the many subjects of natural history connected with agriculture, and to diffuse useful, practical information concerning them among the farmers.

In the part before us, the first article is one on the Rusts of Wheat, by Mr. Cobb, in which the methods of research are first described, in a manner suitable for the use of the student in the laboratory. Then follows a clear account of the several fungi, together with good illustrations. It is evident that such knowledge is an essential preliminary to the discovery of any remedy. An article on artificial manures gives just the sort of information required by farmers. Numerous articles of a similar character follow, many of general importance. Others, such as one on the grasses of New South Wales, by Mr. Turner, of special value in the climate of that colony.

Among "exotic weeds" we notice our Woundwort, *Stachys arvensis*, is mentioned by Mr. Turner. It will, we imagine, be new to our readers to hear of his being a very harmful weed to cattle. In the

colony it is known as "Stagger weed," and proves fatal to horses and cattle. We do not remember to have heard of any ill-effects from it in this country.

THE NEW ZEALAND GLACIERS.

I visited, when in New Zealand, the great glaciers at Mount Cook, one of which was named nearly thirty years ago after Sir Joseph Hooker. They are among the hugest ever raised in the world. They are now easily accessible, as the gradually rising plains on which, coming from the east, the majestic chains of the southern Alps are approached, extend in some places actually to the foot of some of the glaciers. Nevertheless, these plains, and even the lower ranges, unlike to the country on the western side of the Alps, are altogether treeless, and even mostly bushless. The requisites, therefore, are trees for timber and fuel in these parts of New Zealand, and they should be necessarily of kinds comparatively quick in growth. *Pinus insignis* and *Cupressus macrocarpa*, which among Conifers I was the first to distribute on an extensive scale through Australia in the fifties and sixties of this century, are mostly utilised also in New Zealand, particularly the former for masses of woody growth, but of course more for shelter and fuel than for timber; and they cannot be relied on in the coldest regions where the many Canadian, Himalayan, and some of the Japanese trees, whether coniferous or otherwise, would be a great boom, irrespective of British trees already much grown in these Islands. Indeed, it must be remembered that New Zealand is about as large as the United Kingdom, and that half a century hence—a period required for the generality of trees to attain their full growth—a vast population will be settled in the New Zealand Islands. Where the climate in the lowlands is so mild, the question of wood supply becomes a grave one. From Australia we cannot offer much for the vicinity of the Alpine region, because although the plains near the glaciers rise only to 2500 feet as a maximum, the cold descending current of air from such masses of ever icy mountains exposes the low country near them to abundant snow-falls during the winter months. Among Eucalypts, the best we can offer are *E. Gunnii*, *E. coccifera*, and *E. urnigera*; but they do not grow so quickly as many other congeners, nor is their timber the best. Pines must come from the colder regions of the northern hemisphere, and so must the best of other classes of trees. The greater the diversity of the sorts, tentatively introduced, the better, because it will only be after actual test in different geologic tracts and climatic regions, that the correct final choice can be made, as in those for southern latitudes some species of the trees become diseased, or do not thrive well, which prosper in N. Europe, N. Asia, and N. America.

Botanists will especially rejoice that the genial Professor Goodale brought across two oceans, as President of the American Association for the Advancement of Science, a greeting to the Australian Association of the same name! *F. V. M., Melbourne.*

RANUNCULUS LYALLI.

In the New Zealandian Alps, near Mount Cook, occurs a variety of *Ranunculus Lyalli*, with serrated petals, which especially deserves introduction into horticulture, as this splendid plant has become in its ordinary form already a favourite with British gardeners in this variety. It was discovered by Mr. Huddleston and some surveyors, and would likely become reproduced from seeds. *Baron von Mueller.*

SINGAPORE.

Herewith a photograph of *Myristica pendulina*, Hook., a very fine and graceful Nutmeg, growing in our gardens. It is a female plant, and the only one I have ever seen. The species was described by Sir Joseph Hooker in the *Flora of British India* from this specimen. I send also one of a fine *Caryota*—*C. Cummingi*—one of a pair, growing also in the Botanic Garden; likewise a view of our Orchid-house—at least, of one aisle of it. You see a fine show of *Phalenopsis grandiflora*, and the variety

aurea; there is also *P. amabilis*, *Calanthe veratrifolia*, *Cypripedium Lowii* and *niveum*, *Arundina densiflora* and *Philippii*, *Hemaria discolor*, *Eria armeniaca*, *Sarcocylus lilacinus*, *Renanthera arachnites*, *Dendrobium*, and many other smaller plants. Our collection of Orchids now is fairly good. We have, I reckon, nearly 400 kinds, of which nearly a quarter are *Dendrobium*. The Assam species do not do well here at all, and give a great deal of trouble, and even then but few flower. Here is a list of the genera, we have in cultivation:—*Oberonia*, *Microstylis*, *Liparis*, *Platylinis*, *Dendrobium*, *Bulbophyllum*, *Cirrhopetalum*, *Eria*, *Cerastostylis*, *Agrostophyllum*, *Claderia*, *Calanthe*, *Cologyne*, *Phreatia*, *Ipsea*, *Spathoglottis*, *Phaius*, *Thunia*, *Limatodes*, *Nephelaphyllum*, *Tainia*, *Enlophia*, *Cymbidium*, *Grammatophyllum*, *Dipodium*, *Thecostele*, *Bromheadia*, *Polystachya*, *Plocoglottis*, *Chrysoglossum*, *Callabium*, *Geodorum*, *Luisia*, *Renanthera*, *Vanda*, *Phalaenopsis*, *Sarcocylus*, *Saccolabium*, *Sarcanthus*, *Aërides*, *Cleistostoma*, *Acampe*, *Doritis*, *Thelasis*, *Oxyanthera*, *Podochilus*, *Appendicula*, *Taniophyllum*, *Acropsis*, *Trichoglottis*, *Vanilla*, *Corymbis*, *Anætochilus*, *Hoemaria*, *Goodyera*, *Vrydagzinea*, *Cystorchis*, *Dossinia*, *Macodes*, *Hyllophila*, *Pogonia*, *Habenaria*, *Cypripedium* (a good series, *i.e.*, nearly all the East Indian ones), and, if counted as Orchids, *Apostasia* and *Neuwia*. Africa is represented by *Ansellia*, *Angræcum*, and *Lissochilus*. South American Orchids we are less rich in; the Andean species will not live here. We have, however, *Cattleyas* which flower well, *Lælias*, *Lycaste*, *Stanhopea*, *Oncidia*, a few; *Odontoglossum* will hardly live at all, *Peristeria*, *Zygopetalum*, *Cataetum*, *Epidendrum*, several; *Brassavola*, *Chysis*, *Bletia*, *Maxillaria*, *Acropora*, *Anguloa*, *Lockhartia*, *Brassia*, *Selenipedium*. Many of the native Orchids do much better here on the trees and planted in the open ground, notably the *Hoemarias*, &c., which do much better on rockwork than in pots. The heavy rainfall hurries the flowers over very much here, so that a plant in blossom does not last nearly so long as in England. So that to make a show, one must have a very large number of plants in a condition fit for blooming. Of *Phalaenopsis grandiflora*, for instance, I purchased 4000 plants at a time, so for some months I have had a constant big exhibit of them. When the photograph I send was taken, there were 375 plants in blossom. *Henry N. Ridley*. [A very remarkable collection. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 24.—There was a pretty display of a generally interesting character at the Drill Hall, Westminster, last Tuesday, although the Fruit Committee had little to occupy its attention.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. J. Wallace, R. Dean, C. H. Pearson, H. Herbst, H. Cannell, W. C. Leach, W. Bain, T. Baines, J. Brycasson, C. Noble, W. Watson, H. Turner, H. H. D'Ombrian, G. Paul, C. T. Druey, C. Jefferies, and J. Fraser.

A very effective group of plants, sent by Messrs. B. S. Williams & Son, Holloway, included many excellent *Hyacinths*, in variety; bright *Tulips*, the best of which were *Ophir d'Or*, *Vermillion Brilliant*, *Proserpine*, red and white; *Joorit van Vendell*, *Renegridelin* (?); also pretty *Narcissi*, with many striking *Cliveias*, of which *Prince of Orange*, a capital form, received a Certificate of Merit; *Amaryllis*, and some beautifully-flowered small standards of the fine double white *Azalea Deutsche Perle*.

Messrs. Veitch & Sons, Chelsea, sent some seedling *Amaryllis*, two of which, as seen below, received awards of merit; also a very charming group of forced *Spiræa confusa*, a capital forcing plant. Some double forms of *Azalea mollis*, the best of which were *Mecene* and *Norma*, also some forms of *Azalea amœna*, and a basket of the white flowered *Xanthoceras sorbifolia*, very pleasing in a forced state.

Messrs. Paul & Sons, Cheshunt, had a good collection of *Amaryllis*, many showing intense rich colours; also blooms of the new Bourbon Rose, *Miss Paul*,

which has the merit of being highly perfumed, a cup-shaped flower of pale rosy pink colour and good substance and an interesting collection of hardy plants, including single red, white, and blue *Hepaticas*, *Megasea strachyi*, very dwarf and nearly white flowered, various *Saxifragas*, numerous *Hellebores* of the *Colchicus* type in various colours, and a basket of the new *Pernettya*. These *Clothilde-Souper* flowers bore profusely, semi-globular, deep pink in colour and very double.

Messrs. W. Paul & Sons, Waltham Cross, exhibited a box of a new and lovely creamy pink *Camellia*, *Beauty of Waltham*, also several baskets of *Roses*, including *Danmark*, a globular Rose of good substance and form, of a pleasing rosy-pink colour; also *Duchess of Albany* with *La France* style of petals, but of a deep rosy-red colour: *White Lady*, and *Lady Henry Grosvenor*, bluish-coloured.

Mr. H. B. May, Edmonton, staged a charming collection of market Ferns of choice varieties, including numerous plants of the crested ferns of *Pteris cretica* and *Pteris serrulata compacta*; the charming *Selaginella amœna*, so much like a small Fern, basket Ferns, foliage plants, &c.

Mr. T. S. Ware, Tottenham, had a pretty group of hardy plants, including *Hepaticas*, *Primulas Clusiana* and *rosea*; *Daffodils* in variety, *Chionodoxas*, *Lucille* and *Sardensis*, beautiful blues. A First-class Certificate was given to *Chionodoxa grandiflora*, very large, blue margined, with white centres.

From the Royal Gardens, Kew, came a charming little basketful of hardy rock plants, including *Primulas Verticillata*, *rosea* and *denticulata*, *Saxifragas Ruckeriana* and *Boydii*, &c., a delightful if small contribution.

Messrs. Barr & Sons, Covent Garden, sent up a striking collection of cut blooms of *Daffodils* in variety, with the pretty hoop-petticoat form in pots, also flowers of scarlet *Anemones*, *Chionodoxas*, *Scillas*, &c.

Messrs. H. Cannell & Sons had a box of twelve huge bunches of *Zonal Pelargonium* trusses in beautiful colours, fine form of petal, and attractive variety considering the evil wrought by foes elsewhere, this contribution merited high praise. Mr. R. Dean, Ealing, exhibited a pot of his *Blue Gem Primrose* in bloom, and some branches of *Aralia Sieboldii*, showing the effect of frost upon the leafage, which was literally blackened. From Mr. Hodges, Chislehurst, came a large dish of cut blooms of varieties of *Helleborus Colchicus*. Messrs. J. James & Son, Farnham Royal, staged a superb group of their unrivalled *Cinerarias*, plants sturdy, dwarf, finely flowered, and the blooms of great size and substance.

A couple of charming *Bertolonias* were contributed by L'Horticulture Internationale; the variety named *Madame Leon Say* was creamy-white, with faint pink flush, and numerous small green spots. The variety *Baron A. de Rothschild* was similar, except that the ground colour was bright carmine-rose, recalling *Souvenir de Gaud*. *Hemanthus Lindenii* was also shown, but past its best; this plant received full notice, with illustration, in our issue of Oct. 18, 1890.

Mr. Gold, gr. to the Hon. H. D. Ryde, High Ashurst, Dorking, showed a plant of *Arum palestina*, which has the spadix and the interior of the spathe coloured deep purple-black, and of a velvety appearance, the outer surface of the spathe being brown-green. It is a plant of low stature, with rich green leaves.

Orchid Committee.

Present: Dr. M. T. Masters in the chair, and Messrs. H. M. Pollett, H. Ballantine, C. Pilcher, E. Hill, J. Douglas, L. Castle, S. Courtland, and J. O'Brien.

Perhaps the most interesting group shown was that contributed by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking (gr., Mr. W. White); there were several varieties of *Dendrobium melanodiæcus* ×, the result of crossing *D. Findlayanum* with *D. Ainsworthii* ×; these were all of very great beauty, and showed considerable variety in colouring; the var. *Rainbow* was conspicuous for its large broad lip, which had a red-brown blotch bordered with yellow in the throat. *D. m. pallens* has a lip which, with the exception of a faint yellow trace in the throat, is pure white, which is well set-off by the rosy-flushed petals and sepals; other varieties were also very interesting, showing more or less intense spots of red-brown in the throat, while the *Pearl* was pure white with a purple-violet throat. In this group were also *Cirrhopetalum Mastersianum*, apricot brown; and *C. picturatum*,

greenish-yellow spotted red-brown. The pretty *Bulbophyllum mandibulare* with its curious lip, and *Dendrobium chlorostele xanthocentrum*, with the segments white tipped with rose and the lip orange, were also very attractive. From Mr. H. Young, gr. to F. Wigan, Esq., Clare Lawn, East Sheen, came a small collection of prettily flowered and well-grown plants, including *Dendrobium Farmeri*, *D. thyrsidiflorum*, *Acranthus leonis*, *Odontoglossum maculatum*, *O. crispum*, the pretty *Cologyne sparsa*, and *Cypripedium callosum*.

From L'Horticulture Internationale, Parc Leopold, Brussels, there was sent a hybrid *Cypripedium* named *Bragaium*, the result of crossing *C. hirsutissimum cerulescens* × and *C. Boxalli atratum*; the plant was a strong grower, and bore a flower very strongly resembling that of *C. hirsutissimum*, with a deeply-coloured dorsal sepal; *Odontoglossum luteo-purpureum*, *Linden's* var., with a broad, pale-coloured lip.

Another pretty lot came from T. Statler, Esq., Stand Hall, Whitefield, in which *Lælia crispata* was represented by a very fine form, richly coloured. There was a splendid form of *Lycaste Skinneri alba*, in which the sepals measured over 2 inches across. Among other plants, were good specimens of the richly-coloured *Dendrobium nobile Sanderianum*; and *D. n. Backhousianum*, with a good lot of flowers; *Lycaste Harrisonia*, *Odontoglossum Humeum*, and *Vanda tricolor*, were also shown.

M. S. Cooke, Esq., Kingston Hill, sent a small collection, in which were *Sophrontes grandiflora*, *Cattleya Lawrenceana*, and *Ansellia africana*.

Mr. G. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford, sent a very fine specimen plant of *Dendrobium thyrsidiflorum* with nine racemes.

A couple of well-flowered specimen plants of *Dendrobium Brymerianum* came from C. J. Lucas, Esq., Warnham Court, Horsham (gr., Mr. Duncan); and a form of *Dendrobium nobile*, with white petals, came from F. S. Moseley, Esq., 24, Park Village East, Regent's Park. It is certainly a very pretty form of this popular *Dendrobe*.

A decorative bank of popular Orchids, arranged with *Pteris*, was set up by Mr. W. Whiteley, Hillingdon (manager, Mr. Godfrey); such forms as *Odontoglossum crispum*, *O. luteo-purpureum*, *Dendrobium nobile*, and *Cattleya Triana* being the chief constituents.

Fruit Committee.

Present: P. Crowley, Esq., in the chair; Dr. R. Hogg, and Messrs. J. Lee, T. F. Rivers, G. Banyard, R. D. Blackmore, H. Weir, J. Willard, C. Ross, J. H. Veitch, J. Cheal, G. W. Cummins, T. J. Saltmarsh, G. Reynolds, W. Bates, A. Dean, G. Wythes, J. Hudson, H. Balderson, F. Q. Lane, and C. Penney.

The objects submitted were only two—one dish of a small seedling Apple from Messrs. Bourne & Son, Bickington, Somerset; and another dish of well-grown Mushrooms from Mr. W. Whiteley, Hillingdon.

Special Prizes.

In response to small prizes offered for a group of young blooming bulbs, &c., Mr. A. Shoemith gr. to W. Hodgson, Esq., Shirley Cottage, Croydon, was placed second, only; no other group being placed in competition. The collection included *Hyacinths*, *Tulips*, *Narcissi*, *Crocuses*. The same competitor was the only one who staged nine *Cinerarias* in another class; but the plants were only of a moderate quality. This very poor competition is hardly encouraging to the offering of prizes at these meetings.

The following are the Committees' awards:—

By the Floral Committee.

First-class Certificates.

Chionodoxa grandiflora, from Mr. T. S. Ware.
Camellia Beauty of Waltham, from W. Paul & Son.
Bertolonia Baron A. de Rothschild, from Mr. J. Linden.
Bertolonia Madame Leon Say, from Mr. J. Linden.
Saxifraga Boydii, from Messrs. Paul & Son.
Arum Palestineum, from Mr. Gold.

Awards of Merit.

Rose Danmark, from Messrs. W. Paul & Son.
Cliveia Prince of Orange, from Messrs. B. S. Williams & Son.
Amaryllis Olivia, from Messrs. J. Veitch & Son.

Amaryllis Vandyke, from Messrs. J. Veitch & Son.
Azalea (Mollis) Norma, from Messrs. J. Veitch & Son.
Azalea (Mollis) Maccenas, from Messrs. J. Veitch & Son.

By the ORCHID COMMITTEE.

Award of Merit.

Dendrobium melanodiscus \times var. pallers and D. m. \times var. Rainbow, from Sir T. Lawrence.

Botanical Certificate.

Cirrhopetalum Mastersianum and C. picturatum, from Sir T. Lawrence, Bart., M.P.

MEDALS.

Silver-gilt Flora, to Messrs. B. S. Williams & Son, for a group of Plants.

Silver Banksian, to Messrs. J. Veitch & Son, Mr. H. B. May, and Messrs. Paul & Son, for groups of plants; to Mr. T. S. Ware and Messrs. Barr & Son, for hardy flowers; and to Messrs. James & Son, for group of Cinerarias.

BATH FLORAL FETE.

SPRING SHOW, MARCH 18 AND 19.—Despite the ungenial character of the season, this annual exhibition suffered but little, the rooms being well-furnished with excellent collections.

Groups of Plants.—These were effectively arranged on tables. Mr. R. B. Cator was 1st in the open classes, having well-bloomed Orchids in variety, Arum Lilies, Cliveias, bright-coloured Crotons and Dracænas, &c.; Mr. W. D. Bennett, gr. to C. W. Mackillop, Bath, was a good 2nd. In the amateur class, Mr. W. Humphrey, Bath (gr. to Mr. S. J. Yates), was 1st, with a remarkably good group also.

Orchids.—Some excellent specimens of these plants were staged. The best six came from Mr. H. Kerslake, gr. to the Rev. E. Handley, Bath, who had Cattleyas Mendelii, Schroderæ, Loddigesii, Trianae, T. Leeana, and Dendrobium nobile; Mr. R. B. Cator was a very good 2nd, with D. nobile, D. thyrsiflorum, Cologyne cristata, Cattleya Trianae, T. delicata, and Cypripedium villosum. Messrs. Geo. Cooling & Son, Nurserymen, Bath, had the best three, in Dendrobium thyrsiflorum, D. nobile delicata, and Cattleya Trianae.

The best specimen Orchid was a fine piece of Cattleya Trianae, from the Rev. E. Handley.

Roses in pots were a very fine feature, the Rev. E. Handley being 1st in the large and well-grown and bloomed plants for the season of General Jacqueminot, Magna Charta, La France, Reine Marie Henriette, Marquise de Castellane, and Marie Baumann. Dr. S. P. Budd, Bath, was a very good 2nd.

Other plants included Indian Azaleas, Mr. Bennett staging very good specimens of Apollo and Duc de Nassau.

Ornamental foliaged plants and stove and greenhouse plants in flower were shown in sixes, Mr. C. W. Drummond, nurseryman, Bath, taking the 1st prizes. Ferns, plants for table decoration, Primulas, Mignonette, and spring flowering plants of a hardy character were shown, the last-named a little weak, owing to the lateness of the season.

Hyacinths made bright patches of colour. Messrs. G. Cooling & Son were 1st with eighteen and twelve; Dr. Budd and Mr. Eyres, gr. to T. W. Gibson, Esq., Bath, showing well. Tulips, single and double, were very good; and a dozen pots of single Daffodils, distinct, shown by the Rev. E. Handley were remarkably good. He also had an admirably arranged box of Daffodils in considerable variety. Polyanthus Narciss, Lily of the Valley, and Crocuses were also shown, and some good Cinerarias and Cyclamens.

With a vase or epergne of flowers, a spray for a lady, and a hand bouquet, Messrs. Perkins & Sons, Coventry, were 1st—all in their usual excellent style; Mr. C. Winstone, Clifton, and Mr. E. Hill, Westbury-on-Trym, took the 2nd prize.

Fruit.—Some well-kept Apples and Pears were shown. The best dish of eight of the former was a local variety named Stamer (?) Pippin, a somewhat large and handsome good-keeping variety; and Annie Elizabeth, fine, well preserved, was 2nd. The first-named came from Mr. R. C. Hardwick, Bradford-on-Avon. Mr. D. Young had the latter. The best dish of Pears was Beurré Rance, from Mr. Hooper Taylor; Mr. F. Meade was 2nd, with Josephine de Malines.

Vegetables were fairly plentiful and good. Mushrooms and Seakale were very good indeed, and baskets of salad a great feature.

A collection of fine plants was staged by Mr. J. Cypher, of Cheltenham. It included a number of Orchids, arranged with foliaged plants, &c. Messrs. G. Cooling & Son had a group of forced plants in flower.

CRYSTAL PALACE.

MARCH 21.—The Spring Exhibition of this Company's Flower Shows was held on Saturday last, the closing day of the Horticultural Exhibition which has been open during the last three weeks. Following so closely, as it did, on the Spring Show of the Royal Botanic Society, held only three days' previously, the display practically resolved itself into a repetition of the former, which was duly reported in our last issue, and these remarks apply especially to the large trade collections. Messrs. H. Williams & Sons, Finchley; Messrs. Paul & Son, and Mr. D. Phillips, Slough, occupying similar positions in the competing classes.

Mr. Ford, gr. to Sir C. Pigott, Bart., Wexham Park, Slough, was awarded 1st for Cinerarias, having fine plants, too; and Mr. H. James West Norwood, beat Messrs. J. Laing & Sons for a group of stove and greenhouse plants, arranged in 100 square feet. Mr. Wells, of Sydenham, for greenhouse Azaleas, about average quality specimens.

In the amateurs classes, the chief prizes for bulbous plants were awarded to Mr. Shoesmith, gr. to M. Hodgson, Esq., Shirley Cottage, Croydon, there being competition only in the class for Hyacinths, but his exhibits were in all cases good. The same exhibitor led for Cinerarias, and Mr. Nunn, Greenwich Park, S.E., was placed 1st for Lily of the Valley. It should be added that Messrs. Peed & Sons, Streatham, sent a good collection of stove and greenhouse plants.

If the Crystal Palace Company desire to improve their flower shows, the advisability of altering the schedules should be considered, as they have been run in one groove for so many years that the classes are left in the hands of a few regular exhibitors, and others are afraid to venture.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

THE members of this Society met in the Music Hall Buildings, Aberdeen, on Saturday evening, the 21st inst. There was a good turn-out, and Mr. D. M. Smith, presided. The Secretary (Mr. Minty) read a paper by Mr. George Muirhead, F.R.S.E., Fellow of the Botanical Society of Edinburgh, on "Alpine Plants," remarking on the suitability of the climate of Aberdeenshire, which was moist and cool in summer, and well fitted for their growth, and the abundance of large weather-beaten stones, which were to be seen lying on the surface of the ground in every district of the county, afforded every facility for the construction of artificial homes for the plants. The speaker also gave a number of practical details of the methods to pursue in forming artificial rockeries in ordinary gardens.

The Secretary then read a paper by Mr. Robert Lindsay, Curator of the Royal Botanic Gardens, Edinburgh, on so-called insectivorous plants, viz., Nepenthes, Sarraceniacæ, Droseracæ, and Utriculariacæ. In speaking of the cultivation of these plants, it was pointed out that they required pretty much the same description of soil, moisture, and general treatment. Nepenthes alone required much heat; an average temperature of 70° suited them very well. The soil should consist of fibrous peat, with the earthy matter shaken out; to this should be added from a third to a half of chopped sphagnum moss and a sprinkling of charcoal, crocks, and silver-sand, thoroughly mixed. Owing to the large amount of water required, good drainage must also be given. To have abundance of pitchers produced, they should be constantly cut back, as when growing too freely they usually failed to produce pitchers.

Hearty votes of thanks were given Mr. Muirhead and Mr. Lindsay for their interesting contributions.

THE EDINBURGH NURSERY EMPLOYES AND SATURDAY HALF-HOLIDAY.—A large and representative meeting of nursery employés was held in the Webster Hall, Stockbridge, Edinburgh, on the 20th inst., to consider the propriety of appealing to their employers for the boon of a weekly half-holiday on Saturday. Mr. ROBERT MORRISON was called to the chair, and explained the object of the meeting. Resolutions bearing on that subject were

proposed and unanimously adopted, and a deputation of three of the audience was selected to wait on the various nursery firms in Edinburgh, to confer with them on the subject, and report to a subsequent meeting of employés.

TEA AND COFFEE SUBSTITUTES.

(Continued from p. 345.)

ILLICEBRACEÆ.

65. *Paronychia argentea*, Lamarck, and *P. nivea*, De Candolle.—Under the name of Sanguinaire, Thé Arabe, or Algerian tea, the flowers have been used in the preparation of a beverage, and sold in Paris in neatly-made packets. From one of these packets, contained in the Kew Museum, the following notes as to the efficacy of this special tea is taken. The plant, it is there stated, from which the preparation is made, grows on the arid slopes of the Atlas Mountains; the flowers and some of the small leaves are dried, and the infusion made from them has a pleasant taste, and is decidedly beneficial in its action in all cases of colds, catarrhs, and chest affections. Algerian tea is exceedingly useful in alleviating fevers, and in contributing to the enriching of the blood. It is much recommended in cases of oppression at the chest, and in indigestion. Its daily use after meals gives tone to the organs, and regulates all the functions of the body; a tea-spoonful is sufficient to make a breakfast-cupful of the infusion.

CHENOPODIACEÆ.

66. *Chenopodium ambrosioides*, L.—A native of North America, but naturalised in Southern Europe. It is known under the names of Cullen, Yerba de Santa Maria, or Mexican Tea, where it is frequently used as a beverage, in consequence of its strong aromatic odour, and supposed beneficial effects in nervous diseases. It has more recently come under notice as a component part in a wonderful medicinal preparation known as Serkys tea, or "Sultanas Imperial tea, preserver of health, youth, and beauty." This tea was fully described in the *Gardeners' Chronicle* for July 9, 1887, p. 39, and it will suffice here to give a few quotations from that article. "It is very refreshing, assists the digestion, hardens the flesh, clears the complexion, and gives it the transparency and freshness of the Rose. The assiduous use of this tea night and morning will be followed with success in every case, even when used by ladies of advanced age. It has the advantage of possessing a most agreeable taste, which has rendered it the very favourite beverage of the Sultanas. This wonderful tea is said to have been discovered by the dervish who first brought to light the qualities of Moka, and by him presented to the Sultan Osman I. It is further described as being "made from some of the most refreshing and balsamic plants which grow at the foot of the mountains of Mecca and Lebanon. It has all the beneficent qualities of the herbs of those countries, and the Sultanas, jealous of their youth and beauty, kept the secret for themselves alone."

The so-called tea, which has been made the subject of so much "tall" writing, consists of finely broken leaves in which Sage can be detected, as well as the seeds and portions of leaves of a *Chenopodium* probably *C. ambrosioides*. John R. Jackson, Museum Royal Gardens, Kew.

(To be continued.)

MARKETS.

COVENT GARDEN, March 25.

Business very quiet, with prospects of dull trade for a fortnight, owing to the holidays. Hothouse goods in heavy supply. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, 3-sieve	3	6-8	Lemons, per case	15	0 20 0
— Nova Scotia, brl. 15	0-25	0	Pine-apples, St. Michael, each	2	0 8 0
Cobs, Kent, 100 lb.	40	0-15 0	Strawberries, p. lb.	6	0-8 0
Grapes, lb.	1	6-3 8			

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Lettuces, per dozen ... 3 0-...
Beans, French, lb. ... 3 6-...	Mushrooms, punnet 2 0-...
Beet, red, per dozen 2 0-3 0	Mustard and Cress, punnet ... 0 4-...
Brussels Sprouts, lb. 0 6-...	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 2 6-3 6
Cauliflowers, each ... 0 9-1 0	Spinach, per lb. ... 0 6-...
Celery, per bundle ... 2 6-3 6	Shallots, per bush ... 7 0-...
Cucumbers, each ... 0 9-1 0	Tomatoes, per lb. ... 0 9-1 3
Eradive, per dozen ... 4 0-...	Turnips, per bunch 0 6-...
Herbs, per bunch ... 0 4-...	

Prices will vary this week, on account of Easter decorations.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Ficus elastica, each 1 6-7 0
Aspidistra, doz. ... 18 0-42 0	Foliage plants, various, each ... 2 0-10 0
Azalea, per dozen ... 24 0-42 0	Genista, per dozen ... 9 0-12 0
Bouvardias, p. doz. 8 0-18 0	Hyacinths, per doz. 6 0-9 0
Cineraria, per dozen 8 0-10 0	Lily of the Valley, per dozen pots ... 9 0-18 0
Cyclamens, dozen ... 9 0-18 0	Marguerites, doz. ... 6 0-12 0
Cyperus, per dozen ... 4 0-12 0	Mignonette, per doz. 6 0-9 0
Dielytra, per dozen 8 0-12 0	Myrtle, per doz. pots 6 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Palms in variety, each ... 2 6-21 0
—viridis, per doz. 12 0-24 0	Primula sinensis, doz. 4 0-6 0
Euonymus, in var., per dozen ... 6 0-18 0	Roots for bedding, boxes, each, from 1 0-3 0
Eucas, various, doz. 8 0-18 0	Spiraea, per dozen ... 9 0-12 0
Evergreens, in var., per dozen ... 6 0-24 0	Solanum, per doz. ... 9 0-15 0
Ferns, in var., doz. 4 0-18 0	Tulips, per doz. pots 6 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Anemone (Fr.), 12 bun 2 0-4 0	Myosotis, 12 bun ... 4 0-6 0
Azalea, 12 sprays ... 0 6-1 0	Narcissus (paper white), 12 sprays 1 6-4 0
Bouvardias, per bun. 1 0-1 6	—French, 12 bun. 2 0-6 0
Callaethiopica, 12 l. 3 0-6 0	Narcissus (yellow), 12 bun. ... 3 0-6 0
Camellias, white, 12 blooms ... 2 0-4 0	—Poeticus (Pheasant Eye) 12 bun 6 0-8 0
—cold, 12 blms. 0 9-1 6	Pelargoniums, scarlet, 12 spr. ... 0 6-0 9
Carnations, 12 blms. 1 0-3 0	Poinsettias, 12 blms. ... 1 0-2 0
Cyclamens, per doz 0 3-0 6	Primroses 12 bun. ... 1 0-2 0
Daffodils, various, 12 blooms ... 0 6-1 0	Primulas, double, 12 sprays ... 0 6-1 0
—(Foreign), 12 bun. 2 0-6 0	—single, 12 sprays 0 4-0 6
Eucharis, per dozen 4 0-6 0	Roses, Tea, per doz. 1 0-4 0
Gardenias, per doz. 3 0-8 0	—coloured, dozen 3 0-6 0
Heliotropes, 12 spr. 0 6-1 0	—yellow (Maréchal), per doz. ... 3 0-6 0
Hyacinths, Kom., 12 bunches ... 1 0-2 0	—red, per dozen ... 6 0-12 0
Hyacinth, various, 12 spikes ... 3 0-6 0	—do, French, doz. 1 0-3 0
Lily of the Valley, 12 sprays ... 0 6-1 0	Snowdrops doz. bun. 1 0-3 0
Maiden Hair Fern, 12 bunches ... 4 0-9 0	Tuberose, 12 blms. ... 1 0-2 0
Marguerites, 12 bun. 3 0-6 0	Tulips, various, 12 bl. 0 9-1 6
Mignonette, Fr., bu. 1 6-2 6	Violets, 12 bun. ... 1 6-3 0
Mimosa (French) 12 bun. ... 12 0-15 0	—Parma, Fr., bun. 2 6-3 6
—(French) basket 4 0-6 0	—dark, Fr., bun ... 1 0-2 0

ORCHID-BLOOM in variety.

OLD POTATOS.—The demand is still good, and prices keep firm. The variations in values will be effected principally by the weather during the next month.

FOR NEW POTATOS the demand has not been quite so keen, and lower prices have ruled for inferior samples. Supplies have fallen off this week, which may have the effect of favouring higher quotations during the coming week. J. B. Thomas.

SEEDS.

LONDON: March 23.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that a quiet feeling still characterises the trade for field seeds. English Cow-grass and Trefoils are easier. Foreign reds and also white Alske are held for late rates. There is no change in grasses. Sanfoin keeps very cheap. For Canary, Millet, and Hemp seed former quotations are realised. Haricot Beans on the spot are scarce and dearer. Blue Peas look like being exhausted; holders of odd lots, both old and new, which have previously been unsaleable, are agreeably surprised at the prices now obtainable for same at Mark Lane. Rape and Linseed are both exceedingly firm. Scarlet Runners and Canadian Wonder Beans offering at tempting quotations.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending March 21, and for the corresponding period last year:—1891: Wheat, 34s. 5d.; Barley, 27s. 5d.; Oats, 18s. 6d. 1890: Wheat, 29s. 8d.; Barley, 30s. 4d.; Oats, 18s. 7d. Difference: Wheat, +4s. 9d.; Barley, -1s. 11d.; Oats, -1d.

POTATOS.

BOROUGH AND SPITALFIELDS: March 24.—Quotations:—Hebrons, 100s. to 120s.; Magnums, 95s. to 130s.; Dunbars, 130s. to 140s.; Bruce's, 105s. to 135s.; Imperators, 100s. to 120s.; French Chandons, 80s. per ton; Belgian Whites, 3s. 3d. to 4s.; German Imperators, 4s. 6d. to 4s. 9d.; do., reds, 4s. 3d. to 4s. 9d. per bag.

HAY.

Averages.—The following are the averages of the prices at the principal metropolitan markets during the past week:—Clover, prime, 80s. to 100s.; inferior do., 40s. to 75s.; hay, best, 60s. to 87s.; inferior do., 25s. to 59s.; and straw, 20s. to 38s. per load.

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.		RAINFALL.		BRIGHT SUN.
	ABOVE 42° or below (—) the Mean for the week ending March 21.	ACCUMULATED.	ABOVE 42° or below (—) the Mean for the week ending March 21.	ABOVE 42° or below (—) the Mean for the week ending March 21.	
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.
1 1 — 3	34	+	53	+	18 7
2 2 — 0	31	+	23	+	28 9
3 3 — 0	31	+	13	+	59 5
4 2 — 9	31	+	11	+	95 1
5 3 — 7	35	+	13	+	79 0
6 3 — 8	33	+	27	+	124 1
7 2 — 8	29	+	56	+	1 1
8 3 — 1	28	+	41	+	21 3
9 1 — 11	31	+	12	+	96 2
10 1 — 13	23	+	31	+	10 2
11 3 — 17	27	+	19	+	35 3
12 2 — 20	5	+	13	+	41 1

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S. Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 21, is furnished from the Meteorological Office:—

"The weather during this week was generally cloudy or dull, with rather frequent rain during the earlier part of the period, and some sleet and snow-showers towards its close. At Shields, on the 15th, and at Leith on the following day, the rainfall was very heavy.

"The temperature has continued below the mean; the deficit has, however, been much less than it was during last week; in 'Scotland, N.' and 'Ireland, N.' it was only 1° in most other districts, 2° or 3°, and in 'England, S.W.' 4°. The highest of the maxima, which were recorded on irregular dates, ranged from 56° in 'Ireland, N.' to 48° in 'England, N.E.' The lowest of the minima, which occurred either at the commencement or end of the week, varied from 21° in the 'Midland Counties' and 'England, S.W.', and 22° in 'Scotland, E.' to 30° in 'Ireland, N.', and 32° in the 'Channel Islands.'

"The rainfall has been more below the mean in the east of Scotland, and over southern, eastern, and north-eastern England, and about equal to it in the 'Midland counties,' in all other districts a deficit is shown.

"Bright sunshine shows a decided increase in the 'Channel Islands,' but a decrease in nearly all other districts. The percentage of the possible duration, which has been below the mean in most places, ranged from 9 in 'Scotland, E.' and from between 12 and 19 in most parts of England, to 34 in 'Scotland, W.' and 'Ireland, N.' and to 46 in the 'Channel Islands.'

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

THE SO-CALLED "PRIEMESSES" OF THE AFRICANDER.—Can any of your readers inform me what are these fruits? It cannot be "Cape Gooseberries," which is mentioned as growing beside it in South Africa. I came upon it in a book entitled *Life in an Ostrich Farm*. It is described as like a transparent Cherry in a case, and must I should say be an attractive fruit. M. H. M.

NOTICES TO CORRESPONDENTS.

BOOKS: ON THE STRAWBERRY. C. A. M. C. 1, *Hints on the Strawberry*, apply at Gardening World Office, Catherine Street, Strand; 2, *Deccaise's (not Duchesne) Jardin fruitier du Muséum*, is in the Lindley Library, at the Royal Horticultural Society, where it may be consulted on application to the Assistant Secretary.

CORRECTION: GALVANIZED IRON WIRE.—On p. 371, 3rd line from bottom of note, for the word "barrenness" read "gumming." Disa grandiflora, p. 365, for "the plants are kept in an active state, &c.," read "the plants are kept in an inactive state, &c."

DAPHNE MEZEREUM: C. M. P. Daphne Mezereum may be grafted on pieces of its own roots, with a portion of the fibre attached, employing the usual whip splice of graft, binding it up and claying it. They should then be placed in small pots, or a number may be planted in pans, the soil coming above the point of grafting, and accommodated in a warm close pit. The Spurge Laurel does not make a good stock for this plant, a large callosity being formed at the point of juncture, and the union is imperfect. D. Mezereum grows well enough from seed taken as soon as it begins to colour.

MARGUERITES AND CINERARIAS: A. J. B. The leaves are infested by a leaf-mining grub, Tephritis onopordinis, the same which spoils Celery in the late summer time. Look carefully over the plants daily, and if there is the least trace of a mining gallery observed in a leaf, find the grub and prick it with a needle, or squeeze it between the finger and thumb. If a leaf be badly attacked, carefully pluck it and put it in the fire. The fly which lays the eggs of these maggots is small and not easily observed when amongst the plants. Scalding the soil before using it might do some good.

NAMES OF FRUITS: M. J. M. 1, Hanwell Sourcing; 2, Round Winter's Nonsuch; 3, Warner's King; 4, Old English Codlin; 5, Yorkshire Greening; 6, Bedfordshire Foundling. It is difficult at this late season to name Apples with certainty.

NAMES OF PLANTS: J. K. 1, Osmanthus aquifolius; 2, Sciadopitys verticillata; 3, Erica indeterminable; 4, Abies Nordmanniana; 5, not found; 6, Azalea amona.—G. B. A crippled flower of what may be a good form of Lælia anceps.—G. D. 1, Dendrobium aggregatum; 2, Epidendrum cochleatum.—T. L. 1, Oncidium sarcode; 2, Zygopetalum crinitum; 3, Pteris serrulata cristata; 5, Pteris cretica; 6, Dendrobium chrysotoxum.—H. B. 1, Maxillaria picta, probably—send flowers; 2, Dendrobium crassinode; 3, Cordyline australis; 4, Dracena rubra; 5, Dendrobium fimbriatum; 6, Rodriguezia planifolia.—G. G. 1, Asplenium fœniculaceum of gardens; 2, Selaginella Willdenovii; 3, Pteris hastata; 4, Polystichum angulare.—J. W. L. The Czar, or a seedling of that variety.—W. K. 1, Veltheimia viridifolia; 2, Adiantum trapeziforme; 3, Pandanus gramineus; 4, Cereus grandiflorus.—C. E. Eriostemon intermedia.—T. J. C. R. 4, Mesembryanthemum tuberosum; 6, Cotyledon discolor; 7, Cotyledon, probably a hybrid; 8, Cotyledon bracteatum; 9, Sempervivum balsamiferum.—Hollies in a Small Box. 1, Ilex Sheppardii; 2, I. laurifolia; 3, I. Gold Queen; 4, I. Silver Queen; 5, I. Old Bronze; 6, doubtful, but resembles Waterii.—W. H. 1, Myrsiphyllum asparagoides; 2, Spiræa confusa; 3, leaf only, not recognised.

PETROLEUM EMULSION: F. S. The Agri-horticultural Chemical Co., Tonbridge, Kent.

RHODODENDRON FROM SEED: J. R. Haig. It may be sown in boxes of sandy peat, covered with a layer of brush wood to exclude direct sunlight, and after the plants come up they should stay in the boxes till they have made a few nice leaves, say two years, when they may in early summer be pricked out in beds of sandy peat, and covered still with the brushwood for a season or two. Out-of-doors treatment should be pursued throughout.

VINES DISEASED: J. H. Please send further specimens.

COMMUNICATIONS RECEIVED.—C. B. next week.—H.—H. E.—Dr. H.—W. N.—A.—D. Elkins.—G. E.—J. S.—Count de K. Ghent.—J. C.—C. G. D.—W. E.—C. W. D.—H. C.—Geneva.—Dr. Kranzlin, Berlin.—J. B.—Capt. O.—C. B. P.—The Dean of Rochester.—J. R.—S. M., Paris.—J. H.—W. B.—C. S.

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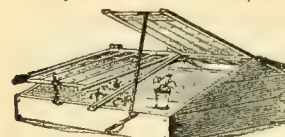
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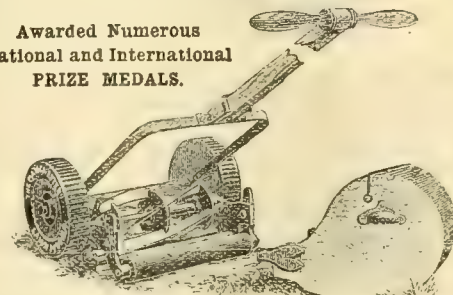
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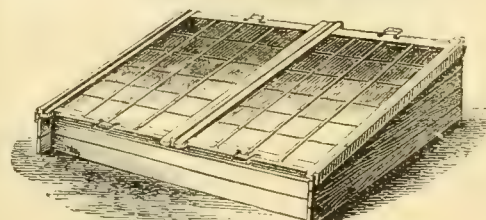
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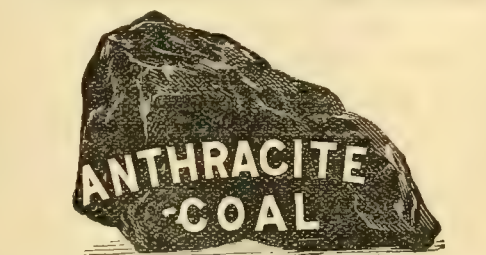
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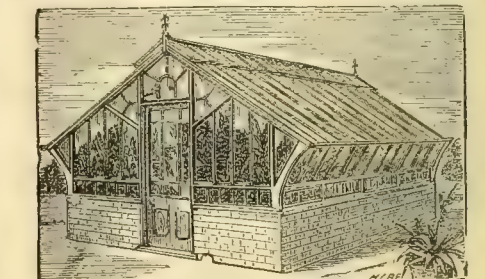
HENDREFORGAN ANTHRACITE SMOKELESS COAL.—The UNITED ANTHRACITE COLLIERIES (Limited) supply their Nut or Cobble Coal (the Nuts being about the size of a Walnut, and the Cobbles about the size of a man's fist), delivered in truckloads to any railway station. This coal is ABSOLUTELY SMOKELESS, and it requires much less attention than any other description of fuel, burning for twelve hours at LEAST without any supervision, and giving from five to ten degrees more heat than coke. Quotations can be had on application to the Company's Offices, 23, Lime Street, London, E.C.

Quotations for London delivery can be obtained for the Northern, Western, and South-Western districts, from Messrs. G. R. CARTER and SON, Coal Exchange, E.C.; and for the South-Eastern district, from Messrs. W. DOWELL and CO., Coal Merchants, Greenwich, S.E.

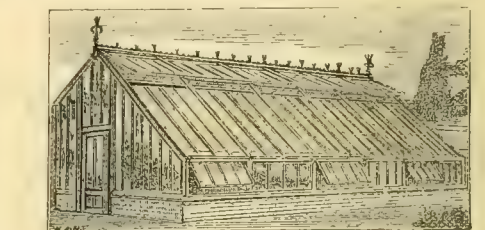
WRINCH & SONS, IPSWICH
and 57, HOLBORN VIADUCT, LONDON, E.C.
HORTICULTURAL BUILDERS.



ORNAMENTAL CONSERVATORIES
ARE OUR SPECIALTY.
Catalogues containing numerous designs, free on application.



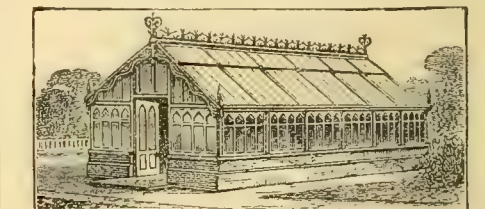
REGISTERED SPAN-ROOF GREENHOUSE.
The Best in the Market. More growing space than ground occupied. Better light and strength. Estimates free.



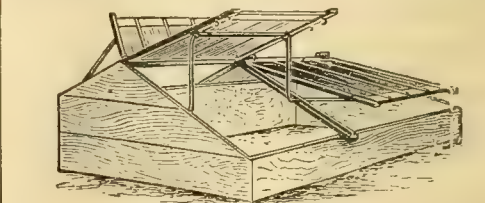
GREENHOUSES OF ALL DESCRIPTIONS.
THE BEST AND CHEAPEST IN THE MARKET.
Catalogues and Estimates post-free.

WRINCH & SONS, IPSWICH & LONDON.

C. FRAZER'S EXECUTORS,
Horticultural Builders, NORWICH.



This design makes a handsome addition to any garden, and will harmonise with many Villa Residences. Constructed on the most approved principle, all the materials and workmanship being of the very best. Prices, including Erecting, Glazing with 2-oz. English Glass, and Painting, four coats, &c., on application.



No. 54.—Three-quarter Span-roof Garden Frame.

A large stock always ready. The illustration shows a Two-light Frame, 8 by 6 feet; height at back 22 inches, front 11 inches, and at ridge 32 inches. Made of well-seasoned redwood deal, with sides and ends 1½-inch thick. Lights 2-inch thick, glazed with 21-ounce glass, and fitted with Improved Set-ops, as shown above, of which we are original inventors.

Length.	Width.		
1 Light Frame, 4 feet by 6 feet ...		Cash Prices,	£2 15 0
2 " " 8 feet by 6 feet ...		Carriage Free,	4 7 6
3 " " 12 feet by 6 feet ...		Cases extra,	6 0 0
4 " " 16 feet by 6 feet ...		allowed,	7 12 6
5 " " 20 feet by 6 feet ...		if returned,	9 5 0
6 " " 24 feet by 6 feet ...			10 17 6

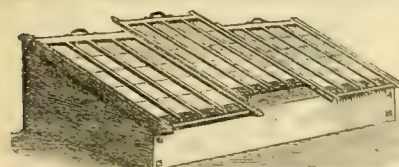
Carriage Paid to all Goods Stations in England and Wales; also to Edinburgh, Glasgow, Dublin and Belfast.

Illustrated Catalogue of the Conservatories, Greenhouses, Garden Frames, Poultry Houses, Dog Kennels, &c., post-free.

Beware of inferior Imitations.

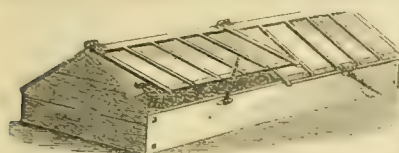
JAMES SENDALL & CO., Horticultural Builders, CAMBRIDGE.

No. 100.—MELON OR CUCUMBER FRAMES



2 Light Frame, 8 ft. by 4 ft.	£2 0 0
2 " " 8 ft. by 5 ft.	2 15 0
2 " " 8 ft. by 6 ft.	3 0 0
3 " " 12 ft. by 6 ft.	4 4 0
4 " " 16 ft. by 6 ft.	5 8 0

No. 113.—PORTABLE PLANT PRESERVER.



6 ft. long by 3 ft. wide	£2 0 0
6 ft. " 4 ft. " "	2 7 6
6 ft. " 5 ft. " COMPLETE	2 15 0
12 ft. " 3 ft. " WITH	3 3 0
12 ft. " 4 ft. " TWO ENDS.	4 0 0
12 ft. " 5 ft. " "	4 12 6
12 ft. " 6 ft. " "	5 5 0

PIT LIGHTS as used for No. 100 Frame, 6 ft. by 4 ft., Glazed and Painted, 14s.; unglazed, 5s. 6d. each.

Orders of 40s. value, PACKED, and Carriage Paid to Stations in ENGLAND and WALES, most of the IRISH PORTS, and many Stations in SCOTLAND.

OUR GARDEN FRAMES

are made and Stocked in all the most useful sizes.

Although the prices are the lowest, the Quality of the Materials and the construction are of the best.

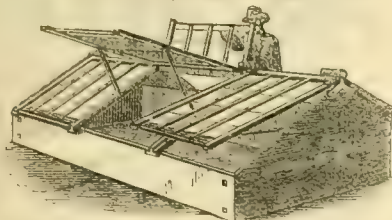
They are made of well-seasoned red-wood Deal, malleable iron-hinges, &c.

PAINTED
3 Coats of best Oil-Colour.

GLAZED
with 21 oz. English Glass.

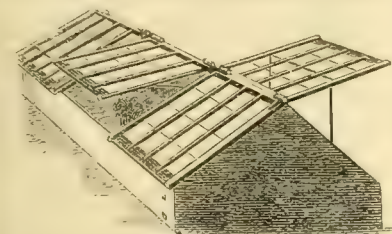
New List, Post-free.

No. 105.—SPAN FRAME.



2 Light Frame, 5 ft. by 5 ft.	£2 15 0
4 " " 10 ft. by 5 ft.	4 7 6
4 " " 8 ft. by 6 ft.	4 5 0
6 " " 12 ft. by 6 ft.	5 15 0
8 " " 16 ft. by 6 ft.	7 7 6

No. 110.—SPAN-ROOF GARDEN FRAME.



2 Light Frame, 5 ft. by 5 ft.	£2 15 0
4 " " 10 ft. by 5 ft.	4 7 6
4 " " 10 ft. by 6 ft.	5 0 0
6 " " 15 ft. by 6 ft.	7 0 0
8 " " 20 ft. by 6 ft.	9 0 0

ESTABLISHED 1818.

55,
LIONEL STREET,
BIRMINGHAM.

HENRY HOPE

HORTICULTURAL
BUILDER and
HEATING ENGINEER.

NEW CATALOGUE

of Greenhouses & Garden Frames, just issued, will be sent, post-free, to any address, on reference to this advertisement.



NEW CATALOGUE

of Greenhouses & Garden Frames, just issued, will be sent, post-free, to any address, on reference to this advertisement.

SEND FOR NEW PRICED ILLUSTRATED CATALOGUE.



For Destroying Weeds on Garden Walks, Carriage Drives, Roads, Stable Yards, &c. also for Killing Plantain, on Lawns. Saves more than twice its cost in Labour. No Smell. Does not stain the Gravel.

One application will keep the Walks clear of Weeds for at least Eighteen months.

Mr. W. G. HEAD, Superintendent, Crystal Palace Gardens, writes:—"We were so satisfied with your Composition and its price, that we have used it ab-solutely, and have every confidence in recommending it."

Mr. J. BELL, the Duke of "Ellington's" Gardener, says:—"Your Weed Killer will prove to be a great boon. It not only destroys every form of Weed, but leaves the gravel bright and clean."

The Empress Eugénie's Gardener, Mr. E. S. McLAURIN, writes:—"The Weed Killer has proved so satisfactory that I purpose using much more of it next year."

The solution is applied with an ordinary watering can.

Prices, in 1 and 2-gal. Tins, 2s. per gal. (Tins included); in 5-gal. Drums, 1s. 6d. per gal. 10 and 15-gal. Drums, 1s. 4d. per gal. Special quotations for larger quantities. Carriage paid on 10 gals. and upwards.

Used in the proportion of one gallon to twenty-five gallons of water.

Highly Commended by the Judges at the Alexandra Palace Rose Show, 1889, after fifteen months' trial. Awarded a Certificate of Merit by the Scottish Horticultural Association, 1889.

ANTI-FUNGI POWDER, THE ONLY EFFECTUAL REMEDY FOR TOMATO DISEASE, MOULD AND MILDEW ON ROSES, VINES, &c.

It can be applied with an ordinary Powder Distributor, has no smell, and is harmless to the plants or fruit.

Mr. W. HILLS, Gardener to Viscount Gort, East Cowes Castle, writes:—"I have used your Anti-Fungi Powder on Tomatoes badly diseased, and found it at once stopped its progress. It is a great boon to Tomato growers."

Mr. W. CHILD, Gardener to the Rev. W. Wilks, Secretary to the Royal Horticultural Society, says:—"I have found it to be very good, and entirely dispels all traces of mildew on Chrysanthemums and other plants."

Mr. CHAS. ROSS, Welford Park Gardens, Newbury, writes:—"The Powder answered for checking the disease on the Tomato leaves."

Prices: 1 lb. 1s., 3 lb. 2s. 9d., 7 lb. 5s. 6d., 14 lb. 10s., 23 lb. 18s., 56 lb. 35s. Carriage paid on 28 lb. and upwards.

SOLE PROPRIETORS AND MANUFACTURERS:

THE AGRI-HORTICULTURAL CHEMICAL COMPANY, Tunbridge, Kent;
And CARLTON STREET, BOLTON, LANCASHIRE.

Principal Agents in London:—Messrs. CORRY, SOPER, FOWLER & Co., Limited, Finsbury Street; BARR & SONS, King Street Covent Garden; and HOOPER & Co., Limited, Covent Garden.

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STANDEN'S MANURE.
Established 30 Years.

Exceeds all others in general fertilising properties and staying powers.

It promotes a rapid, healthy, and robust growth to plants generally.

It is a clean and dry Powder, with very little smell.

It is consequently particularly adaptable for Ladies interested in Plant Culture.

The highly fertilising properties of this Manure render its money value, in comparison with other Manures, at least double; and users will find that very small quantities will produce favourable and lasting results.

Sold in Tins, 6d., 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each.

And in Kegs (free), at Reduced Prices:—
28 lb., 10s. 6d.; 56 lb., 18s.; 112 lb., 32s. each.

LETHORION (VAPOUR CONE),
(PATENT).



The total destruction of Insect Pests in Greenhouses is thoroughly secured without the slightest possible injury to Flowers or Plants of the tenderest kind. It CANNOT fail where the houses are secure.

PRICES—For Frames, &c., of 50 cubic feet, 6d.; 100 feet, 9d.; 500 feet, 1s.; 1000 feet, 1s. 6d.; 4000 feet, 5s. each.

Owing to the enormous demand, intending users should give their Seedsmen Early Orders to secure a supply.

By permission of the Hon. Board of Customs
DUTY FREE.

TOBACCO PREPARATIONS
FOR
HORTICULTURAL USE.

THE "LONDON" TOBACCO JUICE.
(FREE OF DUTY.)

Manufactured from strong American Leaf Tobacco, and highly concentrated. Sold in bottles:—Pints, 1s.; quarts, 1s. 9d.; half gall., 2s. 6d.; gall., 4s. Or, in casks of 10 galls. and upwards, at 2s. 6d. per gallon.

EXTRA STRONG TOBACCO JUICE.

Specially manufactured for Evaporating in Greenhouses. Pints, 1s. 6d.; quarts, 2s. 9d.; half-gall., 6s.; gall., 11s. And in kegs of 5 galls., 10s. 6d. per gall.; 10 galls., 10s. per gallon.

THE "LONDON" TOBACCO POWDER.

This preparation consists of best Virginian Tobacco, finely ground and mixed with other ingredients of an essential character. Price, in tins, 1s., 2s. 6d., and 4s. Or, in bulk, £3 per cwt.

NICOTINE SOAP.

An effectual and speedy Eradicator of Scale, Thrip, Green Fly, Mealy Bug, Red Spider, American Blight, and all Parasites affecting plants, without injury to foliage. In jars 1s. 6d. and 3s. each, and in tins, 5s. 6d., 15s. 6d., and 25s. each.

The above articles are manufactured only at our Bonded Stores, Shad Thames, S.E., and are the only reliable Horticultural Tobacco Preparations produced. We caution the public against spurious articles offered by several firms.

CORRY, SOPER, FOWLER & CO.
(LIMITED),

16, FINSBURY STREET, E.C.;
And SHAD THAMES, S.E., LONDON.

THE "PERFECT" SUMMER SHADING

Supersedes all Others.



Without which none is genuine.

FOR SHADING GLASS ROOFS OF ALL KINDS. Is the Cheapest. Goes four times as far as the old preparations. Note its merits described below.

Messrs. CARLTON, Contractors for the painting of the Glasgow Exhibition of 1888, write:

"By order of the Directors we applied this Shading to the glass roofing of the Glasgow Exhibition, and found it possessed great advantages over all other preparations we had met with. Being applied cold it was most convenient to use, and while it resisted the action of the rain the whole season it was at once easily removed by gentle rubbing after wetting. It afforded a cool and pleasant shade, at same time admitting an abundance of light."

1 lb (cost 1s.) makes half a gallon for use

THE "PERFECT" WEED KILLER



Without which none is genuine.

Trial sample post free.

Maintains its Superiority over all Riva's for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, etc.

Saves many times its cost in labour, and will keep Walks, etc., clear of Weeds for a year or more.

Used in the proportion of 1 gallon to 25 gallons of Water.

THE BEST TESTIMONIAL IS
A GUARANTEE OF COMPLETE EFFICIENCY.

And we hereby Guarantee all Weed Killer bearing our Trade Mark to be thoroughly efficient, and to give satisfaction.

SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

The GARDENERS' MAGAZINE, of
21st June 1890, says:

Observations in several quarters in the past two years have convinced us that the "Perfect" Weed Killer of the Horticultural and Agricultural Chemical Company 97 Milton St. Glasgow, is the very thing that has long been wanted. It is at once simple, cheap, and effective, and requires only reasonable care to insure perfect action and lasting results. At the Royal Gardens, Kew, the R.H.S. Gardens at Chiswick, and other public places near London, the "Perfect" Weed Killer is trusted for making a clean sweep of the road weeds, and, therefore, plays an important part in the keeping of the roads.

SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97 MILTON ST., GLASGOW.

CAUTION.—Please carefully note our name, address, and trade mark, and do not be deceived by imitations.

SOLD BY SEEDSMEN, ETC.

THE CHEAPEST & BEST OF ALL.

FIR-TREE OIL INSECTICIDE (soluble)

FOR PLANTS.—To make a solution for washing or cleansing purposes—Half-a-Pint of Fir-Tree Oil to ten gallons of water.

For Green and Black Fly, Thrip, American Blight, Woolly Aphis, &c.—Half-a-Pint of the Fir-Tree Oil to two or four gallons of water, or two or three tablespoonfuls to the pint.

For Red Spider and Caterpillar—Half-a-Pint of the Fir-Tree Oil to two gallons of water, or three tablespoonfuls to the pint.

For Mealy Bug, Brown or White Scale—Half-a-Pint of the Fir-Tree Oil to four or six quarts of water, four to eight tablespoonfuls to the pint.

For Mildew and Blight on Fruit or Foliage—Half-a-Pint of the Fir-Tree Oil to a gallon of water, or six tablespoonfuls to the pint.

For Ants, Grubs, Worms, Wood Lice, &c., in the Soil—Half-a-Pint of the Fir-Tree Oil to two gallons of water.

The most efficacious way to use Fir-Tree Oil in small quantities is to apply it with one of Houghton's Atomizers.

When applied to the roots of delicate plants the soil should be drenched with clean water immediately afterwards, in all other cases washing is not necessary. Used with Warm Water it is quicker in its action than when cold is used.

Soft or rain water is necessary, and Applied in Wood, Tin, or Pot Vessels.—Galvanised Iron Vessels must not be used.

FOR NITS IN CHILDREN'S HAIR.—Mix one part of Fir-Tree Oil with three parts of Warm Water and apply with a Comb or Brush, the Hair can be washed shortly after.

FOR WASHING FLANNELS & UNDERCLOTHING.—Put a wine-glass full in ten gallons of water for steeping; the same may be put into the boiler. Common Soap may be used but no other preparations.

Sold in Bottles, half-pints, 10; pints, 20; quarts, 40; half-gallons 70; gallons 120 each.
Drums, 5 and 10 gallons each, at 11/- per gallon.

A Treatise on FIR TREE OIL as an insecticide, its application to Plants and Animals, sent post free on application to the Manufacturer, addressed to
E. GRIFFITHS HUGHES, Victoria-st., Manchester.

Wholesale from all the London Seed Merchants and Patent Medicine Houses.

NEW YORK.—L. ROYER & SONS

For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

"PICRENA," THE UNIVERSAL INSECTICIDE.

SAFE—ECONOMICAL—EFFECTUAL.

15, PRINCES STREET, EDINBURGH, July 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95°, I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 120°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray.—I remain, dear sirs, yours truly. (Signed) A. MACKENZIE, of Messrs. Methven & Sons.

Victoria and Paradise Nurseries, Upper Holloway, London, January 7, 1888. "GENTLEMEN—I have given your Insecticide, 'Picrena,' a good trial in competition with many others. I am pleased to say that I have found it to be more effectual in destroying Mealy Bug and other insects than anything we have ever used. It ought to command a good sale. (Signed) B. S. WILLIAMS."

Sold by Chemists, Nurseriesmen, and Florists, in Bottles at 1s. 6d., 2s. 6d., and 3s. 6d.; in Tins (1 and 2 gallons), 10s. 6d. and 20s. each; in quantities of 5 gallons and upwards, 9s. per gallon.

Prepared only by

DUNCAN, FLOCKHART & CO., Chemists to the Queen, Edinburgh.

May be had from B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London; and from
WILLIAM EDWARDS AND SON, 157, Queen Victoria Street, London.

BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to
W. H. BEESON, Carbrook Bone Mills, Sheffield.

NATIVE GUANO: BEST AND CHEAPEST MANURE for Garden use, NATIVE GUANO. Price £3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5s.

Extracts from Thirtieth Annual Collection of Reports:—
NATIVE GUANO for POTATOS, VEGETABLES, FRUIT, &c.—C. FIDLER, Reading, used it for Potatoes, and says:—"I found your Manure gave very satisfactory results."

C. J. WAITE, Gr. to Col. the Hon. W. P. Talbot, says:—"I can strongly recommend your Native Guano as a first-rate Manure for any fruits or kitchen garden crops, also grass. In the 5 years during which I have freely used it, I have gained over 560 prizes."

NATIVE GUANO for ROSES, TOMATOS, &c.—W. G. BAILEY, Nurseries, Bexley, used it for Roses, Tomatos, and Cucumbers, and says:—"I find it a good and cheap article."

A. F. BARRON, Royal Horticultural Society, says:—"Without doubt a very valuable Manure, and easy of application."

Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials, &c., may be obtained. Agents wanted.

TOBACCO PAPER SUPERSEDED!

Tobacco Paper, Cloth, or Cord have long been used with far from satisfactory results, and often with much injury to tender foliage. It is NOT the Tobacco that causes the injury, but the fuming of the paper or cloth, also the use of hot coals to start them.

MCDUGALLS'



PATENT
SELF-
ACTING.

No Hot Fuel
required.

Exterminates
all Insect Pests
and Blight
without injury
to foliage.

TOBACCO SHEETS.

The sheets consist of Cellulose, and are saturated with Nicotine Solution of standard strength, and are so prepared that they will fume when a lighted match is applied.

Fumigation is thus rendered easy, certain, safe, and cheap.

The *Gardeners' Chronicle*.—"These Sheets for fumigating purposes, answer perfectly."

Messrs. JOHN LAING & SONS, Forest Hill.—"The most effectual as well as the handiest material we have ever used."

Messrs. RICHARD SMITH & Co., Nurseries, Worcester.—"We used your Sheets with satisfactory results; they do not injure the foliage or discolour the flowers."—19/11/90.

Mr. F. W. MOORE, The Royal Botanic Gardens, Dublin.—"... delighted with results. ... Can be safely used where paper and rag would be injurious."—18/12/90.

"The HORTICULTURAL COLLEGE," Swanley.—"... Very satisfactory results. Send on half gross."—24/1/90.

Mr. C. W. BAUSE, Morland Nursery, South Norwood.—"Tried them with the very best results."—2/10/90.

1s. Sheets (for 1000 cubic feet in parcels of 1 dozen, each 1/2, 1/2, and 1 Gross), 12s. per Dozen. Counted at 13 to the Dozen.

From Nurserymen and Seedsmen. TRADE LIST FREE.

McDougall Bros.

London: 10, Mark Lane. York: 3, King Street.

Manchester: 68, Port Street. Glasgow: 70 to 78, King Street.

THE PATENT

SILICATE MANURE,

For VINES.

THE MANURE OF THE FUTURE.

For TOMATOS.

Eight-page Circular of First-class Testimonials, free on application.

The Gardens, Cheveley Park, Newmarket, November 9, 1890.

SIR,—I have great pleasure in adding my testimony to the value of your Silicate Manure—the late Grapes, where it was used, have coloured splendidly, and very little shanking, and a decided increase in the size of berry. I believe it to be all you say of it. I have a house that shanks very much, and shall try its effects upon that next year, all well, when I hope to be able to give you an order for the same—I am, yours faithfully, (Signed) W. COX, Gardener to the Duke of Rutland.

The Gardens, Longford Castle.

I consider your Patent Silicate Manure very beneficial when used as a top-dressing to Vines and Peach trees in bearing, and that results will amply repay the cost of Manure.

(Signed) H. W. WARD, Gardener to Earl Radnor.

The Gardens, Haverland Hall, Norwich, November 9, 1890.

GENTLEMEN,—As I did not receive any advice of manure forwarded to me last spring, I did not know what particular advantages were claimed for it, nor whence it came. Indeed I would not receive it for a considerable time, deeming that there had been an error on the part of some one. However, as the Railway Co. insisted that there was no mistake, I received it, and tried it upon various things—Vines, Tomatos, and Fuchsias, showing the most satisfactory results.

Yours faithfully,

(Signed) J. UDALL, Gardener to Lord de Ramsay.

AGENTS WANTED.

PRICES in Sacks, free on Rail:—

10s. per cwt.; £2 1/2 ton; £3 15s. 1/2 ton; £7 a ton.

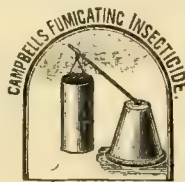
Chemical Works,
Hemel Hempsted, Herts.

CERTAIN DEATH TO INSECT PESTS.

CAMPBELL'S FUMIGATING INSECTICIDE.

NOTE WHAT IS SAID OF IT:—

Mr. D. THOMSON, Drumlaurig.—"One of the best inventions connected with horticulture that has been introduced for many a long day. I will never use Tobacco paper again."



Mr. W. TUNNINGTON, Calderstone.—"I can with confidence recommend it, and shall do so. I think you are a public benefactor by your invention. It is so clean and simple to use."

Mr. G. WYTHES, Syon House.—"Pleased with Insecticide; answered its purpose thoroughly; for Orchids a boon."

POST FREE. 1 2 3 4 5 6 No. For House with 8d. 1s. 1s. 3d. 2s. 3d. 2s. 9d. 3s. 3d. Price, a capacity of 100 500 1,000 2,000 3,000 4,000 cubic ft. LEMON OIL, the best Liquid Insecticide.—Post free, pints, 1s. 10d.; quarts, 3s. 3d.; half gallons, 5s. 9d.

Mr. C. FLAGG, Cholmondeley Castle, says:—"Your Lemon Oil is most effective and safe, destroying every insect it comes in contact with, as well as having such cleansing properties."

EUCHARIS MITE KILLER has saved thousands of bulbs.—Post-free, half-pints, 1s. 9d.; pints, 2s. 9d.; quarts, 4s. 9d.; half-gallons, 8s.

Mr. B. CROMWELL, Cleveley Gardens, says:—"The result is that our stock of Eucharis is now furnished with dark-green leathery foliage, and pots full of strong roots."

OR FROM YOUR SEEDSMAN.

CLIBRAN'S, OLDFIELD NURSERIES, ALTRINCHAM; Also 10 and 12, Market Street, Manchester.



SAVE HALF THE COST. GARSIDE'S BEDFORDSHIRE COARSE AND FINE SILVER SAND

Is admitted by the leading Nurserymen to be the Best Quality obtainable in the Trade. Consumers should Buy Direct from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS. Apply direct to the Proprietor for Samples and Price free on Rail or Canal. All Orders executed with the utmost promptness and under personal supervision. Special Railway Rates in force to all parts. All kinds of PEAT supplied at lowest possible prices. Sample Bag sent on application to GEO. GARSIDE, Jun., F.R.H.S., Leighton Buzzard, Beds.

FINEST HAMPSHIRE PEAT!

In TRUCKS, CASKS, or SACKS, from RINGWOOD or LONDON LOAM, SAND, LEAF SOIL, SPHAGNUM MOSS, CHARCOAL; every kind of ARTIFICIAL MANURE. NEW FUMIGATING MATERIALS.

GARDEN SUNDRIES OF EVERY DESCRIPTION.

G. H. RICHARDS, Horticultural Sundriesman, &c. 1, BELVEDERE CRESCENT, LAMBETH, LONDON, S.E. PEAT GROUNDS, RINGWOOD, HANTS.

EPPS'S Selected PEAT,

For ORCHIDS, STOVE PLANTS, Hardwood do., Ferns, and Rhododendrons, by sack, yard, ton, or truckload. SPECIAL ORCHID PEAT, in sack only. Rich fibrous LOAM, superior LEAF MOULD, Coarse, Crystal, and Fine SILVER SAND, CHARCOAL, C.N. FIBRE REFUSE, fresh SPHAGNUM, Patent MANURES, FERTILISERS, INSECTICIDES, and all other Garden Requisites. Peat Moss Litter. The Original Peat Depot, RINGWOOD, HANTS.

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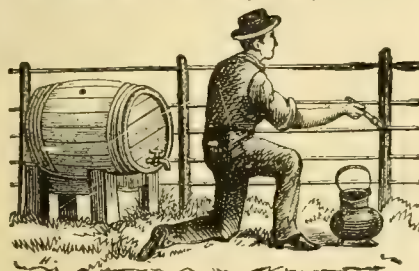
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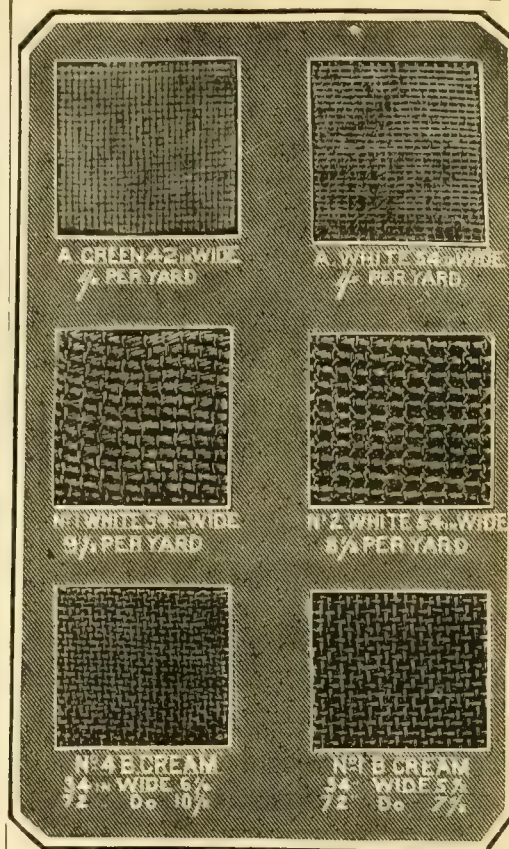
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THE GARDENERS' CHRONICLE

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GENUINE GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack; 10 for 12s., 20 for 20s., 30 for 28s. ORCHID PEAT, special, 8s. per sack. SPHAGNUM MOSS, 7s. 6d. per sack. Horticultural CHARCOAL, 8s. per sack. BONES, 4-inch, 10s. per cwt.; DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER, 10d. per lb.; 28 lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 26s.; CORD, 6d. per lb., 28 lb. for 12s. 6d. Brown Fibrous PEAT, 5s. per sack, 5 for 22s. 6d.; Black, 4s. 6d. per sack, 5 for 20s. Coarse SILVER SAND, 1s. 6d. per bushel, 14s. per 2 ton, 25s. per ton. LEAF MOULD, PEAT MOULD, FIBROUS LOAM, each 3s. per sack. Prepared POTTING COMPOSTS, 5s. per sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches by 4 feet 6 inches, 18s. per dozen. PETERSBURG MATS, 12s. and 10s. per dozen. BAMBOO CANES, STICKS, and SUNDRIES. List free.—W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

PROTECT YOUR BUDS from the ravages of the birds.—TANNED NETTING, 35 square yards for 1s., is oiled and dressed, will not rot if kept out in all weathers. I do not require payment until you have received and approved of the Netting. Can be sent any width. Commoner Netting, 50 square yards for 1s. Hundreds of testimonials.
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GARDENING APPOINTMENTS.

Mr. G. FRANCIS, who, for the last eight years, was Gardener to Mrs. BUCKWORTH, Cockley Cley Hall, Swaffham, Norfolk, is retained as Gardener to R. BUCKWORTH, Esq., who has succeeded to the property.

Mr. W. G. MARTIN, as Head Gardener to the Hon. Lady DACRE, The Priory, Royston, Herts.

Mr. R. H. SMITH, late of Rolleston Hall, Burton-on-Trent, as Head Gardener and Steward to Major CORBETT WINDER, Vaynor Park, Berriew, Montgomeryshire.

WANTED, a young man, with £250, to JOIN ADVERTISER, who is an expert, and has every convenience for Mushroom growing in large quantities. Has a Nursery Business, with Glass as well. Capital under own control, and secured.—P. D., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, a SINGLE-HANDED GARDENER.—Married, no children. Good personal character. Help given. Near Ascot.—Write, L. M., May's Advertising Offices, 162, Piccadilly, W.

WANTED, a GARDENER, to succeed one who has been over twenty years with the Advertiser. Must thoroughly understand Vegetables, Greenhouse and Stove Work, and able to Manage a Cow. No one need apply who is afraid of work, and who will not give his best energies to his duties. Wages, 1 Guinea per week, with good to be rent free, and vegetables.—Apply by letter, stating age, &c., to W. B. NORRIS, 2, Lillypot Lane, Nolte Street, City.

WANTED, a GARDENER without encumbrance. Some help; good cottage; wife care of house in absence of family (Church of England). Willing to be useful; wages 18s. to 21s.—Address, SUFFOLK, May's Advertising Offices, 162, Piccadilly, W.

Rose Grower.

WANTED, AT ONCE, first-class Hand.—Must be well up in all its branches; none others need apply. Wages, 20s.—THOMAS BUNYARD, Rose Grower, Ashford, Kent.

To Rose Growers.

WANTED, a good MAN under Foreman. Well up in Roses, and accustomed to attend Rose shows, &c. Good wages given.—Mr. FRANK CANT, Braiswick Nursery, Colchester.

WANTED, AT ONCE, several MEN, used to Nursery Work, and who understand planting of all sorts of Seedling and other Trees; must be good spadesmen.—Apply, stating age and experience, to ENOCH WHITE AND SONS, Nurserymen, Bournemouth.

WANTED IMMEDIATELY, an energetic MAN, for Outdoor Department, chiefly Herbaceous Borders, Rockery, and Flower-garden Work, with charge of same.—All particulars, stating wages required, to J. ROSS, Pendell Court, Bletchingley, Surrey.

WANTED, experienced CUCUMBER GROWER.—Wages 21s. per week.—T. ROCHFORD, Covent Garden Market, London.

WANTED a PROPAGATOR and GROWER of Roses and meli-cellaneous plants under glass. None need apply but men of good practical experience, and whose character will bear strict investigation. State particulars and wages required.—WM. RUMSEY, Joyning's Nurseries, Waltham Cross.

WANTED a MAN, not under 23, for Kitchen Garden and Pleasure Grounds, and to take turn at fires, strong and not afraid of work. 16s. per week, bothy, milk, and vegetables. Must have good reference. E. C., Cannon Hall, Barnsley, Yorks.

WANTED, a MAN in the Glass Department. One used to growing for Market.—H. CHILDS, Nursery Rye Lane, Peckham, S.E.

WANTED, TWO young MEN for the Houses, used to Growing Stove Plants, Ferns and Palms.—Apply with full particulars to IRELAND AND THOMSON, Nurserymen Edinburgh.

WANTED, persevering young MAN, as UNDER GARDENER; one used to Chrysanthemum showing preferred.—J. LAMTURN, Onslow, Shrewsbury.

WANTED, a MAN (under a Foreman), who thoroughly understands growing Grapes, Peaches, Tomatos, Strawberries, and Mushrooms for Market. Good references. State wages.—W. GOULD, 13, York Buildings, Adelphi; or, Adelaide Lodge, Keymer, Sussex.

WANTED, a smart active young Man about 20, as IMPROVER, with a knowledge of fires and watering. Wages 14s. a week, bothy, milk, and vegetables.—WALLACE ADAMS, Lyme Park Gardens, Disley, near Stockport.

WANTED, a young MAN, age 23, active and persevering, with a thorough knowledge of Stove and Greenhouse Plants and their arrangements.—None need apply who-e character and abilities will not be investigated. Wages, 18s. and bothy.—D. DONALD, Leyton Green, London.

WANTED, SEVERAL young MEN, used to Cucumber Work.—Write, stating age, wages and reference, to W. H. & D. WHITE, Heath Park Nursery, Romford.

WANTED, a strong, willing YOUTH, to work in the Propagating Houses, must be used to Glass.—State age and wages to A. B., Woodbine Cottage, Twickenham Road, Heston, Middlesex.

WANTED, in a Market Nursery, TWO LADS, about 15 or 16 years of age, accustomed to work under Glass.—Apply, stating wages, to—MARSHALL BROS. AND CO., Farnham, Bognor.

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WANT PLACES.

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 beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, Liverpool, are in a position to recommend a first-rate man as **HEAD GARDENER**, or **GARDENER** and **BAILIFF**; also a thoroughly competent man as **HEAD GARDENER**, who has a good knowledge of Orchids; unexceptional references in each case.

MESSRS. WOOD AND SON, Wood Green, London, N., can strongly recommend Robert Nelson (age 35), to the notice of those requiring the services of a trustworthy, practical man as **HEAD GARDENER**. Particulars on application.

GARDENER (HEAD).—A Lady can highly recommend a superior and conscientious Man for the routine of establishment. Most excellent Fruit, Orchid, and exotic plant grower. Has served her over ten years; unimpeachable testimonials, and prizes may be seen.—M., 20, Peckham Terrace, New Eltham, Kent.

GARDENER (HEAD), where one more is kept, or **FOREMAN** in the Houses.—Good character. Well up in all branches.—W. H., 70, Selsdon Road, South Croydon.

GARDENER (HEAD).—J. W. SILVER can most confidently recommend a young man as above, who is well known to him as a most efficient all-round Gardener, and an energetic, honest, trustworthy man. The highest references.—Streatham and Norbury Nurseries, S.W.; and 3, Marlborough Mansions, Victoria Street, Westminster.

GARDENER (HEAD).—H. MARKHAM, Mere-worth Castle, Maidstone, would be pleased to forward particulars to any gentleman requiring a first class gardener with not less than eight under.

GARDENER (HEAD).—Middle age, married, no family; thoroughly experienced in all branches. Wife good landress. Both can be highly recommended.—GARDENER, Offchurch, Bury, Leamington Spa.

GARDENER (HEAD), seeks re-engagement. Highest references. A thorough knowledge of Forcing Fruit, Flowers, Vegetables, and General Management of a good Garden.—F. J. AL Rwdon Hill, Arthington, Leeds.

GARDENER (HEAD).—Age 30, single; fifteen years' experience. Three years in present situation. Good character. E. RUSSELL, Moray Lodge Gardens, Campden Hill, Kensington, W.

GARDENER (HEAD).—Age 40, married, no family.—F. PAY, Head Gardener to Lord Tennyson, Farringford, Isle of Wight, seeks re-engagement; understands Vines, Stove and Greenhouse, Fruit Trees, Flower and Kitchen Garden, &c.—Address as above.

GARDENER (HEAD), or ORCHID GROWER.—Age 31; seventeen years' experience in Orchids, Stove and Greenhouse Plants. Early and Late Forcing Hardy Fruit, Flower, and Kitchen Garden.—WILLIAM LAKER, Quorn Lodge, Loughborough, Leicestershire.

GARDENER (HEAD WORKING).—G. CURTIS, six years Head Gardener to Hon. R. H. Dutton, seeks re-engagement; or in Market Establishment. Well up in Hardy Fruit, Forcing, and Management of Good Place. Married. Abstainer.—Timbury Manor, Romsey, Hampshire.

GARDENER (HEAD WORKING); age 28.—J. FRIEND, Gardener to the Hon. P. C. Glyn, Rooknest, Godstone, can confidently recommend his Foreman, W. Penton, to any lady or gentleman requiring a capable and deserving man. Fourteen years' experience.

GARDENER (HEAD WORKING), where three or more are kept; age 30, married, two children.—C. J. GOLDSMITH, Head Gardener, High Trees, Redhill, will be pleased to recommend a man as above.

GARDENER (HEAD WORKING), where three or more are kept.—The recent Bishop of WINCHESTER wishes to recommend highly his Gardener as above. Thoroughly experienced in all branches. Left through breaking up of establishment.—SMITH, 25, Castle Street, Farnham, Surrey.

GARDENER (HEAD WORKING).—Has had thorough practical experience in all branches, including Vines, Early Forcing, Plants, &c. Highest testimonials from last and previous employers.—J. R., 68, Great George Street, Liverpool.

GARDENER (HEAD WORKING); age 31, fifteen years' good practical experience in all branches. Good character.—HARDING, 320, Green Lanes, Finbury Park, N.

GARDENER (HEAD WORKING).—Middle-aged, married, no family; thorough practical experience in all branches. Character with testimonials will bear strictest investigation.—GARDENER, 1, Bath Cottages, East-worth, Chertsey.

GARDENER (SINGLE-HANDED).—Age 24; life experience in Vines, Cucumbers, Tomatoes, Green-houses, Flowers and Kitchen Gardening. Good references.—A. B. D. Barnard, Turnford, near Broxbourne Herts.]

GARDENER (SINGLE-HANDED or SECOND).—Age 22; seven years at present place, both Inside and Out.—For particulars, Mr. HILL, The Gardens, Tring Park, Herts.

GARDENER (SINGLE-HANDED).—Age 33; well up in Greenhouse Work. Good Cucumber and Tomato Grower. Six years' reference.—S., 1, North Villas, Hereford Road, Tooting.

GARDENER (SINGLE-HANDED), or where help is given.—Age 26, single, good characters.—JAMES HALFACRE, 2, Hurst Road, Twyford, Berks.

GARDENER, age 39; two boys.—Thoroughly experienced and practical. Scotch gardener desires re-engagement. Wife has had management of Cows and Poultry.—GARDENER, Buller's Wood, Chislehurst, Kent.

GARDENER (good SECOND), where three or four are kept.—Age 25; good character from present situation.—H. P. Lyne, Ruspur, Horsham, Sussex.

GARDENER (SECOND).—Age 26. Seeks situation as above. Well recommended. Two years in last place in a Nursery; previously in private places.—R. H., The Gardens, Roke Manor, Romsey.

GARDENER (good SECOND).—Age 25, single; where 3 or 4 are kept; year and 8 months' good character; total abstainer.—H. WAYLING, Balford Crossing, Braintree, Essex.

GARDENER (SECOND or THIRD), in a Gentleman's garden.—Situation wanted by a young man (age 23), as above.—W. HURST, Compton's Brow, Hurstham.

GARDENER (SECOND, or SINGLE-HANDED).—Age 23, single; nine years' experience. Inside and Out. Understands Vines, Peaches, Flowers, Vegetables, &c.—A. CARTER, Brettenham Thetford, Norfolk.

GARDENER (SECOND, or good THIRD), where three or four are kept.—Experienced Inside and Out. Eight years' good character. Near London preferred.—H. T., Arrounfield, Reading.

GARDENER, where two are kept, or **SINGLE-HANDED.**—Age 26. Nine years' experience in all branches. Good references.—F. C., Sopwell Park, St. Albans.

GARDENER (UNDER).—Age 22. Improver in Nobleman's or Gentleman's Establishment. Twelve months' good reference. Two and a half years' before.—G. SMITH, Ormond House, Cricklewood, London.

GARDENER (UNDER), to work in Kitchen Garden, and where he could get an insight of the House.—Age 23. Six years' experience, and can be highly recommended.—WILLIAM WHEELER, Arbourfield, Reading, Berks.

GARDENER (UNDER); age 21.—Two years' good character; total abstainer.—C. LONG, Gate House, East Hothly, near Hawkhurst, Sussex.

GARDENER (UNDER), or FIRST JOURNEYMAN.—Age 21; two years' good character from present employer, and two previous. Abstainer.—W. LEECH, Sprowston Hall, Norwich.

GARDENER (UNDER).—Age 23; three years in last situation. Inside and Out. Good recommendations.—W. MARSH, Rectory Cottage, Hanworth, Middlesex.

GARDENER (UNDER), in a Gentleman's establishment.—Age 18; steady and willing. Two years' experience Inside. Abstainer. Good references.—A. B., 7, Ann's Place, Greenhill, Harrow, Middlesex.

GARDENER (UNDER), age 19; seven years' character.—Understands Peaches, Nectarines, &c. Quiet, steady, and abstainer.—W. SALMON, near Chapel, Elmwell, Suffolk.

To Nurserymen.

MANAGER, FOREMAN (Indoors), or SALESMAN.—Age 28, single; thirteen years' experience in all branches. Good references.—P. E., Plummers' Plain, Horsham, Sussex.

FOREMAN, or PROPAGATOR and GROWER.—Seventeen years' experience in producing large quantities of Cut Flowers, Flowering Plants, and Hard and Soft-wooded Plants, such as Pelargoniums, Bouvardias, Cyclamen, Carnations, Double Primulas, and Chrysanthemums; also Stove Plants, Ferns, Palms, Roses, &c. Well up in Wreaths and Bouquets.—FOREMAN, 65, Bonchurch Road, Hassocks, Sussex.

FOREMAN.—Age 25; eleven years' experience in first-class places. Mr. F. HARRISON, Knowsley Gardens, Prescot, can confidently recommend a young man as above.

FOREMAN, or ORCHID GROWER.—Mr. GILKS, Gardener to A. Borwick, Esq., will recommend a young man as above. Eleven years' experience; five and a half in present place.—G. MORRIS, Glenholme, Stanmore, Middlesex.

To Nurserymen.

FOREMAN or PROPAGATOR.—Age 27; thirteen years' experience. Well up in all branches. Good references.—D. B., 53, Poplar Walk Road, Herne Hill, S.E.

FOREMAN or SECOND.—Age 25; accustomed to Forcing and general routine of gardening. Three years present place, bothy preferred.—CLARKE, Barrells Park, Henley-in-Arden.

FOREMAN.—Age 25; thoroughly understands Vines, Peaches, Cucumbers, and Melons; Stove and Greenhouse Plants, House and Table Decoration. Good character from last and previous places.—C. BOWYER, Binco Grove, Rock Estate, Cambridge.

FOREMAN (FRUIT or GENERAL).—Age 27. Mr. HORTON, Head Gardener to his grace the Duke of Portland can highly recommend a young man as above.—Welbeck Abbey, Worksop, Notts.

FOREMAN; age 24.—T. NETTING, Gardener to J. B. Maple, Esq., will be glad to recommend Thos. Smith as above. Eight years' experience. Over three years in present situation.—The Gardens, Childwickbury, St. Albans.

FOREMAN (WORKING AND GROWER). Cucumbers, Tomatoes, Cut Flowers, &c. First-class references.—W. S., Bletchley Nursery, Bucks.

FOREMAN (INSIDE); Age 24.—Mr. WATTS wishes to recommend J. Litton, 10 years' experience. Mr. WATTS, The Gardens, Dyffryn, Neath, South Wales.

FOREMAN, in the Houses; age 24.—S. DAVIES, Head Gardener, Weybridge Park, Surrey, would be pleased to recommend a highly respectable and trustworthy man as above. Seven years' experience in good places.

JOURNEYMAN (FIRST), in a good Establishment.—Age 21. Seven years' experience under Glass; three years in present situation. Highly recommended.—W. WOFNE, Bicton Gardens, Budleigh Salterton, Devon.

JOURNEYMAN, in the Houses.—Age 22; good characters.—D., Spring Grove Gardens, Is. eworth.

JOURNEYMAN (INSIDE).—Age 21. Over twelve months in present situation as Improver. Well recommended by Head Gardener.—C. CHUBB, Cromer Hall Gardens, Cromer, Norfolk.

JOURNEYMAN, in the Houses, in a Gentleman's Garden, where others are kept.—Age 21; good character from present and previous places.—W. HASKINS, The Gardens, Linford Hall, Oundle.

JOURNEYMAN, or SECOND, where three or four are kept.—Age 22; four years in present situation.—W. R., The Gardens, Edingham House, Leatherhead, Surrey.

JOURNEYMAN, in the Houses, in a good establishment.—Age 21; two years in present situation, three previous. R. BARNARD, Head Gardener to Lady Mundy, can highly recommend as above.—Hollybank Gardens, Elmworth, Hants.

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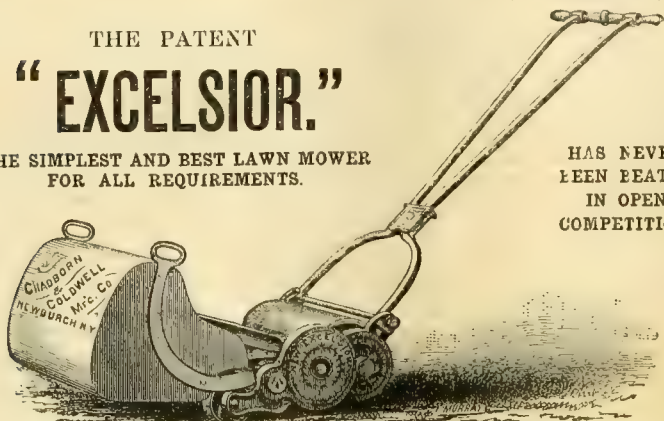
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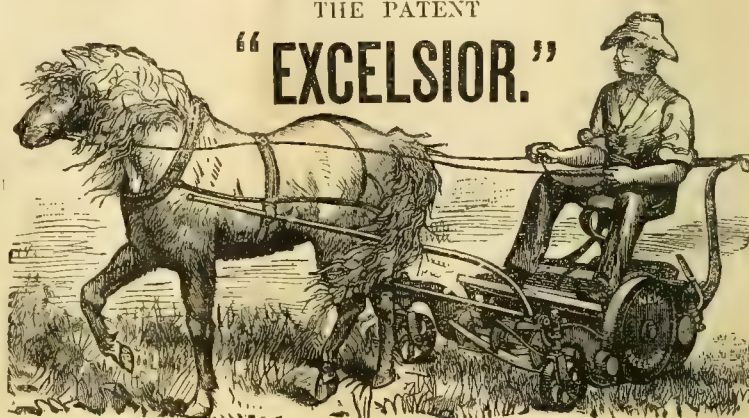
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"The Gardeners' Chronicle" in America. The Subscription to America, including Postage, is \$4.30 for 12 months. Agent for America, E. H. LIBBY, Manager, The Rural Publishing Co., Times Building, New York, to whom American orders may be sent.

Now Ready, in Cloth, 11s. 6d., "The Gardeners' Chronicle," Vol. VIII., Third Series, July to December, 1890. The PUBLISHER, 41, Wellington Street, Strand, W.C.

"Paxton's Calendar." New Edition, "The Cottagers' Calendar of Garden Operations," Price 3d., post-free, 3½d. 41, Wellington Street, Strand, London, W.C.

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Spring, 1891.

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Several hundred Standard and Dwarf ROSES to name, Pyramid and Dwarf-trained FRUIT TREES, grand collection of BORDER PLANTS, Home-grown and Imported LILiums, LILY OF THE VALLEY, SPIRÆA, Ornamental EVERGREEN SHRUBS and CONIFERS, PEARL TUBEROSES, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, April 8 and 11, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Thursday Next.

Important to the Trade.

120,000 Fresh seeds of COCOS WEDDELLIANA, and 20,000 KENTIA BELMORIANA, just received. Also 5000 grand Bulbs of LILium AURATUM, and 1000 L. LONGIFLORUM from Japan.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 9.

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The Bankfield Collection of Orchids.

MR. J. C. STEVENS has received instructions from H. Gordon Smith, Esq., of Bankfield, Ulverston, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 9, his Collection of ESTABLISHED ORCHIDS, including fine plants of—

Cattleya eldorado	Dendrobium Brymerianum
„ Gaskelliana	„ superbum
„ gigas	„ Wardianum
„ labiata	Lelia anceps vars.
„ Trianae marginata	„ Dormaniana
„ Warocqueana	„ purpurata alba [flora]
Cymbidium Lowianum	„ Miltonia candida grandi-
Cypripedium caracium	„ Morelana
„ caudatum	„ Russelliana
„ Curtisii	Odontoglossum crispum
„ Dominianum	„ vexillarium
„ Spicerianum	Oncidium splendendum
Peristeria elata	„ varicosum Rogersi
Vanda Amesiana	Sobralia macrantha
„ gigantea	Vanda Denissoiana

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Cattleya Trianae alba	Dendrobium Phalenopsis
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„ Schroderae	Epidendrum Parkinsonianum,
„ Mendeli (in variety)	F.-C.C.
„ labiata (autumn-flower-	Lelia anceps alba varieties
ing)	„ elegans alba
„ Skinneri alba	„ Turneri (grand va-
„ Percivaliana, Fernside	riety)
var.	„ Schilleriana
Coelegyne barbata (fine speci-	„ prasiata
men)	Lycaste Skinneri alba
„ cristata alba (several)	Masdevallia Harryana lutea
Cypripedium Bartlettii	oculata
„ cordiale	Miltonia vexillaria Sunrise,
„ Chas. Canham	F.-C.C.
„ Druryi	Nanodes Medusae
„ Elliotianum, F.-C.C.	Odontoglossum crispum (Alex-
„ euryandum	andre)
„ Germanianum, F.-C.C.	„ Bonnyanum
„ leucorrhodum	„ Bichleyense
„ Leeanum superbum	„ fastuosum
„ marmorophyllum	„ lilaceum, F.-C.C.
„ Morganiae	„ roseum punctatissi-
„ oenanthum superbum	mum, F.-C.C.
„ orphanum	„ aureum
„ Petri	„ Leopoldinum, F.-C.C.
„ Sanderianum	„ Halli magnificentum,
„ Schimii altum (fine	F.-C.C.
plant)	„ Pollettianum, F.-C.C.
„ Schroderae	„ mulus (Bockett's variety)
„ Seden candidulum	elegans, F.-C.C.
„ Thibautianum	„ Chesteri
„ vexillarium	„ Ruckerianum insigne
„ Arthurianum	„ citrosomum roseum gran-
„ Williamsianum	diflorum
Dendrobium nobile Cooksonii,	„ polyanthum
F.-C.C.	Oncidium macranthum
„ nobiliss	Trichopha suavis alba
	Zygopetalum Clayi

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LILIES, PLANTS, and ROSES.

Comprising 2000 very fine bulbs of LILium AURATUM and various other JAPANESE LILIES, a large assortment of English-grown LILIES, hardy plants and bulbs, 400 Standard and Dwarf ROSES, MARECHAL NIEL ROSES in pots, JAPANESE IRIS, FERNS and GREENHOUSE PLANTS from an English nursery, and a few lots of LATTICE WOOD TRELLIS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 6, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Friday, April 10, Next.

By Order of L'Horticulture Internationale (MM. Linden), Brussels.

MESSRS. PROTHEROE AND MORRIS are instructed to include in their SALE, on FRIDAY NEXT, a grand lot of CATTLEYA WAROCQUEANA, among which are the following superb varieties:—C. WAROCQUEANA AMETHYSTINA, part of the plant Certificated; C. WAROCQUEANA AMENA, FLAMMEA, FORMOSA, GRANDIS, LEOPOLDI, MAXIMA, PURPUREA, and REGALIS, a part of each of those plants shown and Certificated at various meetings in London and Brussels; also a number of very fine healthy plants of ANGRECUM SESQUIPEDALE, ANGLOA EBURNEA (true), very rare; CATTLEYA ELDORADO VIRGINALIS, in flower; C. ELDORADO CROCATA, DENDROBIUM SUPERBUM ANOSMUM, offered for the first time; CATTLEYA EXONIENSIS, with flower-sheaths; EPIDENDRUM LANIPES, fine specimen, in grand condition; a number of semi-established, extra fine plants of ODONTOGLOSSUM CRISPUM, Linden's variety; a great number of superb Hybrids, and richly-coloured forms of great beauty, have appeared among our recent introductions. ODONTOGLOSSUM COKONARIUM, strong established plants; O. TRIPUDIANS, SACCOLABIUM CELESTE, fine plants, in grand condition, well rooted; several grand specimens of the rare LELIA ELEGANS TURNERI and L. ELEGANS STELTZNERIANA.

Also a quantity of imported DENDROBIUMS from New Guinea, among which are D. bigibbum, D. Phalenopsis, and other choice, and probably quite new forms, in capital condition, ready to start into growth.

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Friday Next.

Highly Important SALE OF NEW ORCHIDS.

By order of L'Horticulture Internationale (M. M. Linden), Brussels.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 10, at half-past 12 o'clock, the following grand New Orchids:—

AERIDES ANGUSTIANUM, a graceful species, with blossoms of a beautiful ro-e-lilac tint, only represented in a few collections.

CATASETUM SACCATUM, a very beautiful Catasetum, although of ancient origin, it has never been in cultivation.

CYPRIPEDIUM (SELENIPEDIUM) BUNGEROTHI, a very handsome and free-flowering new species, which will no doubt take an important place among the most beautiful of its genus.

CATTLEYA BUYSSONIANA, a grand variety of C. granulosa, a most notable improvement of the type, very superb and attractive.

CATTLEYA REX, this Cattleya surpasses in its marvellous beauty all that has been seen of this favourite genus up to the present time. Represented and described in the *Lindens*, plate 265, also in *Gardeners' Chronicle*, February, 1891. We are only enabled to offer TWO PLANTS of this magnificent species, as we are unfortunately only too sure at the present moment that this sensational Orchid will always remain scarce, and only be represented in a few collections.

CIRRHOPELALUM MASTERSIANUM, one of the most charming species of this curious and singular Orchid. Awarded a Certificate at the last meeting of the Royal Horticultural Society.

COCHLODA NOEZLIANA (true), as represented and described in the *Lindens*, plate 266, and *Gardeners' Chronicle*, Nov. 15, 1890. This new species, introduced by us, is destined to add fresh lustre to this genus, and will no doubt become extremely popular.

CORYANTHES BUNGEROTHI, a most superb and interesting new Orchid, producing the largest blossoms of any Orchid in cultivation; of unsurpassed beauty.

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LELIA SCHROEDERI DELICATA, a charming variety of the beautiful L. Schroederi; fully described in the *Gardeners' Chronicle*, October 18, 1890; will also shortly be represented in the *Lindens*.

MAXILLARIA LONGISEPALA, a most graceful species, remarkable for the beauty and size of its flowers.

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All the plants offered are in the best possible condition and health.

On view morning of Sale, Catalogues to be had on application.

Tuesday Next, April 7.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on TUESDAY, April 7, a magnificent yellow ODONTOGLOSSUM PESCATOREI IN BLOOM.

On view morning of Sale.

Preliminary Notice.

The Entire COLLECTION of ESTABLISHED ORCHIDS, formed by J. J. D. Paul, Esq., of The Lawns, Norwich, who is giving up their cultivation in consequence of change of Residence.

The Collection comprises in all about 2500 Plants, including 1500 Odontoglossum Alexandrie, mostly unfowered; 400 O. cirrhosum, Cattleyas and Lelias in variety, Cypripediums, large plants of Coelogyne cristata, and others.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, April 14 and 15, at half-past 12 o'clock each day.

On view morning of Sale, and Catalogues had.

Sale of the "Ghyllbank" Collection of Orchids.

THE LIVERPOOL HORTICULTURAL

COMPANY (JOHN COWAN), Limited, are pleased to state that they have received instructions from W. J. Thomson, Esq., of "Ghyllbank," St. Helens, to sell his entire Collection of Orchids, consisting of about 2000 Plants, in great variety, and in the very finest condition.

Mr. Thomson has, for many years, been an ardent collector of Orchids, and has got together a large and select collection including many unique specimens. He is compelled to part with his collection, owing to the erection of large brickworks, which will shortly be in operation close to his Orchid houses.

It has been thought advisable not to remove the collection from "Ghyllbank" to Garston; it will, therefore, be on Sale at "Ghyllbank" (which is about 15 minutes walk from St. Helens or Thatch Heath Stations, London & North Western Railway), from April 6.

Descriptive and Priced Catalogues are prepared, and will be sent, post-free on application, to all who will send their name and address for that purpose, to THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool.

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At a Meeting, held by requisition, in the rooms of the Royal Horticultural Society, on December 9, 1890, Sir Trevor Lawrence, Bart, M.P., President, in the chair, a Committee was formed to obtain funds for the establishment of a Memorial to the late SHIRLEY HIBBERD, who earnestly devoted himself to the interests of horticulture in all its branches, and even sacrificed his life in the cause. It was decided that the Memorial should take the form:—

- (1) Of a portrait to be placed in the Lindley Library, under the charge of the Trustees of that Institution.
- (2) Of a fund to be invested in the names of Trustees, for the benefit of the orphan daughter of Mr. HIBBERD.

The Committee feel that no advocacy is needed to commend this matter to the favourable notice of all horticulturists, but earnestly request subscriptions to be sent to any member of the Committee, or to one or other of the undersigned.

The amounts at present received vary, in individual cases, from one shilling to twenty-five pounds, and amount in the aggregate to about £240 (April 2, 1891).

MAXWELL T. MASTERS, Treasurer.

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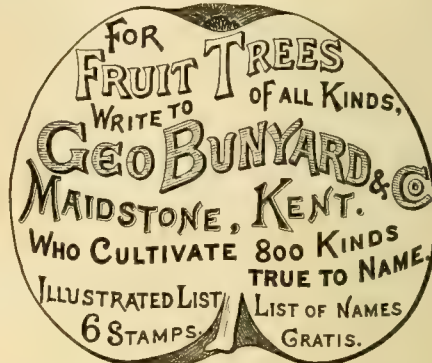
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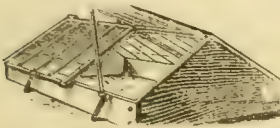
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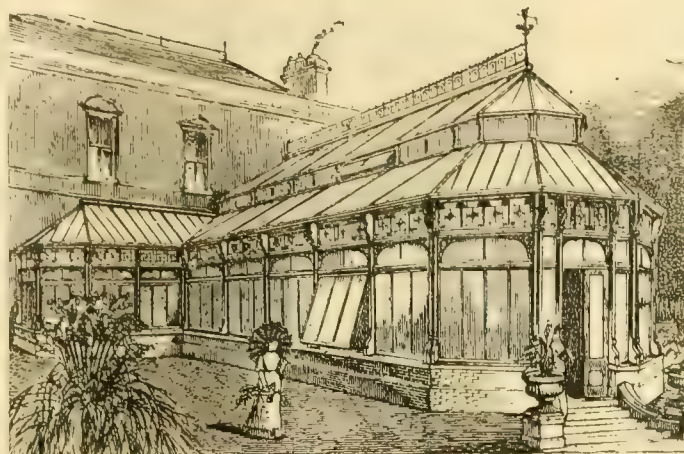
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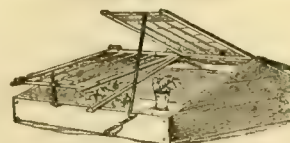
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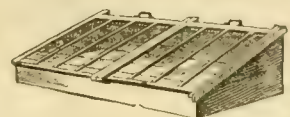
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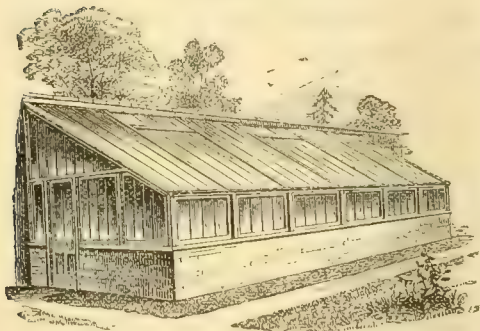
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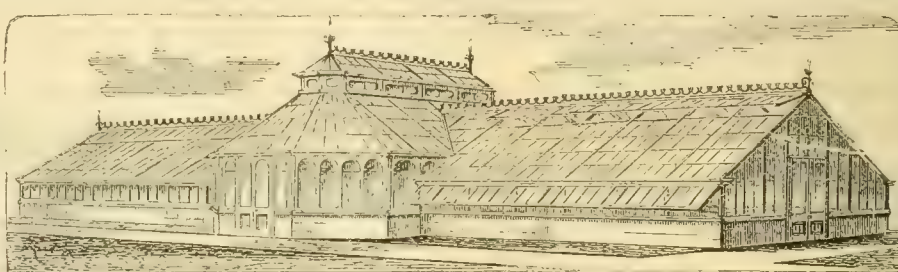
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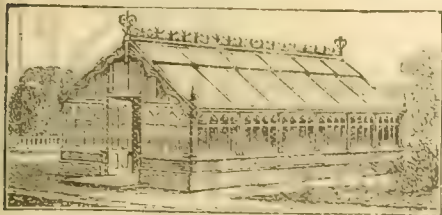
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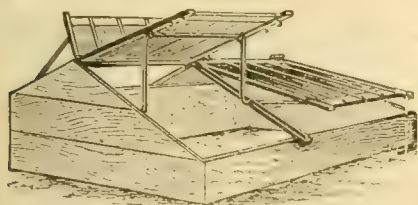
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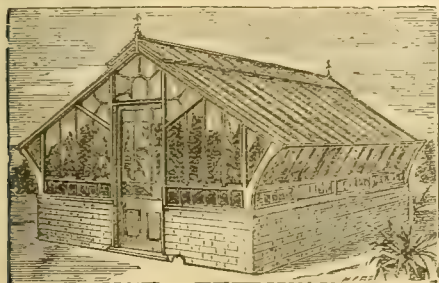
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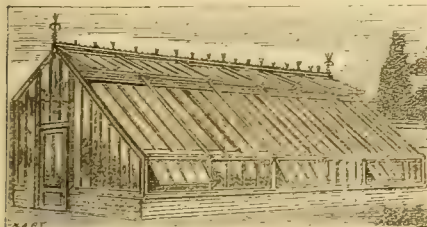
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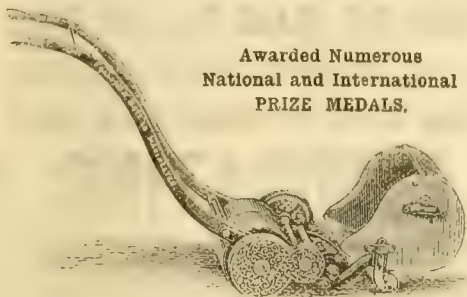


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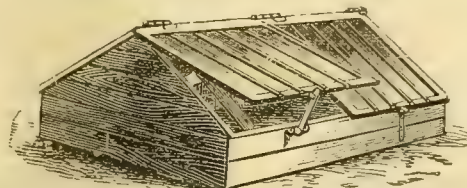
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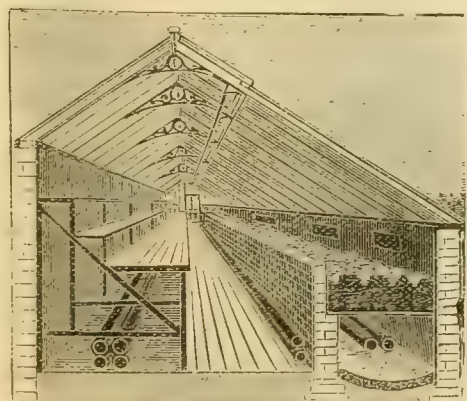
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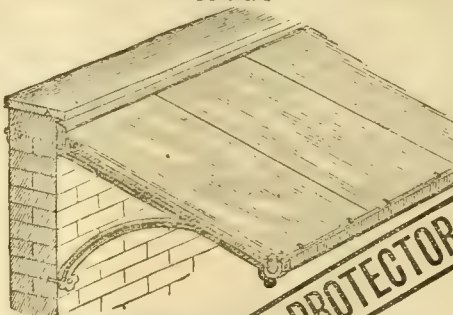
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THE

Gardeners' Chronicle.

SATURDAY, APRIL 4, 1891.

THE COMING SONG BIRDS.

THE spring arrival of migratory song-birds
is now at hand. The nightingale, black-
cap, swallow, and several others will reach our
shores between April 1 and 13, unseasonable
weather making little difference to the regu-
larity of their appearance. Last spring several
swallows were seen flitting about rather discon-
solately on the bitter cold and sunless April 19.
The cuckoo then had been already heard, and all
the more delicate of the new-comers were, no
doubt, near at hand, shivering in the copses and
reserving their song for warmer weather. In
spite of those observers who are in the habit of
reporting, every season in March, that they have
already heard the notes of the cuckoo, no
authentic example exists of the cuckoo having
commenced her song earlier than April 1. The
arrival of the swallow has been sometimes
reported as early as April 1, and certain ob-
servers, more eager than accurate, have even
discovered at that date some newly-fledged young
swallows which were hatched, it was thought, in
some mud-built nests under the eaves of a
country house.

The swift makes its appearance about April
27, being the last of its species to arrive, and
the first to depart. During its short stay, for
it quits in August, it makes itself conspicuous as
the least harmonious and the loudest of its race.
In its evening flights in small flocks it may be
often seen and heard crossing and recrossing
some village street, or screeching round the
church steeple, and keeping up the game till
dusk. In a Sussex village which might be
named, it duly arrives about the time just
mentioned and takes up its quarters under the
open eaves of an old warehouse, where the
young are reared. At the end of summer,
several families are in the habit of joining
company in the evening, before going to roost,
for the fun, apparently, of pursuing one another
with immense speed, screeching violently as they
fly. The swift has sharp talons, curved like a
cat's claws, and exceedingly strong, as any one
who entrusts a finger to their grip will find.
Its legs are shorter even than the swallow's,
so short that their owner can hardly spring
into flight from any level surface on which
it may chance to have settled. During the
repair of a church tower, where swifts are in the
habit of building, a workman captured one
which seemed unable to rise from the floor of
the belfry. He brought it down the ladder,
believing its wing to be broken, but the moment
he opened his hand, it was off, and aloft with its
companions.

The song of the swallow and martin cannot be
heard very far, but they are cheerful little
songsters nevertheless, and their constant twit-
tering on the wing, or at their nests, is pleasant
to hear; in fact, the joy of summer would be
sensibly diminished but for the song of birds,
and the movement of their wings overhead, ever
in the air throughout the long, delightful days.
Other migrants who come in April to sing and
breed, and then depart, are the middle willow
wren, with "sweet and plaintive note," as Gilbert
White truly says; and the white-throat, with-

out much power of song, but possessing considerable endurance and love of it, for it sings on till September, months after the nightingale has desisted.

The black-cap is a rival, and apparently a conscious rival, of the nightingale's, but its voice is very inferior to that bird's in power, depth, and pathos. The redstart sings pleasantly in orchards and gardens, and elsewhere—a merry, restless bird, allied to the robin redbreast, and often approaching near our dwellings, as he does. His red tail, which he jerks about freely as he flits to and fro, so that it glitters in the sun like a streak of fire, has gained him the name of fire-tail. Among the less conspicuous warblers, to whom, nevertheless, we are much indebted for a great deal of cheery sylvan music, are the tree-pipit, the chiff-chaff, with monotonous but very audible and welcome note; and the grasshopper, wood, and sedge warblers. The reed-sparrow comes early in May, and sometimes passes for the nightingale, which it endeavours to imitate, as it does several other birds, being a polyglot of notable powers. The first-named of these migrants, the tree-pipit or titlark, is, in spite of its sober plumage, a very interesting bird. In shape, habit, and appearance it is intermediate between the true lark and the wagtail, having the elongated claw of the latter, with the same quaint vertical vibration of the tail. In the colour and markings of the plumage, however, and in the *timbre* of the voice it shows its affinity to the lark. Like the woodlark, it perches on the top-most twigs of trees, and then soars upwards as it sings. Its song is not so sweet and varied as that of the lark, but it resembles it in tone, and its upward flight, though not so high, is still accompanied by "a rain of melody" like that of its congeners, the woodlark and skylark. Who has not seen its ecstatic little flight, and heard it singing as it shoots upwards from the top of its tree? In this notable performance, which all persons in the country must have watched, its method never varies. Singing rather a hurried song, it rises rapidly to a height of 60 or 70 yards, taking a nearly straight line in its flight at an angle of 45 degrees. It returns towards earth, or rather to the top branches of some tree, with extended wings and tail, till at last, uttering several plaintive notes, it drops to its perch.

The grasshopper warbler, coming in April, and retiring in July or August, is a shy recluse, rather local and uncommon. It deserves to be mentioned as a true migrant, and for its marked character and skill in hiding itself. If the bird-lover can discover it and its nest of moss and grass in the "jungle," where it shrouds its movements, his genius for tracking a most wary bird through the mazes of the thicket will have been established. He should consult Yarrell, or Selby, for a description of the bird, as these pages must not be overburdened with details; but perhaps it may be permitted here to inform him that the song of the grasshopper warbler is more remarkable than exquisite. Its note has been described as a sibylline ringing cry, repeated for many minutes without intermission. In the utterance of this note, it appears to possess a kind of ventriloquism, so that the sound may at one moment proceed from the immediate neighbourhood of the listener, and at the next it may appear to be removed to some distance.

The garden warbler, known also by the name of pettichaps, remains till September, and though shy and wary, delighting to pour forth its varied and mellow coverts, it nevertheless comes near

our doors, affecting gardens, orchards, and groves, near home. It is in some sense a household bird, which may be watched readily in its gambols, or when capturing its prey, searching for caterpillars among the bushes, and adding in the season several sorts of ripe fruit to its bill of fare. Like the blackcap, too, which resembles it in its habits and haunts, it may be readily reconciled to captivity and a cage, losing then its natural shyness, and becoming pleasantly familiar and confiding.

The blackcap has been already named, but he deserves, as a most interesting cage-bird, attached to his feeder, to be re-introduced. Bechstein says of him:—"A young male, which I had put into the hothouse for the winter, was accustomed to receive from my hand a meal-worm, and this took place so regularly, that immediately on my arrival, he placed himself near the little jar where I kept the meal-worms. If I pretended not to notice this signal, he would take flight, and, passing close under my nose, resume his post, and this he repeated, sometimes even striking me with his wing, till I satisfied his wishes and impatience."

The same naturalist remarks on the agitation which caged migrants experience at the usual period of their departure. No doubt he refers to the class of migrants which has just been noticed. Such thorough-going migrants as the swallow, nightingale, and cuckoo would experience great inconvenience if their departure for more congenial climes were prevented after the termination of our short summer, and a winter sojourn in this country would be fatal to them, unless with careful protection and feeding.

These soft-billed birds, which feed entirely upon insects, are, for the most part, migrants from necessity. The swallow can still find its suitable food in this country till the end of September, when the last insect it feeds upon, the daddy-longlegs, rises from its chrysalis in the pastures by millions. As soon as this food fails, the swallow must be off. The fern-owl, or goat-sucker, is in the same category. But some of the soft-billed birds are capable of supplementing their insectivorous food by a totally different diet, and such birds sometimes stay with us all the year round, or they shift their ground like starlings, and some others. The redbreast, wren, hedge-sparrow, white, yellow, and grey wagtail, wheatear, whin-chat, stone-chat, and golden-crested wren—the smallest of British birds—are of this class. *H. E.*

NEW OR NOTEWORTHY PLANTS.

LÆLIA ANCEPS (Lindl.) VAR. *HOLOCHEILA*, n. var.

This is a most distinct and remarkable variety of *Lælia anceps*, with a perfectly entire lip. It is evidently a peloriate state of the species, though its peculiar character seems to have become quite fixed and permanent. My first knowledge of it dates from December, 1889. On the 7th of that month a single flower arrived from the Liverpool Horticultural Co., and another from Messrs. Hugh Low & Co., Clapton. Respecting the former, Mr. Cowan wrote that there were two plants, all the flowers being quite alike; while the latter, Messrs. Low stated, was from Mr. W. Sherwin, The Gardens, Osmaston Manor, Ashbourne. When the first flower opened, Mr. Sherwin thought it was some accidental freak, but a second plant, on flowering, proved exactly the same. A few days later Messrs. Low sent complete materials, including pseudo-bulb and leaf, from the same source. Early in the present year a similar flower was sent by Professor Sargent, Editor of *Garden and Forest*, from the col-

lection of Mr. Ames, stating that the plant which produced it was purchased in June, 1888, from the Liverpool Horticultural Co., with a batch of other plants, as *Lælia anceps morada*, and that with this single exception, the lot proved true to name. It is a large plant, with thirty bulbs and six leads. It produced two spikes in December, 1889, and five in the following year. The chief peculiarity resides in the lip, which is quite entire, elliptical-lanceolate in shape, over 2 inches long by three-quarters of an inch wide; the colour is light purple, with a nearly white disc, and some yellow at the base. Though different from the petals, it is yet more like them than an ordinary lip. The petals themselves are narrow, almost identical with the sepals in shape, and all of a pale lilac colour. The column is nearly normal, but not quite so. It is decidedly handsome, and the most distinct, if not the rarest variety of *Lælia anceps* in cultivation. It forms a marked contrast with other varieties, indeed, few people would recognise it if shown a single flower apart from the plant. Perhaps the history of *Uropedium Lindenii* over again. Even Reichenbach refused to believe it a fixed peloria of *Selenipedium caudatum*, of which there cannot now be the slightest reasonable doubt. Here we have a fixed peloria of *Lælia anceps*; at all events, the above facts seem to prove that the character has become permanent. *R. A. Rolfe.*

CYPRIPIEDUM DAUTHIERI X, VAR. *POGGIO GHERARDO*, *Hort. Ross.*

The variation among the hybrid forms of *Cypripedium* having the same parentage seems to be unlimited; here is a new variety of *C. Dauthieri*, that Mr. J. H. Ross, of Florence, Italy, sends under the above name, and which appeared in his collection among a batch of *C. Dauthieri* var. *Rossianum*, Rehb. f. (synonym var. *marmoratum*, Hort.). The principal difference, besides colour, between *C. Dauthieri* and *C. Harrisianum* (which is derived from the same parents), is that the staminode of *C. Dauthieri* is shorter in proportion to its width, than that of *C. Harrisianum*; the dorsal sepal of the latter, too, is often twisted to one side, whilst it is usually straight in *C. Dauthieri*; but this character is variable. In the new form, *Poggio Gherardo*, which may be briefly described as a very pale form of *C. Dauthieri*, the dorsal sepal is twisted to one side and the sides are spreading, and not reflexed as they are in the other varieties. The colour of the whole flower is much paler, and not so rich as in the typical *C. Dauthieri*; the purplish-brown on the dorsal sepal is confined to the basal half, the upper half being green with a white border; the petals are nearly as in the type, but paler; and the lip is light greenish-yellow overspread with a pale brownish-red tint, giving the flower a very pallid appearance as compared with the typical form. *N. E. Brown.*

STAND HALL, WHITEFIELD.

THE Orchids at Stand Hall, near Manchester, have come to the front because of the large number of good forms that have from time to time been flowered. It is one of the provincial places that sends up some of the more distinguished of the race for adjudication on the part of the Orchid committee, and the numerous certificates and honourable mentions that have been voted Mr. Statter's famed plants, point to the collection as one eminently worthy of notice in your columns. It is pleasing to note how careful the present committee is in safe-guarding the nomenclature of Orchids, and only raising to dignity those of most desert; while, at the same time, lending no countenance to the multiplicity of specific names. The members of that committee are, in a measure, helpless with cross-bred seedlings of the Lady Slipper family, which would require a "stud-book" by themselves; but there are clearly far too many of those seedlings closely connected together, in both form and feature, that a little more "black-balling" would be productive of no evil.

Looking at Mr. Statler's collection as a whole, so ably managed by his gardener, Mr. Johnson, I do not know if there is one less liable to the remark of bad cultivation in any particular species taken in hand; of course, there is always this to be discounted, that it is comparatively young—ten years being the full extent of the first essay in Orchid culture; but ten years affords a fair test for the cultural "mettle" to be assessed.

Lælias are well-managed here. It is not that there are only a few species of them; nearly everyone you find catalogued has a home here. Some sorts that were very scarce, and are scarce still, are cultivated, notably the piebald-segmented *L. elegans* *Wolstanholmiæ*, that is a mildly-growing species, but beautiful withal; and then the forms of *L. elegans* of the *Turneri* type are superb in themselves, and superbly grown, too. The dark-lipped one, described in a former number of the *Gardeners' Chronicle*, will take rank as the finest of its type, differing from *L. blenheimensis*, which is superb in the intense depth of its maroonish crimson-coloured labellum. The one named *L. Statleriana* is excellent; and another concoloured one is quite unique. *L. e. præstans* is well-known, and so is *L. Schilleriana*; but recommend me to that quiet soft beauty of *L. Tresederiana*—it is a gem. Then the newer *L. Goldiana* and the *L. anceps Amesiana* are striking plants, as well as *L. Tresederiana*, which belies in appearance of growth its so-called "stud" members. Of *Lælia* *anceps* *Sanderiana*, *Dawsoniana* *alba*, and a host of other names which run each other very closely in appearance of flowers, there is a large and well-grown collection; but we cannot condescend to go in to a list of names, as your space is too valuable.

In *Cattleyas*, *C. aurea*, Statler's variety, takes a foremost rank, and is one of the most desirable, when we note its depth of colouring—all these *Cattleyas* of the *Dowiana* type are superb in this respect, and there is no gainsaying their right to a divisional name. *C. Warocqueana* is superb, resembling in habit and in flower one we used to grow a score or more years ago as *Cattleya labiata* *Pescatorei*. I once had a plant which I grew to the dimensions of a 3-footer, and glorious it was. Then *Warneri* and *labiata*, and *Mossii*, and *Lawrenceana* and *amethystoglossa*, and *velutina* and *Gaskelliana* are in great numbers. *Cattleya Bowringiana* is a grand addition to the genus, a *Cattleya* in appearance, but a better grower. *C. Skinneri* *alba* I look upon as one of the greatest growers of the last decade; its purity of colour and its fine form giving it a high rank, and there are several plants of it, one a very fine specimen, too. Then among the *Trianae* group, the *Leeana* and *Emilie* forms were very superior, and the plants look full of vigour. These plants are growing in a small house, crowded together as if they were packed for a journey, some in ordinary pots, others in holed pots, and square baskets of teak and cylindrical baskets. The method of culture appears to be directed to getting pots and baskets full of roots, affording comparative dryness in the resting season. How it is that these crowds maintain so much uniformity of health, and show vigour to come greater even than what has been in the past, surprises even "an old hand."

Moving out of this house, I passed into a house holding a nice assortment of *Odontoglossums*, marvellous *Sopronites*, and a number of *Rossii* *majus*, and all of that ilk, including the beautiful *O. aspersum*, to the *Cypripedium* house. This has recently been set apart for the culture of *Cypripediums*, and being a low pitched house suits the purpose admirably. I noticed *Maule's* *insigne* or *albomarginatum*, and among the strap-shaped leaved varieties, *Rothschildianum*, the handsome *Morganii* ×, *burfordensis* ×, *cardinalis* ×, *Stonei* *platytanum*, *lævigatum*, *selligerum*, *Lowii*, the new *Measuresianum*, *Sallieri*, *Spicerianum* and *veixillarium*, *Io*, *Godseffianum* ×, *Argus*, *Moensi*, *Niobe*—but we must stop. What a little gem is *C. concolor*, and how well it grows! and the spotless *niveum*, which is as rare as rare can be, and the larger *bellatulum*. Then there are imported plants of *C. Wallisii* and *C. Boissieriana*,

which will soon come into flower. Heat, moisture, and cleanliness are the chief means employed by the man in charge here, directed by considerable skill.

In a span-roof range adjoining, you pass through a vinery, where the Vines are doing well, to the house of *Dendrobiums* and miscellaneous plants, a large one where plants can be staged tier upon tier, and suspended from the roof as well. The *Dendrobies* here are a choice lot; we have seen nothing to beat Mr. Hardy's noble *Devonianum*, although it was here in several plants, but the many varieties differ, some being much brighter and better finished than their neighbours. What a grand thing that *D. Cooksoni* is! We saw, years ago, Mr. Cookson manipulating upon the tribe, and have now to compliment him on being the raiser of one of the very best after the noble cross-character of any yet in commerce. This is saying much in the face of *splendissimum*, of *Ainsworthii*, and *Ainsworthii* *roseum*, and *Leechianum*, all of which are as freely grown here as plants of their size could be. Some beautiful forms of *D. nobile* itself are cropping up, notably the one dedicated to the late James Backhouse, in which the appearance of the segments makes it a striking novelty. *D. Brymerianum* is beautiful in its rich orange shining coat, with the frayed extremities resembling the mandibles of some kind of insect. Then an old acquaintance, *D. lituiflorum*, in its marmorate form was conspicuous, as well as *D. polyphebum*, *D. Falconeri giganteum*, *D. Devonianum album*, and other choice species. Nothing delighted me better in this house than *Lycaste Skinneri* *alba*, a veritable giant, with a yellow-crested lip. Others were present, but this one dwarfed them all; and when we are among whites who would not linger over the *Cœlogyne cristata* *alba*? There will never, we were going to say, at any time, be too much of that spotless beauty for either looking at or cutting.

Passing onwards, the *Cattleya*-house proper was reached, where there is a variety of all species worth growing, and so far as I could gather, a rejection of all that were not worthy. Among *C. Trianae*, which are still among the best of the spring *Cattleyas*, are *Johnsoni*, named after Mr. Statler's indefatigable and enthusiastic gardener, who, by the way, never grew an Orchid until he came to Stand Hall, and a fine plant it is, as also another named *plumosa*, which is more purple-flamed about the segments than the ordinary run of this section; then *C. T. alba*, and so on.

C. Mendeli, and one particularly choice one of that strain, a natural cross which comes later on, we have not seen equalled; and *C. calumnata* is a charming thing after *Aclandæ*, which is no mean one among its fellows for distinctness and general shell-effectiveness. There is, above all, a magnificent *Lælia*, a *Cattleya crispa* *superba*, which, for size of pseudobulbs, I have not seen equalled; and Mr. Statler tells me that it is a flower of surpassing size and loveliness, which, in addition to its beauty, has a delightful fragrance, filling the house with a scent not unlike that of Violets.

In an adjoining hip-span was a congregation of cool Orchids, the most remarkable of which was a group of *Odontoglossum Harryanum*, which indicated rude health, away up on a lofty shelf, although the plants had been subjected to a minimum temperature of 36° during the time the cold was so great in December last. Many of these cool Orchids stand occasionally an abnormally low temperature—they have to do so in their own country, but which, if it were to be continued, would end in their destruction. Most of these cool-houses are treated to double stages—as usual now-a-days for culture of this kind, for the purpose of moisture and air circulation among a lot of plants coming from *Cordillera* regions.

Adjoining the hall itself were a couple of houses, usually vineries, one now a Peach-house, and the other filled with Orchids—a long, useful, capacious house. Among the group of *Cymbidiums* and *Cœlogyne* and *Dendrobiums* was a capital lot of *Vandas*, chief among which was the notable *Vanda Sanderiana*. This is really a noble distichous-leaved Orchid, carrying flowers of great shell-like beauty, which

captivate all orchidophiles. When this variety is in proper culture, as it is here, it is a nobile nobiliss. The *Vanda Hookeriana*, with tooth-pick-like leaves, grows freely among the rest; it is at home among moisture and any ammonia that is dispersed where foliage is so abundant. *J. A.*

TREES AND SHRUBS.

RHODODENDRON RHODORA, *syn.* RHODORA CANADENSIS.

THIS is a very pretty and early-flowering deciduous shrub, belonging to the genus *Rhododendron*, and in appearance somewhat resembles the *Azalea amœna* when in blossom. It is an old plant, having been introduced from North America in 1767.

The flowers are borne in terminal clusters, about the end of March or early in April, according to the season, and before the plant comes into leaf. This shrub flowers very freely, and is useful for cutting from; the flowers are beautiful crimson in colour, and borne in clusters of three to eight.

There is an error regarding this plant in *Johnson's Gardeners' Dictionary*, it being classed among the hardy evergreen shrubs, whereas it is most decidedly deciduous. *A. P.*

PLANT NOTES.

PHILESIA BUXIFOLIA.

THIS beautiful flowering shrub from South America is quite hardy, though for a long time it has been given greenhouse treatment. Mr. Lobb, one of Messrs. Veitch & Sons' collectors, and who had the honour of sending this plant home, found it thriving from the sea-level to the snow-line on the mountains. Where it has been planted out into moist shady corners, and sheltered from wind, great success has been the result. The *Philesia* is one of the most showy of all flowering shrubs, and bears large *Lapageria*-like blossoms (indeed it is very closely allied to this genus, and has been crossed with it), these are waxy, drooping, and of a bright rosy colour; it flowers in May and June, lasting in beauty for quite six weeks. As its specific name denotes, the foliage much resembles the Box tree,

TRADESCANTIA VIRGINICA.

This is one of the finest hardy herbaceous plants for town gardens that can be grown. Its bright violet blue flowers, with yellow stamens, are very beautiful and suitable for cutting, and will keep fresh for weeks when placed in water, the buds on the stalk opening almost as well as if left on the plants. This variety of the *Spiderworts* will thrive in almost any soil if fairly moist; it is frost proof, and free from insects. Smoke does not affect it, nor does any change of weather; in fact, it is one of the finest of all summer flowering plants for town work. Plant early in spring, and increase by dividing the old roots just as they are breaking into growth.

TECOMA JASMINOIDES.

This evergreen greenhouse climber is easily grown, and should not be relegated to a few large gardens, as is too generally done. The *Tecoma* flower very freely in clusters at the points of their shoots, the flowers varying from white, with rosy centres, to a pink colour. They grow well in good leaf-mould, or loam, peat, and sand, and may be planted out or kept in pots, which must be well drained.

ALLIUM NEAPOLITANUM.

The *Allium neapolitanum* belongs to a very large genus, including the Onion, Garlic, Leek, Chives, Shallots, &c. It derives its generic name from *all*, an old Celtic word signifying "hot or burning," alluding to one of the well-known qualities of the Onionworts. As its specific name denotes, it is a native of Naples and Southern Europe. A *cepa*, is our British Onion; A *sativum*, the Italian Garlic; indeed, these useful stimulating and diuretic bulbous plants are very widely distributed, almost every province possessing its own species. The *Allium neapolitanum* is extensively grown as a cool greenhouse and conservatory plant; also in the open air, in the south of France, from whence it is sent in large

quantities to Covent Garden market, as a cut flower. Its flowers are pure white, and borne in close umbels upon a long and bold stalk, about a foot high. It is half hardy, and may be grown outdoors in a warm sheltered position, and in a well-drained and somewhat sandy soil. As a greenhouse plant, it is of the simplest culture, and ought to be in every amateur's collection on this account.

ATMOSPHERIC IMPURITIES IN MANCHESTER.

CONSIDERABLE attention has been called to this matter at Manchester, owing to the unhappy condition of the evergreens in tubs, which were some time since placed in the Albert and Infirmary squares of the City. The Town Gardening Committee of the Manchester Field Naturalists' Society some time since appointed a sub-committee on air and fog analyses, and they have recently issued a preliminary report upon investigations made by Dr. G. H. Bailey, Dr. J. B. Cohen, and Mr. P. J. Hartog, all of Owens College; and Dr. J. F. Tatham, Medical Officer of Health for the city. The report states that the number of deaths from respiratory diseases increased during the prevalence of fogs, impregnated with sulphurous acid and other injurious matter. Taking the normal number of deaths per week in Manchester from the above causes at sixty, they found that during the period of the exceptionally dense fog which preceded Christmas, the number went up to over 200.

We know definitely that the sulphurous acid of the air arose wholly and solely from the combustion of coal, which contained from 1 to 2 per cent. of sulphur. Experiments had been made simultaneously at the Owens College and at the Town Hall. The result showed considerable variations in the amount of sulphurous acid present in the atmosphere, but there was a large amount near the centre of the town. Experiments had been made to determine the deposits from the air. The experiments in this section had been carried out:—1st, by observing the amount and nature of that carried down by snow; 2nd, by collecting the deposits on the roofs of greenhouses; 3rd, by examining the incrustations which formed on the leaves of outdoor plants in different parts of Manchester and Salford. *R. D.*

[In our last issue was a reference to the investigation now being conducted in Manchester, on the effects of fog, together with a brief statement of the amounts of acid and carbon deposited within a given area. See p. 392. Ed.]

FLORISTS' FLOWERS.

THE HIPPEASTRUM.

THERE is a strong bloom on the old-established bulbs at this date (March 28). When I first began to grow Hippeastrums, twenty-five years ago, I was at a loss to know how to start the plants in the best manner early in the year, until it occurred to use a bed of tree-leaves and stable dung made up in the earliest vinery—a plan that helped the Vines, saved fuel, and was good for the bulbs. Into this bed the pots of Hippeastrum and Tea-scented and other Roses were plunged. Vines and all were started at a temperature of 45° to 50°.

Under this kind of treatment, my bulbs bloomed admirably, and when the flowers appeared, I removed the pots to the greenhouse, where they remained till the bloom was past, and were then returned to the vinery, where they obtained sufficient light if placed close to the glass at the ends. Usually the bloom lasts about six weeks, but this year they will last for eight weeks at the least. Our plants are grown in a house specially built for them, and the pots are plunged to the rim in bark beds, and as soon as bloom is over, they are lifted out of the tan, which is turned over from the bottom upwards, and the pots are replunged, this time well over the rims, as the roots have a liking for tan, and

speedily push out in all directions until, by the end of the summer, the bed is full of them, and the leaves are large, and of a deep green colour. Under this sort of treatment, I have had some bulbs of *Empress of India* 18 inches in circumference, with eight or nine leaves springing from a bulb, and three flower-scapes having seventeen flowers.

Flowering causes a shrinking of the bulbs, as is seen in the loosely-hanging skin, and the object of the cultivator should be to keep growth in the plants until the skin plumps up, and eventually an increase in the size of the bulbs takes place. This growing period extends to the month of September, when ripening should begin. There is no difficulty about all this. I give the plants a thorough watering once a week, and see that they are kept free of red-spider and thrips, or white mealy-bug, which is very troublesome, doing its mischief between the fleshy layers of the bulbs above, and sometimes below ground. The bug is not disturbed by tobacco-smoke, and tobacco-powder does not kill it, although it will drive the insects out of the bulbs, even when their presence in them may not have been suspected. The insect by its ravages checks growth more than do red-spider or thrips both together. It may be as well to add, that the leaves of some varieties of Hippeastrum are liable to be injured if exposed to bright sunshine, and must be shaded with some kind of light screen until the bulbs have finished their growth. *J. Douglas.*

COLONIAL NOTES.

PORT ELIZABETH, SOUTH AFRICA.

ST. GEORGE'S PARK.

THIS is considered one of the best, if not the best, of the artificial parks in South Africa. Its extent is about 50 acres, about 5 of which are enclosed for gardening. Notwithstanding the poorness of the soil, the great scarcity of water when this element is most needed, and the high winds which prevail here, as in all parts of this colony, St. George's Park is a monument to the skill and energy of its creator and late Curator, Mr. Wilson. On entering the inner enclosure, or sanctum, straight in front is an avenue of mixed trees, the most striking of which are the loveliest trees in this part of Africa, viz., *Casuarinas*. On the right is the Pearson conservatory, a structure that would do credit to the best gardens in the old country, and which was figured in your columns for Dec. 25, 1880. Its contents are in every way worthy of the building. One notices specimen plants of *Adiantum cuneatum*, *A. concinnum latum*, and *A. gracillimum*, that would gladden the heart of many a specimen grower at home. The magnificent and fragrant *Crinum asiaticum*, when in flower, excited much admiration. *Fuchsias*, *Begonias*, *Gloxinias*, &c., are looking well just now.

In the yard behind the conservatory, a good collection of *Chrysanthemums* are growing vigorously in their tin pots. They do well here, but the manner of growing them is different from that practised at home. Cuttings are struck in October potted off into small tins; but they are as tenacious of old habits as human beings. They will bloom in their proper season here, but that happens to be our spring; so they are cut down in December, and the suckers have to make the plants, so the growing season is short—they bloom at the end of March; but they grow with wonderful rapidity, and make really big plants by the time they are expected to flower. Three or four suckers are left.

On coming from the conservatory into the grounds, we pass a large circular dam, with a fountain in the centre, and in which there are scores of gold-fish. Around the dam, or fountain, are pretty little sloping lawns, at the corners of which are fine plants of *Encephalartos caffer*. This is the prettiest view in the park, but I think I have seen a photo of it in a former number of the *Gardeners' Chronicle*. The old conservatory is now a fernery, for which,

judging by the appearance of its healthy and delightful occupants, it is well adapted. The basket Ferns, of which there are rows on each side of the house, are the great attraction—*A. gracillimum*, *A. amabile*, *A. concinnum*, *A. Farleyense*, *A. Victoria*, and *A. æthiopicum*; the last and first-named are the biggest and best.

We should deride a house roofed partly with corrugated iron in England, but it is admirably adapted for a fernery in this bright colony. There are two little houses besides, a small stove—the only structure in the park that is heated—also Reed houses in which are *Azaleas* and *Begonias*; some good plants of the latter are growing in one of these shady and simple houses. The beds do not realise an Englishman's idea of what they should be; but bedding as we understand it is impossible here. Our best "bedders" will not do at all; the sun takes out the colour of foliage plants, and the fungus destroys the *Pelargoniums*. A few annuals—*Balsams*, *Cockscombs*, *Zinnias*, and *Petunias*, do well for a short time, but are soon over in the summer; in the spring it is better. I understand the superintendent intends making more suitable beds as soon as possible. The *Trachelospermum jasminoides* when in flower is a sight not to be forgotten; *Hibiscus fulgens* is nearly always in bloom; *Stephanotis* is now in flower, also some *Gardenias*, *Hoyas*, *Tecomas*, *Plumbagos*, and *Jessamines*.

Mr. J. T. Butters, who was for several years assistant Curator to that old colonial hand at Grahamstown, Mr. Tidmarsh, who is an enthusiastic lover of Cape plants, and an energetic reformer, succeeded the late Mr. Wilson, as superintendent. Judging from the improvements which have already been effected by him, and those which are contemplated, the park is not likely to suffer while under his management. *Bayonian.*

SNOWDROPS ON GRASS.

IT is when planted in masses on grass, in suitable positions, that the value of the Snowdrop as a spring flower is best seen. And for this purpose the common single Snowdrop, *Galanthus nivalis*, is best suited, and deservedly most popular. There are many situations on lawns, or in the grass under old trees, bare and uninteresting in the early spring months, which might be made a floral picture in February and March, if once planted with Snowdrops, and which, if once established, would repeat itself year after year without further trouble. The only attention required is to allow the leaves to ripen naturally before moving the grass in spring, and as they will usually be ripe early in May, they do not interfere much even with the early mowing. Perhaps the best way to establish the Snowdrop, is to remove the turf early in September, or as soon as the bulbs can be had. Fork over the ground lightly a few inches deep, sow the bulbs over the ground about 5 or 6 inches apart, fork-in about 2 inches in depth, roll the ground, and relay the turf, passing the roller over again to finish the work. Where clumps exist already, they may be lifted after flowering, broken up into small patches of five or six bulbs each, and planted all over the grass where required, making notches in the grass with a spade about 1 foot or 15 inches apart, or closer if the bulbs are plentiful and time permit. The photograph from which the engraving (fig. 91, p. 429) is taken, shows one of several similar masses of Snowdrops, which brighten the gardens and grounds round Dunrobin Castle during the spring months. The photograph was taken by Mr. Dixon, of Golspie, *D. Melville, Dunrobin Castle Gardens, Golspie.*

NURSERY NOTES.

MESSRS. JAMES VEITCH AND SONS.

THE Amaryllis-house at the Royal Exotic Nursery, King's Road, Chelsea, has well begun its annual display. Some 3000 spikes in various stages

appear in it, the large centre bed being literally a mass of bloom, while the side-stages, on which are placed the more backward specimens, have already a good show of flower. The perfection to which the culture of the *Amaryllis* has here attained is evident, and the revolution which the careful inter-crossing of the species and varieties has wrought in the quality of the flowers is marvellous, more especially in the brilliant scarlet varieties, some of

measures 9 inches across, and is of a rich reddish-scarlet, with light centre; and *The Champion* is brilliant scarlet, and not easy to beat, as its name would imply.

In another class—of which the favourite *Empress of India*, one of the best strides which has been made in *Amaryllis* at Chelsea, may be regarded as the type—good progress has been made, and several improvements either in size or colour appear. The

has gained great perfection at the Royal Exotic Nursery, is the large white-flowered kinds with little and in some cases almost imperceptible coloured markings; this is a charming race, and their flowers—as indeed are many of the coloured varieties—are generally fragrant. Of this class very attractive are *Olivia*, pure white with green centre and a few radiating crimson lines from the centre; *Phedra* is another lovely white ground



FIG. 91.—SNOWDROPS IN THE GRASS:
A VIEW IN THE PARK AT DUNROBIN CASTLE, COLSPIE.

which have flowers 8 to 9 inches across, and with petals $3\frac{1}{2}$ inches wide. A noble example of this type is *The Premier*, with a three-flowered spike of rich scarlet flowers, with an orange shade. *Sir Redvers Buller* is another grand flower, scarlet, with a white band up the segments; *Julius* has a four-flowered scape of rich reddish-scarlet blooms; *Der Kaiser* has very large scarlet flowers, with a salmon-pink tint in the lighter portions; *Vandyke* is of a glowing dark scarlet, with crimson veining; *The Volunteer*

best, and one that will hold its own for many years to come, is *Enterprise*, which seems to embrace all the qualities which a florist's flower should have. *John Heal*, with its rich dark scarlet flowers, with their quaint and attractive pure white tips, holds its own as the very best of the *Leopoldi* section, and not only that but it has played an important part in giving size and breadth of petals to other classes whose progeny are distinct in colour and marking. Another section of *Amaryllis* which

variety; *Eglamour* has an attractive white crimson-netted flower, and *Finette* and *Lady of the Lake* may still be regarded as leading kinds. Other leading varieties in bloom are *John Ruskin*, which may be regarded as the type of the *Veitch* strain of rich blood-red or crimson kinds; *Model*, with a flower in the way of *Johnsoni psittacina*, but with some of the spotting of *pardina*, and the extraordinary number of seven flowers on a spike; *Muta*, also of the *Johnsoni* strain, but of perfect shape, and

very attractive marking; Colonel Burnaby, one of the best and largest scarlets; Rodney, a brilliant scarlet, with a few white patches between the veins. Those who wish to see to what perfection the *Amaryllis*—or, more properly speaking, *Hippeastrum*—has been brought at the Royal Exotic Nursery, should pay that establishment a visit as early in April as possible.

The Cool Show-house.—The large span-roofed greenhouse is a refreshing sight after the long run of dull weather we have experienced. Cleverly arranged in it are all the leading flowers which can be got in the spring—bright, fresh, and fragrant. Here are *Azalea indica* in many colours; the attractive yellow, salmon, and coppery tints of *Azalea mollis*, single and double; the neat little scarlet *Azalea obtusa*; the pretty white Hawthorn-like bushes of *Spiræa confusa*; and the white sprays and bosses of *Deutzia gracilis* and the *Gueldres Rose*. *Boronia megastigma* appears with its bronzy, violet-scented flowers; and *Erica verticosa coccinea* minor, *E. candidissima*, *E. Cavendishii*, and the pretty pink *E. propendens*, arranged with *Cyclamen persicum*, *Roses*, *Mignonette*, *Cinerarias*, *Hyacinths*, and *Narcissi*, among which the old Hoop Petticoat appears to advantage; all go to make a display not to be excelled in the space. In an adjoining house the collection of *Cliveias* richly in bloom; the house of *Anthurium Scherzerianum* is equally showy, and the collection of greenhouse *Rhododendrons* has, as usual, some good things in bloom.

The Orchid House Rockery.—Never during our darkest and duller weather has the show in this pretty rockery-house failed. Always arranged on the rocks, among the Ferns and foliage plants, and suspended overhead, is to be found a display of Orchids in flower worthy of this renowned collection, and of the cultural skill of Mr. Chas. Canham, whose name for so many years has been identified with it. At the present time there is in charming arrangement some fine forms of *Cymbidium Lowianum*, white and coloured *Lycaste Skinneri*, the creamy white *L. costata*, the pretty tawny *L. fulvescens* with many elegant spikes; the rich red *Epidendrum O'Brienianum*, *Masdevallia racemosa*, with several spikes of scarlet flowers; the exquisitely-tinted hybrid *Dendrobium micans*, *Trichopilia suavis*, *Dendrobium capillipes*, a grand mass of a very singular form of *Lælia anceps* of light colour, and with some of the bluish hue of *L. a. Veitchiana*; a large mass of *Cælogyne ocellata*, scarlet *Sophranitis*, and various other showy and rare species.

In the large *Cattleya*-house the plants are in grand health, and some are in bloom, notably a very remarkable *Cattleya* imported with *C. Trianae*, but with flower apparently intermediate between that and *C. Lawrenceana*, and nearest to the latter. The *Odontoglossums*, *Cypripediums*, &c., also give a good show; and the adjoining house of *Nepenthes* presents a rich and varied display of pitchers, some of the later introductions being marvellously painted and curiously shaped.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

THE PROSPECTS OF A CROP OF FRUIT.—Seldom have the fruit trees looked more promising than at the present time; trees of the Peach and Nectarine are furnished with strong, healthy buds in every part. Should it be suspected that the soil at the roots is very dry, plenty of water should at once be afforded. Manure-water to old trees is very beneficial when the wood is weak, and it may be given with good results several times during the flowering period, and in summer.

Apricots are subjects which in dry land require thorough watering occasionally, and more especially when in bloom. Sufficient water should in all cases be given to saturate the soil. Recently-planted trees of all kinds should be watered, if the soil about

them is dry, a mulch should be put on the roots afterwards. Keep a keen watch for black and green aphides, as these insects, when once they get firm hold, do a great deal of injury in a short time. Dusting the shoots with tobacco-powder will keep them in check for a time, although *Quassia-water*, applied with a syringe, or the shoots dipped into it, is the best that I am acquainted with.

STRAWBERRIES.—No time should be lost in removing old leaves and weeds, a heavy mulch of strawy stable litter being placed between the rows, and close up to the plants. The flower-spikes should be pulled off young plants, unless in the case of new varieties which have to be tested, when a few may be left. The beds for the reception of the forced plants—if these are to be kept for late fruiting—should be prepared, although planting out may be deferred for a time. A few rows of forced plants of *Vicomtesse*, or other early favourite, should be put out on a warm border, for fruiting in September, when, if the trusses of bloom are thinned, the fruit comes of a good size, if somewhat lacking in flavour. *H. Markham*, *Mereworth Castle, Maidstone*.

THE ORCHID HOUSES.

THE CATTLEYA-HOUSE.—*Cattleya Trianae* is past its best, and as a plant goes out of flower, it should be examined to see if repotting has become necessary, or surfacing only. If the latter, a small quantity of peat and sphagnum moss may be put on in the place of that which it has become necessary to remove, and when this operation is done by a practised hand, the plant is kept in good health with but little expenditure of labour. *C. Trianae* is one of the easiest of Orchids to grow, but I would impress on amateurs the fact that vinery treatment the year round is unsuited to its wants, although a light position in an early house from the present time until the new growths have attained full size is good; for ripening them properly, a light, well-ventilated, kept at 55° to 60° is best, the plants being thus kept dry at the roots, but not so much so as to cause shrivelling. Under this régime, the plants are not likely to make unseasonable growth, which is always weakening, and against good bloom the next season. *Cattleyas* which are out of health regain it very readily if they are forthwith turned out of their pots, the dead root carefully cut off, and the remainder and the pseudobulbs thoroughly washed in tepid soft water, the loose skin on the latter being removed. The plants should then be placed in the smallest size of pot the roots will go into without breaking them, the interstices between the roots filled up with small crocks, but no peat until the new roots begin to break away; the plants should be put, if possible, in a warmer house than the ordinary *Cattleya*-house—the *Dendrobium*-house will do, the plants being syringed overhead two or three times daily.

***Cattleya gigas* and its varieties.**—The new growths of these plants will now be breaking, and I would again advise cultivators not to afford the plant any water at the root until it has become quite necessary, or it may be at the cost of the bloom. Those plants which were placed in heat in January for the purpose of getting some early flowers are all showing well for bloom, and the sheaths well advanced. No other *Cattleya* enjoys strong heat and much moisture in the air whilst growing more than *C. gigas*. *C. Dowiana* and its variety *aurea* are now breaking into growth in their places at this season—that is near the roof of a *Dendrobium*-house. Great care is required in the watering these *Cattleyas*, the rhizomes being subject to decay if too much water be afforded, and this, too, before any evil is suspected. Should signs of rotting or discoloration be observed, the part affected should be at once cut away. Attention must now be given to shading the houses, and the temperatures given in a previous Calendar will still hold good. *A. G. Catt, Parkfield, Hollow*.

THE FLOWER GARDEN.

TRANSPLANTING EVERGREENS.—Of all seasons of the year, the best for planting evergreens is the early part of the month of April, and in all cases where some of these shrubs have to be removed, if the plants are large, and have stood long without being removed, great care will be necessary in taking them up, in order that their roots be not damaged, and to ensure this, as far as possible, a wide trench should be opened out around the plant, at a fair distance from the stems, and the balls reduced to reasonable limits by forking the soil away a little at a time. In preparing the holes for the reception of

the plants, it is generally advisable to dig them larger than is needed for the spread of the roots, especially if the ground has not been broken before, or is at all close, and also to break up the bottom, as then the roots have every chance of ramifying, and making free growth after they once get a start. Another important matter in transplanting shrubs and trees, is not to bury up the stems by putting them deeper in the ground than they were before.

Hollies, if they are large, will need special care, and none of these, or, indeed, of the others, should be out of the ground longer than is necessary to move it from one place to the other; and in planting, the soil should be well washed in amongst the roots, and every cavity in and about the ball filled in with copious supplies of water while the work of filling up is proceeding. As soon as this is complete, attention should at once be given to staking, and staying the heads of the plants, which ought to be so secured and kept in position as to render them immovable, for nothing is so detrimental to a freshly-transplanted tree or shrub as the waving of the tops, which motion causes a strain on the roots, and breaks the newly-formed fibres. With the heads steadied, and made safe, the next thing is to mulch, and this should always be done, as it prevents any cracking of the earth, and hinders evaporation, thus keeping the roots in a uniform condition of moisture.

CLIPPING IVY.—Where buildings are covered with Ivy, it should be trimmed in close, before any growth has commenced, and the young leaves which will quickly be put forth will reclothe the surface with healthy verdure. For low walls or the bottom part of high ones, I find a sharp scythe or a switch hook the best implement to do the cutting with, as the old foliage can be shaved off quickly and close, but in parts difficult to get at so as to strike a blow, the shears must be used.

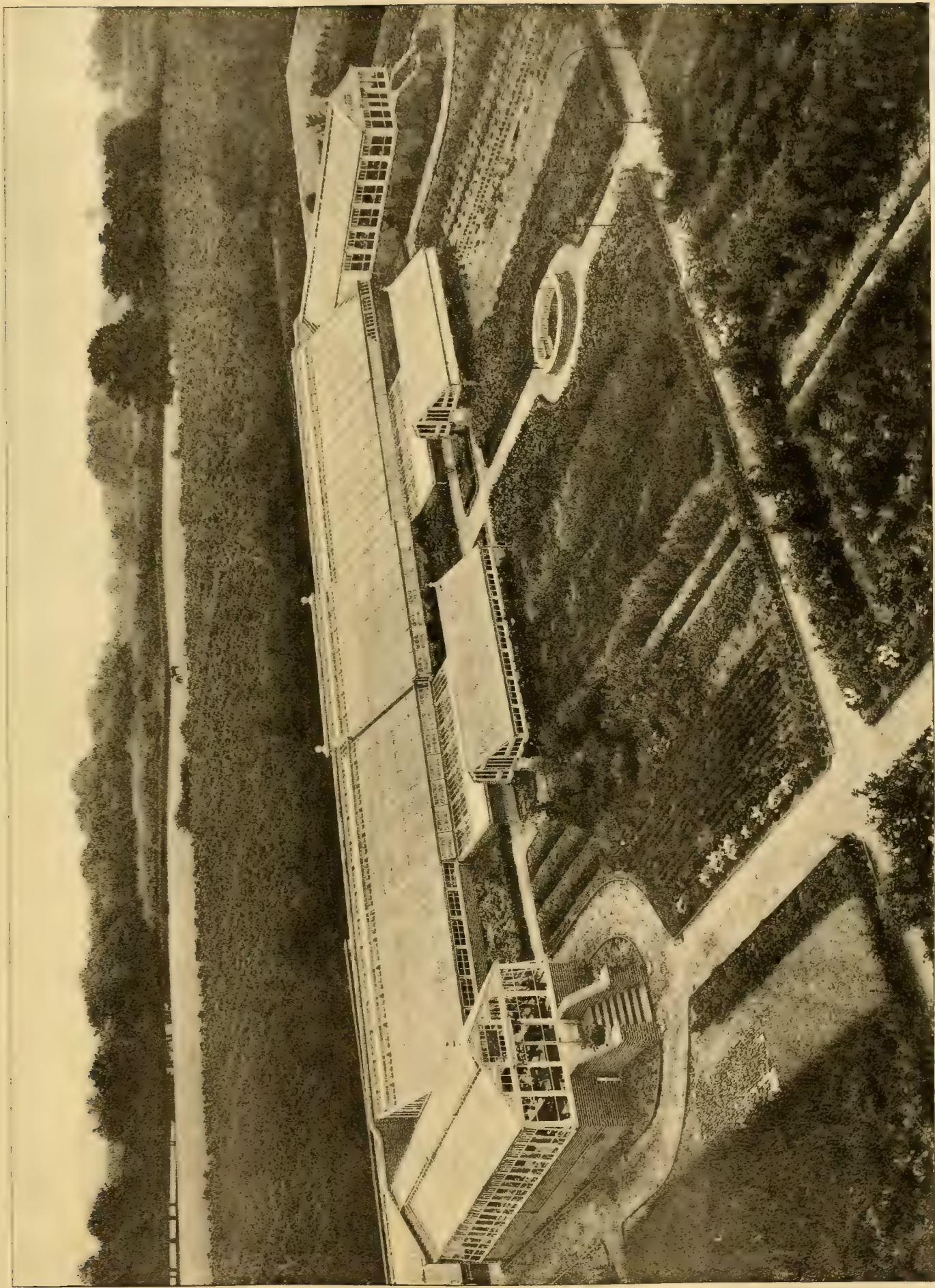
SOWING BIENNIALS.—To have plants of these large and strong for flowering next year, it is necessary to sow the seed early this year, and though it will germinate very well in the open, it is better if handlights or a cold frame can be made use of. The showiest and most useful biennials are *Campanula calyculata*, Wallflowers, *Antirrhinum*, *Pentstemons*, *Oenothera Lamarckiana*, *Sweet Williams*, *Brompton Stocks*, and *Anemone coronaria*, the latter coming very strong when treated in that way and blooming profusely.

TENDER AND HALF-HARDY ANNUALS.—Any of these, excepting *Zinnias*, which always do best sown later, should be got in now, and the easiest way of managing them, where quantities are required, is to make up a slight hot-bed frame, with the soil brought up to within 6 inches of the glass, and sow therein in rows, whence the plants may be pricked out, or planted by-and-by in the open. Shallow boxes or pans, filled with fine light rich mould, also answers well for raising annuals, and there is the advantage that they may be moved about as desired for hardening off.

BEDDING PLANTS.—*Pelargoniums* and the more hardy bedding plants should now be moved from warm houses to cool pits and frames, so as gradually prepare them for full exposure; but it is necessary and very important that they be kept close for a time, and if they have been under Vines or Peaches where they have not had full light, a slight shading for the first few days will be beneficial, as it will prevent the thin tender foliage from becoming discoloured or injured. *J. Sheppard, Woolverstone Park, Ipswich*.

FRUITS UNDER GLASS.

CUCUMBERS.—With lengthening days the plants will require more water at the roots and in the air, and the older plants will set fruits so freely, that severe thinning of these must be done. Plants which have been fruiting for some time should be afforded plenty of liquid manure, and some amount of rich top-dressing at frequent intervals, good ingredients for the purpose being bone-meal, mortar-rubble, and manure. Young growths should be tied out at regular intervals, and old shoots, or those not required for the extension of the plants, cut off. Weak liquid manure and water should be used in the evaporating-troughs at some good distance from the plants, so that there shall be no risk from the steam of over-heated pipes injuring the foliage. Plants that are infested with red-spider should be syringed with warm water in which 2 oz. of soft-soap per gallon is dissolved, or with *Quassia-water*, the



RANGE OF HOUSES IN THE GARDEN OF SIR DAVID SALOMONS, BART.
DESIGNED & ERECTED BY CROMPTON & FAWKES, CHELMSFORD.

strength of which was given by me in an early Calendar. Maintain a moist atmosphere generally, and on cold or windy days air need not be given; indeed, shade, moisture, and warmth are what the plants delight in. Always use water of the same temperature as that of the Cucurbit-house. When fumigating, see that the foliage is previously made dry, and that the plants are shaded carefully for a day afterwards. I prefer to use liquid insecticides rather than tobacco smoke. The temperatures given last month will be suitable for the next week. Young Cucurbit plants should have the leaders stopped, earthing-up being done when it appears to be required. The temperature may be 70° by night, and 10° to 15° higher, with plenty of moisture, by day. Dung-beds should now be got in readiness. Sow seeds every few weeks, or raise plants from cuttings.

TOMATOS.—The early fruits will this season, with the scarcity of vegetables, be more welcome than usual, and some of the plants should be pushed to fruit as early as possible. The autumn-struck cuttings are the best for the purpose. If the first fruiters are seedlings, they should consist of early-fruited varieties, and be kept to a single stem. *Horsford's Prelude*, *Conference*, and *Ham Green Favourite*, which ripen in the order of their names, are good ones. In succession-houses more air may be afforded the plants than the early fruiters, but in no case must there be any lack of ventilation, or the flowers will refuse to set. It is an advantage in close houses to give a small amount of air at all times by means of the ventilators at the back of the pit. Plants for late fruiting should now be potted into their fruiting-pots, using good loam, and potting them firmly. Keep them near the light in a temperature of 60° at night, 70° to 75° by day. For succession plants *Perfection*, *Hackwood Park*, and *Trophy* may be recommended; and when grown in pots the whole season, half-inch bones may be used instead of crocks for drainage, a large crock being placed over the hole. Manure is not required till a good set of fruit has been secured, when it may be freely used in a liquid state. Seeds may still be sown for late crops under glass.

VINES IN POTS.—If the Grapes are colouring, more air and less moisture should be afforded the plants, and manurial aids stopped, and every endeavour made to keep the foliage healthy. A small amount of air should be constantly afforded at the back of the pit.

EARLY PERMANENT VINES.—The berries on these will be swelling fast, and the bunches should have a final thinning if found to be crowded in the berries. Allow plenty of foliage to thin-skinned or cracking varieties of Grapes, as this will tend to remedy the evil by affording vent for the abundant sap, besides giving shade to the bunches. The borders should be thoroughly watered before the berries take on colour, the atmospheric moisture may be reduced, a good circulation of air maintained, and the evaporating-pans put out of use when this stage is reached. Later houses coming into bloom will need to be carefully ventilated, remembering that the *Muscat of Alexandria* will not stand a draught of cold air without injury. A day temperature of 80° to 85° should be kept up, and 70° to 75° at night; and in the probable case of shy setters, some artificial setting by means of the pollen of other varieties is necessary, removing any bunches not required before the flowers open. *G. Wythes, Syon House, Brentford.*

THE KITCHEN GARDEN.

MUSHROOMS.—Where materials have been got in readiness, the bed or beds may be made up; if the stable litter, &c., be not too wet, or too dry—if too wet its decay will be rapid, if too dry a steady warmth cannot be maintained, yet it should be sufficiently moist to be pressed into a compact mass, but not so moist that water may be squeezed out of it. If the bed is to be made out-of-doors, a piece of hard ground where water does not lodge should be selected, and it must be sheltered on the cold side by buildings or a plantation of trees. The bed should be made 3 feet wide at the base, and 6 inches wide at the top, and 2½ feet high, the top being slightly rounded. The making of the bed should be done quickly and well; and the materials should be thoroughly shaken, as the work proceeds, and beaten well together. The sides of the bed should

also be made firm and even. If the beds, after they have been made up, heat too violently, holes, about 12 inches apart, should be bored along the ridge. The beds should be spawned when the heat has declined to 80°, and until the time the beds are ready to be spawned, they should be protected with the straw shaken from the manure, or a waterproof covering. The spawn may be broken into pieces about 2 inches square, and placed in holes 1 inch deep and 9 inches apart; and in three or four days afterwards the soil may be laid on 1½ inch thick. Good heavy loam, passed through a ½ inch-meshed sieve is best, but any soil free from vegetable matter will answer the purpose. A sprinkling of common salt may be afforded the soil before beating it smooth. Cover the bed with litter to the depth of 1 foot, and give the bed no water until Mushrooms have begun to appear. Never cut the Mushrooms, but pull them; do not uncover the beds for any purpose, except bit by bit.

TOMATOS.—Pot Tomatos for planting outdoors, and use 6-inch pots and light turfy loam and leaf-mould. Pot firmly, and give each plant a stick for its support. Put the plants into a house having a night temperature of 55°, and one that is freely ventilated in the day time. All Tomato plants should be hardened-off previous to being planted outside in May. In districts where Tomatos will not ripen outside, pot some of the plants for outdoor fruiting in 9-inch pots two or three weeks before planting them out, and plunge them 1 inch below the level of the soil at the foot of a south wall, or in some other warm position. These plants are fastened to the walls and carefully attended to as regards water, and the training and thinning of the shoots. In early autumn put stakes in the pots, and tie to these any of the shoots which have half-ripe or green fruit still hanging on them, and remove the plants to a house where there is a temperature of 55° or 60°, and in this way fruits perfectly ripened, of 12 and 14 oz. weight each, may be gathered in October.

CARROTS.—The main crop may be sown when a favourable opportunity occurs, choosing the lightest part of the garden for the crop; and it is better for the plants if the ground has been heavily manured the previous year, and deeply trenched last autumn. Before sowing, a dressing of soot should be spread over the land, and lightly forked in; afterwards tread it moderately firm, and rake off large stones, &c. The drills may be drawn at 14 inches apart and 1 inch deep for *New Red Intermediate*, *Long Surrey*, *Altrincham*, and other large varieties. Wood-ashes may be shaken in the drills before sowing the seed; it acts as a preventive to the inroads of wireworm and the Carrot maggot. Sow thinly, or drop a few seeds into the drills, at a distance of 8 inches apart. Close the drills, and make the surface smooth with a rake. If very large roots are desired, holes should be made 16 inches deep, and filled to within 1 inch of the surface with finely-sifted rich soil, soot, and wood-ashes mixed together, the seeds being dropped into each hole, the plants to be thinned out to one to each. On stiff soils, burnt refuse, leaf mould, and sand, should be incorporated with the staple. On shallow soils it will be best to rely chiefly on the short horn varieties or intermediate kinds.

RIDGE CUCUMBERS, VEGETABLES, MARROWS, AND GOURDS.—Seeds of these plants may be sown in small pots of light soil, and placed in gentle heat until the true leaves have formed, when they should be potted off singly or the potful of plants re-potted as a whole. Remove the plants to a cold frame after they have got strong, and gradually hardened off.

RADISHES.—Sowings may be made at frequent intervals. Sow the seed evenly, but not too thickly. The ground should be rich and of fine tilth, as quick vegetation is thereby favoured, and a warm position for these sowings should be selected, protecting the seed from birds. *C. J. Waite, Glenhurst, Essex.*

PLANTS UNDER GLASS.

SEEDLINGS OF VARIOUS PLANTS.—Seedling plants of *Gloxinias* from seeds sown at the time advised, if strong, may now be shifted into small 60's, lifting them from the seed-pan with a pointed stick, so as least to disturb the smaller plants left in the pan. Make use of a rather light soil, consisting of peat and loam, a small quantity of rotted manure, and fine silver-sand. *Begonias* from seed sown in February will also be ready for potting, and as soon

as the roots have reached the sides of the pots, shift them into 5 and 6-inch pots, according to the strength of the plants, using at this potting a rich compost. Early-sown *Cockscombs* will now be ready for putting into thumb-pots; they should be shifted on as fast as the roots reach the sides of the pots, and sunk low in the pot each time, until they are big enough to go into the flowering pots, which should be 6 to 8 inches deep; then, by allowing them to become pot-bound, the combs are soon produced. The best place to grow *Cockscombs* is in a pit or frame, having the means of affording a slight bottom-heat, within a few inches of the glass—a dung-bed frame answers well—until the combs are formed, giving a little shade during the hottest part of the day.

Prick off *Torenia*s from the seed-pan, and when large enough, pot them off singly in small pots, and subsequently into larger ones. The *Torenia*s make very useful pot plants, and they are also well adapted for hanging baskets. Support the branches as growth proceeds, and keep them free from greenfly by dipping in a weak insecticide, or by fumigation.

IPOMCEA HORSFALLIÆ.—In striking cuttings of this most useful plant, which no doubt is more difficult to propagate than most stove plants, care should be taken in not using the soft, young growths, but giving preference to pieces of the firm wood, from 2 to 3 joints in length; put these singly into small pots filled with sharp sand, and after they are inserted, place them in a warm stove, under a bell-glass, till they are callused over at the base; afterwards the pots may be plunged in a brisk bottom-heat, giving attention to shading when the sun is bright, and to maintaining a confined atmosphere. *R. Milner, Penrice Castle, Swansea.*

THE APIARY.

BUYING BEES.—As swarms rarely yield any surplus worth mentioning the first year, except with special management, a season can be saved by buying established stocks now. April is about the best month in which to commence bee-keeping, and stocks stand less risk in being moved then than at any time. The excitement, too, which shifting the bees engenders, has the effect of stimulating them to increase at a greater rate than if they had not been disturbed. If wanted for a movable-comb hive, bees should be procured on standard frames, as there is nothing gained at this time by obtaining a skep with the idea of transferring to a frame-hive. A good stock should now consist of at least seven frames, well covered with bees, and it is preferable that it should be headed by a queen hatched the previous season. If there is any doubt on the latter point, it may be decided by ascertaining if the stock swarmed last year or not, as of course the old queen always goes off with the swarm. Bees, excepting swarms, should not be bought nearer home than two miles, for fear of many returning to their old quarters; but this difficulty can sometimes be got over by moving them two miles further off, and bringing them to the required spot after the lapse of a fortnight. As foul brood (*Bacillus alvei*) was very prevalent last year, too great care cannot be taken in buying bees, so as to guard against the importation of such a terrible scourge; and it would be well to obtain a guarantee that they are healthy at the time of purchase, if an examination cannot be made.

FOREIGN BEES.—Now there is such a rage for foreign races, it may be well to say a word or two about them. *Ligurians* are perhaps the most satisfactory of them all, but their comb-honey always looks dark through their not leaving an air-space underneath the wax-cappings, which makes them inferior to our native bees. It has been claimed for them that they do not gather honey-dew, but this is a mistaken idea. The first cross between this variety and blacks are excellent honey gatherers, but their cappings are rough, and subsequent crosses generally bring vindictiveness. *Carniola*s are useful bees if it is required to work up a number of colonies in a short time, after which the plan would be to requen with blacks. The object of this race seems to be the perpetuation of the species at the expense of storing honey, as swarm they will, in season and out. They are good tempered when pure. *Cyprians* are very handsome bees, but they exhibit the same fault as *Ligurians* in the matter of cappings; their temper cannot be depended on, and they have therefore gone out of favour. Reports do not speak very highly of the *Minorcan* and *Punic* races. *Esper.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens not sent for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking for sound manuring tips and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

SUNDAY, APRIL 5—Antwerp.

FRIDAY, APRIL 10—Aberdeen (two days).

SALES.

MONDAY, APRIL 6 { Lilies, Roses, and Plants, at Protheroe & Morris' Rooms.

TUESDAY, APRIL 7 { Portion of the Fernside Collection of Orchids, at Protheroe & Morris' Rooms (two days).

WEDNESDAY, APRIL 8 { Border Plants, Rose and Fruit Trees, Liliums, &c., at Stevens' Rooms.

THURSDAY, APRIL 9 { The Bankside Collection of Orchids, &c., at Stevens' Rooms.

FRIDAY, APRIL 10 { New and Rare Orchids, at Protheroe & Morris' Rooms.

SATURDAY, APRIL 11 { Border Plants, Rose and Fruit Trees, Liliums, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—47°.

The Fog Report, and its Lessons.

THE preliminary report by Professor FRANCIS OLIVER on the effect of fog on plants cultivated within the metropolitan area, which we published last week, has a special interest apart from its intrinsic importance. On this latter point, we need say little. Market gardeners and all those whose misfortune it has been to have to conduct gardening operations either out-of-doors or under glass during the late winter, are painfully familiar with the difficulties this hideous fog imposed on them, and fully conversant with the actual mischief and losses inflicted by it; nor does there seem much doubt as to what are the peculiar ingredients in the fog which, in association with the defective light, must be held responsible for the damage done to the plants. There are, however, many points which need further investigation, especially as regards the varying amount of injury done to different plants, to particular plants at particular stages of growth, and as to the circumstances and conditions under which the fog is more injurious at some times than at others. These questions are more or less complicated with others arising from low temperature, excessive moisture, and stillness of the atmosphere, and especially absence of light. Their relation to variations in the anatomical structure of the leaves and flowers is of the most intimate kind, and these, doubtless, in future reports will receive the attention they deserve from Dr. OLIVER, Dr. SPORR, and others engaged in these researches.

Although gardeners as such have little control over the smoke nuisance or the production of fogs, it is certain that by various methods of air-filtration, by the use of the electric or other artificial light, and by the selection of appropriate plants they may eventually be able to cope to a considerable extent with the loss and inconvenience caused by fog. The fog will turn out to be a blessing if it hasten the use of electric light in forcing-houses, or promote other aids to

cultivation. In passing, we may allude to one marked instance of comparative immunity in the case of Fuchsias that were wintered in a greenhouse, together with an ordinary mixed collection. The Pelargoniums are nearly all killed, the Chinese Primroses sadly crippled, but the Fuchsias have made sturdy growth during the whole season, the newly-developed, somewhat glossy, leaves not suffering in the least. Camellias also dropped their buds very freely; but as they do this in almost every season, the fall this year cannot be attributed specially to the malignities of the fog fiend.

Reverting to the preliminary report published in our last issue, and eagerly awaiting the fuller details which are promised us, we may now pass to the other special points of interest connected with it. In the first place, it is, so far as we remember, the very first instance in this country in which a grant of public money has been made for any purely horticultural purpose. The distinctively scientific experiments of a horticultural character that have been made in this country have been few and feeble as compared with what have been carried on in agriculture, and what little has been done has been effected by private means, or without fee or reward. The Royal Horticultural Society has, indeed, at various times offered to experimenters the use of the Chiswick garden, but it has rarely if ever been in a position to afford pecuniary assistance.

Fully convinced that the progress of agriculture and of horticulture in the future must, to a very large extent, be directly dependent on the development and application of the knowledge of plant-life, and of the circumstances affecting it, we congratulate the Royal Horticultural Society and its Scientific Committee on this new departure. Whatever the final verdict may be as regards this particular inquiry, an example will have been set which we may hope will be so vigorously followed up, that we may not much longer have to bemoan our own backwardness as a nation in these matters. We have often and often pointed out how much better equipped are other countries, such as Belgium, France, and Germany, than we are; whilst the numerous station-reports and bulletins which we receive weekly or monthly from the United States, show how keenly alive our practical cousins are to the importance of scientific knowledge as applied to practice. Some people still seem to be afraid of the words science and scientific. They look upon "science" as a sort of fetish which the strong-minded practical man may hold in derision, or the weak one regard with doubt and apprehension. But what does it all come to? Is it not this, that other things being equal, the man who knows his business best will succeed best. If this be so, how can a gardener or a farmer be said to know his business if he is ignorant of its first principles? How can he meet with success the new circumstances and adverse conditions to which he is exposed? He cannot afford to remain as his father was before him—he must progress, or be left behind.

The report of the Agricultural Experiment Station attached to Cornell University, Ithaca (New York), is now before us, and is very suggestive from our present point of view. It contains descriptions of the farms, gardens, forcing-houses, laboratories, dairies that have been established there; and comprises reports of the chemist, the botanist, and arboriculturist, the cryptogamic botanist, the entomologist, the agriculturist, and the horticulturist. These gentlemen severally detail the work they

have done in the course of the year in instructing their pupils, conducting researches, instituting experiments, and acting as referees to the farmers and gardeners of the country. We are not entirely destitute of such institutions here, but they are not equipped like this; and whilst we should be troubled to find six institutions, which approximate to the one referred to, nearly every State and territory in the Union has one, whilst the Central Department of Agriculture at Washington, is on a scale which leaves us far behind as regards the advancement of horticulture and agriculture by what are called scientific means. The report before us contains an account of the farm buildings, including the "insectary," where the structure and habits of injurious insects are studied, and experiments carried out to ascertain the best methods of preventing or palliating the injuries they inflict. Reports in the shape of bulletins, containing information useful to farmers and gardeners, are circulated from the station by tens of thousands of copies during the year. The Botanic Department comprises libraries, herbaria of useful and economic plants, in addition to those representative of the flora of the district, collections of vegetable products of all kinds, fungi, models of flowers and fruits, microscopes and other instruments of research, and a botanic garden. The diseases of plants, especially of those caused by parasitic fungi, receive special attention, and Professor DUDLEY aptly points out in his report what is too often overlooked, that "many plant diseases have their basis in some physiological derangement in the plant itself, and that a better knowledge of the conditions of the health and hygiene of various forms of greenhouse plants is quite as essential as a knowledge of the particular mineral poison which will destroy the parasite likely to appear after the 'host' has fallen into ill-health." This is particularly a subject in which the practical cultivator should work hand in hand with the physiologist, and one in which the experience of the practical man is of special value.

Turning to the report of the horticulturist, Professor BAILEY, we find that a large amount of experimental work has been carried out, as much as could consistently be done in a youthful institution, whose first forcing-house was only erected in 1889. At present there are seven houses in three ranges. One of these houses—and we note it in special reference to the fog experiments—was devoted last winter to experiments with the electric light—experiments which are still in progress, and concerning which Prof. BAILEY speaks as follows:—

"House B was lighted by electricity during every night in last January, February, March, and part of April, receiving sunlight during the daytime, while house A was kept under ordinary conditions. Each of the four benches running lengthwise of the house was planted continuously. Peas, Endive, Spinach, Radishes, and Lettuces, were the chief subjects of the experiments, although some flowering plants were used. The results were marked in every case; so much so, that it was determined to repeat the experiment during the present winter, under somewhat different conditions. . . . This year we are making the test under what might be called practical conditions, by running a street lamp into the houses. This runs only half the night. In addition to these experiments, we shall this winter make experiments upon the influence of electric light upon colour, and for this purpose we are growing named varieties of Heliotropes, Verbenas, Tulips, Petunias, Coleus, Primula, Fuchsia, and some other plants. The present indications are, that we shall be ready to report upon this series of experiments at the close of the winter."

Other experiments have reference to hybridisation, cross-breeding, methods of propagation, the action of fertilisers on fruit trees, and the discovery of the cheapest source of nitrogen for practical use. Besides these, there are the trials of novelties and the display of well-tried varieties grown for purposes of instruction and comparison, whilst drawings and photographs of many dried specimens of every variety of plant cultivated in the garden are collected and preserved. Of the similar institution under the direction of Professor TREBLESE, at St. Louis, and the provision there afforded to garden pupils for a complete training of gardeners both in the principles and practice of gardening, we have already spoken.

In the present condition of agriculture, it is evident that horticultural methods and practices must, to a considerable extent, supersede the old farming practices, so that it is more than ever necessary that original research and instruction in matters horticultural should be allied to the mere practical routine of cultivation. It is on these grounds that we look on the fog report as a hopeful sign of progress, and one for which we have looked long and earnestly.

APPLICATION OF SCIENCE TO PRACTICE.—

Among the publications received within the last few days only, and which have reference to the subjects mentioned in our leading article, are the following:—

UNIVERSITY OF ILLINOIS AGRICULTURAL EXPERIMENT STATION.—Contents of *Bulletin* No. 13—Field Experiments with Corn (Maize), under eleven heads. *Bulletin* No. 14—Milk Tests. *Bulletin* No. 15—The Fruit Bark Beetle; Grass Seeds and Clovers; The Use of Fungicides upon the Potato, the Apple, and the Grape.

UNITED STATES DEPARTMENT OF AGRICULTURE.—*Insect Life*, vol. iii., No. 5, devoted to the proceedings of the Association of Economic Entomologists. *Fungous Diseases of the Grape and their Treatment*, by B. T. GALLOWAY, *Farmers' Bulletin*, No. 4.

GOVERNMENT AGRICULTURAL EXPERIMENT STATION FOR NORTH DAKOTA.—*Bulletin*, No. 1—Grain Smuts.

LOUISIANA STATE UNIVERSITY.—*Bulletin* of the Sugar Experiment Station at Audubon Park, New Orleans. Dr. STUBBS, Director. Also report of the Experiment Station.

MISSOURI BOTANICAL GARDEN, ST. LOUIS.—*Second Announcement concerning Garden Pupils*. Dr. TREBLESE.

MICHIGAN STATE AGRICULTURAL COLLEGE, HORTICULTURAL DEPARTMENT. *Vegetables, Varieties and Methods*, by L. R. TAFT. *Beet-Sugar*, by R. C. KEDZIL; *Six Worst Weeds*, by W. J. BRAL, of the Botanical Department.

QUEENSLAND DEPARTMENT OF AGRICULTURE.—*Canning and otherwise Preserving Fruits for the Home and the Market*. E. M. SHELTON.

Tobacco and its Cultivation in Northern Queensland. By S. LAMB.

JAMAICA.—*An Index to the Economic Products of the Vegetable Kingdom in Jamaica*, compiled by WILLIAM FAWCETT, F.L.S., Director of Public Gardens, Jamaica.

Cape Colony.—*Agricultural Journal*, published fortnightly by the Department of Agriculture.

PARIS.—*L'Ecole Nationale d'Horticulture de Versailles*. Par ED. ANDRÉ. Paris: Rue Jacob 26.

HIBBERD MEMORIAL FUND.—The Committee beg leave to announce that this fund, instituted for the purpose of securing a portrait of the late Mr. HIBBERD, to be placed in the Lindley Library, and with the object of securing a fund for the benefit of Mr. HIBBERD's orphan daughter, will be closed on April 30, 1891, and they particularly request that all subscriptions may be paid to the Treasurer on or before that day. The amount received or promised up to this date, is about £240, a sum which it is hoped may be considerably augmented before the closure of the fund, especially by the receipt of numerous small sums from the many who hold Mr.

HIBBERD's name in respect. Subscriptions should be sent to the Treasurer of the Fund, Dr. MASTERS, at the Royal Horticultural Society, 117, Victoria Street, Westminster.

LECTURES BY THE BRITISH FRUIT GROWERS' ASSOCIATION.—In response to the invitation of several members of the County Council, the above body has made arrangements for delivering the following course of six lectures in any part of Great Britain:—1st, "The Principles of Vegetable Life"; 2nd, "Soil Constitution, and Management"; 3rd, "The Culture of Apples and Pears"; 4th, "The Culture of Stone Fruits"; 5th, "The Culture of Small and Bush Fruits"; 6th, "Gathering, Packing, Marketing, and Preserving Fruits."

GARDEN LITERATURE.—Mr. BURBIDGE's lecture to the ladies of the Alexandra College, Dublin, was attended by the Duchess of Leinster, Lady Cloncurry, Dowager Countess of Mayo, Mrs. Barton, Miss Stokes, and many others. The lecturer's treatment of the subject was very complete, embracing a survey of the literature of gardens and gardening, arranged under the following heads:—1, Bibliographical (such as PRITZEL'S *Thesaurus*); 2, Historical; 3, Dictionaries; 4, Technical or Practical; 5, Sumptuous or Pictorial; 6, Periodicals; 7, Miscellaneous; 8, Artistic, or Landscape Gardening; 9, Trade Lists; 10, Garden Economy. In dealing with this subject, the lecturer pointed out which books were to be treated as historical curiosities, which to be referred to as standard treatises, and which to be always at hand and in constant use. To dilute this concentrated literature, freshen the spirits of the hard-working student, and open up vistas which the mere technical details alone would never reveal, Mr. BURBIDGE was careful to recommend a course of CHAUCER, SHAKESPEARE, HERRICK, SHELLEY, and RUSKIN, whilst ALPHONSE KARR, Miss HOPE, Mrs. BOYLE, H. A. BRIGHT, Mrs. EWING were all duly mentioned in this connection. A tolerably extensive programme this for the lady students! If, as is most probable, they have to make a selection from Mr. BURBIDGE's list, there is one book, at least, they cannot afford to dispense with, and that is Mr. BURBIDGE's own work on *Cultivated Plants, their Propagation and Improvement*. This is a book about which the author himself was too modest to say much, but which, in spite of a rather eccentric method of arrangement, contains within its two covers a larger amount of varied and accurate information on the subjects on which it treats than any book we know of. The copious index, moreover, compensates for any peculiarity of arrangement.

HENRY GROVES.—We extract from the *Pharmaceutical Journal* the following obituary notes of a well-known botanist, and one who showed much kindness to the English contingent to the Florence Botanical Congress, some years since. Mr. GROVES died on March 1, from diabetes. "Mr. GROVES, though an all-round chemist of unusually wide and varied experience, devoted himself mainly to the prosecution of botany, which, for the greater part of his life, he followed with ardour. When a lad, he would walk to Portland Bill and back, a distance of twelve miles or more, in pursuit of his favourite occupation, starting at daybreak, and returning in time for commencing the day's business. As a collector, he speedily exhausted the Weymouth district, so that he gladly welcomed the fresh fields and pastures new offered by Italy. In 1871 he married a Genoese lady, who thoroughly sympathised with his tastes, helped him with his collections, and often accompanied him on his excursions. These were undertaken during the summer, when business at Florence comes to an almost complete standstill, and often were continued for six weeks at a stretch, the most out-of-the-way and unexplored localities being chosen for investigation. In turn were visited Monte Argentaro, the Maremma, the Abruzzi, including Monte Marrone, Monte Majella, the Apennine Alps, Monte Gioja, the Apennines, South Italy, including Otranto, Taranto and Gallipoli, Sicily and Tunis. Some of these trips exposed the party to considerable privation, owing

to the absence of places of shelter other than that offered by the squalid cabins of shepherds, or the more wholesome if somewhat airy refuge afforded by caverns. The necessities of life had to be carried on mule back, and the only meat obtainable was *miscischia*, the salted and air-dried flesh of some unfortunate sheep or goat, killed by falling from a precipice. *Chenopodium Bonus-Henricus* was found not a bad substitute for the usual green food of civilisation. In this way, Mr. GROVES amassed a very large collection of dried plants, and obtained a knowledge of Italian botany not perhaps excelled in his day. But in addition to the plants of his own collecting, he acquired a vast number of European species by means of exchange with the numerous small Exchange Societies to which he was affiliated. At the time of his death the total number of specimens in his Herbarium amounted to close upon 50,000, the arrangement and custody of which had absorbed the greater part of his spare time, leaving but little for recreation. The whole of these, with the exception of a comparatively small number of cryptograms, has been left to the Central Botanical Society of Tuscany, to be incorporated with its present collection. Of this Society he was one of the founders, and sometime President. Mr. GROVES succeeded in adding not a few new plants to the Flora of Tuscany, and one new to science received the specific name of '*Adalgisa*,' in honour of his wife. It is much to be regretted that an exhaustive paper on '*Statice*,' his favourite genus, on which he had bestowed great pains, and spent much time in excursions to various points on the Mediterranean shore, was left at his death unfinished."

THE FARMERS' AND GARDENERS' SUPPLY SOCIETY.—The Rev. HARRY JONES, in the columns of the *Times* for March 23, details the steps he and others have, in association with the Great Eastern Railway Company, taken to bring the producer and consumer into nearer relation to the advantage of both. These have culminated in the formation of a society by the aid of which farmers and market gardeners may sell, and consumers buy without the mediation of the middleman. We wish all success to the project, but we must deprecate any exaggerated estimates of the advantages to be derived from the banishment of the brokers or salesmen. These gentlemen have knowledge of the requirements of the market from day to day, and of the best and readiest means of supplying those requirements, which neither producer nor consumer can have—and that knowledge, brokers not being men of science or young doctors, has to be paid for.

ANTWERP.—On the occasion of the 300th anniversary of the invention of the microscope, a general exhibition of microscopes, and everything relating to them, will be held at Antwerp in August and September next. All applications for space must be made before April 15, to Dr. VAN HEURCK, the President of the Exhibition at the Botanic Garden, Antwerp. The schedule comprises ten classes. Among the executive body we note the names of M. CH. DE BOSSCHÈRE, Dr. VAN HEURCK, and M. CHARLES VAN GEERT, names which offer a guarantee of the importance of the exhibition.

ST. BARTHOLOMEW-THE-GREAT.—We learn from the *City Press* that notice has been given to intending exhibitors that the annual exhibition of the parochial Window Gardening Society will take place at the end of July, and the *Parish Magazine* for March contains the regulations for competitors. Seeds of Calvary Clover, so well known to past and present dwellers in the parish, may still be obtained of the vergers. The sale of the seeds has realised nearly £30 towards the restoration of the church, applications for them having been received from such distant lands as the United States, Canada, India, and New Zealand.

HANDBUCH DER NADELHOLZ KUNDE (Handbook to the knowledge of Conifers).—Under this title, Mr. BEISSNER has prepared, and M. PAUL PAREY, of Berlin, has published, an important work

on the Conifers that are cultivated in the open air in Germany. The book seems very complete, both botanically and culturally, and is liberally illustrated. We must defer further notice till our columns are less crowded, but lose no time in recommending those interested in the subject, and to whom the German language offers no obstacle, to place it at once on their shelves.

ARSENICAL COMPOUNDS.—The judicious use of these under suitable conditions is now known to be very serviceable in the case of certain insect pests, but those who use them should never forget that they are dealing with a deadly poison, and one which is or may be prejudicial to plants as well as animals. In a circular relating to Paris Green (poison) —an excellent insecticide properly used—it is said that “arsenic cannot be assimilated by the plant in the economy of growth. All plants grown in arsenical soil tried by MARNÉ’s test failed to indicate the presence of arsenic. Potatoes subjected to applications of Paris Green failed to give evidence of the presence of arsenic.” We are not in a position to controvert this statement as regards Paris Green, but it is assuredly one which should be substantiated by clear evidence. Even supposing the Paris Green, as such, to be insoluble in water, it may undergo chemical changes which modify its solubility and develop its poisonous character. In any case, the statement that arsenic cannot be absorbed by plants is distinctly opposite to the account given in the first volume of *PEREIRA’S Materia Medica*, 3rd edition, p. 655, where several references are given to experiments showing the injurious effect of arsenic on plants.

RHODODENDRON COMTESSE DE BARI.—This is a newly-introduced deeply-coloured Rhododendron, with compact trusses of rather small flowers of a bright crimson, with deep purple brown spots. It was raised by M. M. CROUX et fils, of Val d’Aunay, near Sceaux, France, and is figured in the last number of the *Revue Horticole*.

THE DUKE OF PORTLAND has consented to become a President of the Ball Committee, which has arranged to hold a “Flower Ball” at the Hôtel Métropole on Tuesday, May 5 next, in aid of the funds of the Home of Rest for Horses, Friar’s Place Farm, Acton.

THE REVIVAL OF THE PANSY.—A Midland Counties Pansy Society has been formed at Birmingham. A schedule of prizes and regulations has been issued, and it appears the first exhibition is fixed to take place on June 10, at Birmingham. While some important classes are open to trade growers, there are several restricted to amateurs, the intention being to encourage the cultivation of the Pansy for exhibition by this class. Four classes are open only to what is known as “maiden growers,” that is, persons who have never won a prize for Pansies. The trade growers will be able to show stands of forty-eight and twenty-four blooms, in addition to smaller numbers, and one particularly interesting class in this section will be for twenty-four new fancy Pansies sent out in the autumn of 1889 and subsequently. The Hon. Sec. is Mr. WILLIAM DEAN, Dolphin Road, Spark Hill, Birmingham.

SPRAYING MACHINES, ETC.—The judges appointed by the Crystal Palace Company to examine the various apparatus for the spraying of trees, have presented their report, but owing to the very different features of the four machines entered for the competition, they did not feel justified in awarding to any one the medal placed at their disposal, as they did not compete on even grounds. It is, therefore submitted by the judges, Messrs. A. F. BARRON, G. BUNYARD, and J. WRIGHT, that there should be another trial, when the schedule could be divided as follows:—A. Prizes for machines capable of spraying fruit trees with Paris Green or other insecticide in large orchards and plantations, to a height of 50 to 30 feet, not requiring more than three men to work them by manual labour only. B. Prizes for machines to spray dwarf fruit trees, wall trees, and plants in

large conservatories, to be worked by not more than two men. C. Prizes for hand machines capable of being managed by one boy or man, suitable for amateurs and private gardens. Such a course would be a great advantage to all interested in the question of spraying machines, and would also assist the public. The report goes on to describe each of the machines entered, viz., the Stott Distributor, the Stott Syringe, Vermorel’s Knapsack, Snow’s Helmet, and Hemmingway’s American, with details as to prices, &c., and a First-class Certificate was awarded in each instance. As regard the machines themselves, there is nothing to be added to what was said in our issue of March 7, 1891, p. 309, when all of them, with the exception of the Hemmingway pattern, were fully described, but this last was not then seen in action. It is an excellent machine, specially adapted for work on a large scale, and gives a strong jet and a dense spray, reaching 24 feet as required.

BEE KEEPING AND THE COUNTY COUNCILS.—Application has been made to the County Council by the Essex Beekeeper’s Association for a grant from a fund of £17,000 at its disposal for the furtherance of technical education; and a resolution was adopted at the last meeting of the British Beekeeper’s Association to call attention to the advisability of other county associations adopting a similar course.

BRITISH ORDER OF FREE GARDENERS.—We read in the *Scotsman* that the tenth annual soiree and concert, under the auspices of the British Order of Ancient Free Gardeners’ Friendly Society (East of Scotland District) was held last night (March 20), in the Music Hall, George Street, Edinburgh. There was a crowded audience. The Grand Secretary of the Order, Mr. J. BOID, presided. In the course of his remarks, the chairman said two lodges had been added to the Order during the past year, the total number being now twenty-three. The funds during the year had increased by £1400, the total amount being £7000. There had also been an addition of 333 members—the total membership now standing at 3023. There had been paid during the past year in sick allowance £1300, in funeral claims £433, and for doctors and medicines £450. He urged upon the audience the importance of being attached to a friendly society.

THE VIRTUES OF LONDON SOOT.—Mr. MARTIN J. SUTTON, of Kidmore Grange, Caversham, Oxon, writes in *Daily News*, March 21: “In Wednesday’s issue of your paper, commenting on a letter of mine to *The Agricultural Gazette*, you write that the London soot deposited on my land, 37 miles west of St. Paul’s, by a single night’s fog, was 8 lb. per acre. Dr. ASHLY, the public analyst, reports that no less than 25.95, or say 26 lb., of soot fell per acre; of which 7.9, or say 8 lb., consisted of carbonaceous matter. The recent continuous fogs, apparently equally charged with London soot, brought by gentle easterly breezes, have not only given a valuable dressing to my pastures, but made my sheep as black as those we are accustomed to see in Hyde Park.”

STEALING FLOWERS.—At the Highgate Petty Sessions, Wednesday, March 18, two school-boys were brought up, charged on remand with being concerned with three other boys, not in custody, in stealing thirty Crocus plants, value 4s., the property of Mr. GOON, from the front garden of 22, Nassington Road. The Bench told the prisoners that the punishment that might be inflicted for stealing flowers out of a garden was six months’ imprisonment, and that they should have sentenced them to receive six strokes each with the birch if they had been able to do so. As it was, they would be fined 2s. 6d. each, which their fathers would have to pay.

ROSA RUGOSA CALOCARPA.—Under this name, M. ANDRÉ describes in the *Revue Horticole*, a Rose remarkable for the profusion of its rose-

coloured flowers, which are succeeded by a large number of bright red berries, which remain on the bush till the frosts come. It is one of many seedlings raised by M. BRUANT of Poitiers, out of *R. rugosa* by the common monthly or Bengal Rose.

CATTLEYA VEDASTIX.—A hybrid out of *C. Loddigesii* by the pollen of *C. Pinelli marginata*, raised by M. PERRENOUD, and figured in the February number of the *Orchidophile*. The flower is like that of *C. Loddigesii*, but the lip is golden yellow at the base, with purple stripes, whilst the front lobe is violet-purple, bordered with a narrow crinkled white edge.

CACTACEÆ.—The latest botanical revision of these singular plants is that of SCHUMANN in the *Flora Brasiliensis*. He admits twenty genera, comprising about 900 species. All the genera are exclusively American, with the exception of one species of *Rhipsalis*, which is found in South Africa, Mauritius, and Ceylon; and a few species of *Opuntia*, which have probably been introduced into the Old World from the New. Mr. SCHUMANN first subdivides the order into the *Cereoideæ* and the *Peireskioideæ*. The *Cereoideous* group includes the *Echinocactus*, *Mamillaria*, *Rhipsalis*, and *Opuntia* sections, with their several genera; whilst the *Peireskia* section comprises the anomalous genus which gives it its name.

SEED EXCHANGE LISTS.—We have received the following, in addition to others previously acknowledged:—*Delectus seminum ex horto Cantabrigiensi academiæ*, &c. (Cambridge Botanic Garden).—Royal Botanic Garden, Edinburgh.—*Hortus Botanicus regie universitatis Claudiopolitane* (Klausenburg, Hungary, Dr. KANTZ, Director).—*Index seminum horti regii Botanici Panormitani* (Palermo, Baron TODARO, Director).—Royal Botanic Gardens, Glasnevin, F. W. MOORE, Director.

DITTON HORTICULTURAL SOCIETY.—The Schedules of the Ditton Horticultural and Industrial Society for 1891, which is now issued, contains, in addition to prizes confined to the district, offers of valuable prizes, open to all comers, presented by Messrs. Sutton & Sons, Reading; the Native Guano Company, London; Messrs. J. Peed & Sons, Roupell Park Nurseries; Lewis & Williams, Thames Ditton; Carter, Page & Co., London; and Messrs. Barr & Son, Long Ditton Nurseries. Schedules and all information may be obtained of the Hon. Secretary, Mr. W. Palmer, Thames Ditton House, Thames Ditton, Surrey.

SIGNOR TRIANA’S HERBARIUM.—The botanical collections of this eminent botanist, lately deceased, have been secured by the authorities of the Natural History Museum. Among them are doubtless many New Granadan Orchids, and other plants interesting to horticulturists.

STEALING PLANTS FROM KEW GARDENS.—Among the holiday charges at Richmond Police Court, on Tuesday, March 31, a man was charged with stealing a number of valuable Cactus plants from one of the houses at Kew Gardens. It appeared that the theft was of a very impudent character, and was committed at a period of the day when crowds of holiday-folk were inspecting the contents of the various houses in the gardens. The prisoner was detected in the act of cutting one of the plants, and when brought before Mr. NICHOLSON, the Curator, no fewer than eighteen varieties of Cactus were found in his possession, including the choicest and most valuable. The prisoner, who pleaded guilty, was fined 40s. and costs. *Globe*. We hope the hooked prickles remain in the skin of the knave in order to keep him void of offence in the future.

“MEEHAN’S MONTHLY.”—It was not to be expected that our old friend and colleague, THOMAS MEEHAN, could suffer himself to lie fallow just because, owing to the death of its proprietor, the

Gardeners' Monthly has come to an end. Mr. MEEHAN has not only the faculty of always seeing something worth seeing, but he is impelled by the desire of making others see and appreciate also. Hence we are by no means surprised to see on our table a prospectus of *Meehan's Monthly*, an octavo magazine, to be devoted to general gardening and wild flowers. Each part will contain a coloured plate. "Thousands," says Mr. MEEHAN, "who have no gardens, are in love with wild flowers, while the knowledge gained through our extensive horticultural operations must be of service to those who love gardening, but have not the time to experiment as we can." The new magazine is to appear on July 1, and we most cordially wish it every success.

LAWNS AND CRICKET-GROUNDS.—Messrs. J. CARTER & Co. have published some useful notes on the formation and management of lawns, concerning which questions are frequently addressed to us.

HOW TO USE NITRATE.—The value of nitrate of soda as a manure is generally acknowledged. It is specially valuable in increasing and stimulating the growth of the succulent parts of vegetation, and when combined in due proportion with alkaline salts and phosphates, which aid the maturation and the development of the fibrous tissues, it forms an ideal manure. Owing to its soluble nature, however, it soon runs away in the drainage-water, so that, to prevent waste, it requires to be used with discretion at the right time, and under suitable conditions, as explained in the pamphlet before us, published by STREET & Co., 30, Cornhill. We believe the use of nitrate would be found specially serviceable to market gardeners, particularly to those who have a difficulty in procuring a sufficiency of farmyard manure. Its use in orchards is also to be highly recommended.

THE LATE GUSTAVE DIPPE.—We learn from the *Illustration Horticole* that, by his will, M. DIPPE, the eminent seedsman, has bequeathed 300,000 marks = £15,000, to the working gardeners and apprentices of Quedlinburg, a similar amount for the benefit of other artisans in the same town; £2400 to the gardeners of Halberstadt, £3000 to other workmen of that town; £2000 for the gardeners of Neundorf, and £2400 for other workmen of that place.

AGRICULTURAL PRODUCE.—Under the auspices of the Board of Agriculture, has been issued a statistical report showing the estimated total produce and average yield per acre of the principal crops of Great Britain for the year 1890. A general increase as compared with the preceding year is noted for all grain crops, but a deficiency is recorded in all root crops, Potatoes being as much as 14 per cent. below the mean of 1889. The average yield of Wheat seems to be between 27 and 28 bushels per acre. Hay was also deficient, and Hops likewise. As if there was not already sufficient confusion in our system of weights and measures, it now appears that there are "acres" and "Hop acres"—a circumstance which has led to some slight error, now corrected. The pamphlet may be had for 4d., from EYRE & SPOTTISWOODE, East Harding Street, Fleet Street.

WALMER CASTLE.—This quaint old fortress is almost in the sea. In it died the great Duke; and his successor, Lord GRANVILLE, made it his favourite resort. The gardens attached to the Castle are of necessity very restricted, and were reorganised some years ago by the late Mr. MASTERS, of Canterbury.

DAFFODIL FÊTE IN DUBLIN.—We hear that this show, held on March 1, was a great success. People flocked in crowds to see the Daffodils, and help forward the endowment of the Scholarships in Horticulture and Botany, to be established under the auspices of Miss WHITE. The Cork, Waterford, and Queen's County Stall "was a picture," and from Co. Limerick there was a fine group of Orchids. The Narcissi from the Countess of MAYO excited

great admiration, and all the stalls showed elegance of taste characteristic of the Emerald Isle.

BRIGADIER-GENERAL COLLETT, who is to take command of the troops despatched to Manipur, is not only known as a distinguished soldier but as a keen botanist. The plants collected by him have been described by Mr. HEMSLEY. Among them is the *Rosa gigantea* figured in our columns, and which attracted so much attention at the Rose Congress.

PINUS DEL DOCTOR.—In January, 1885, p. 103, figs. 22, 23, we were enabled to figure a specimen tree, together with foliage and cones of the elegant

scales less elevated, but more drawn to a flattened pyramid. It is a much larger and taller tree than the species, growing upwards of 100 feet high, but at a much lower elevation." The general appearance of the cone is shown in the accompanying figure, the scales being glossy, and of a pale fawn colour. Messrs. ROVELL, of Pallanza, have been good enough to send us branchlets, which are slender, glabrous, angular, pinkish-brown. The buds are cylindric, lanceolate, covered with chestnut-brown scales, lanceolate acuminate in form, and fringed at the edges. The leaves are in threes or in fives, very slender, with the same internal structure as those of *P. patula*, of which, no doubt, this *P. del Doctor* is a variety.

DENDROBIUMS AT THE CLAPTON NURSERIES.

—Messrs. HUGH LOW & Co., being very large importers and growers of all the showy species, the first days of spring always usher in a fine show of Dendrobiums, which is continued without intermission until the summer. At the present time, a large number of Dendrobiums is in or about to flower, some of the plants of moderate size having eight or ten flower-spikes. This year's importations of *D. Wardianum* have been very fine, and those of *D. crassinode* a profusion of bloom. *D. devonianum*, too, which some allege to be difficult of cultivation, proves to be very free, and the large batch of it at Clapton was covered with flowers when we saw it. Some plants of the curious little *D. pycnostachium* are flowering; they came with an importation of *D. Bensonæ*; and the elegant yellow *D. dioxanthum* here appears in great beauty—it is at present not a common plant in collections. Many other Dendrobiums are in bloom, among them being some fine *D. aggregatum majus*, *D. Findlayanum*, *D. Farmeri*, *D. luteolum*, &c. In the Cattleya-houses are *C. Trianae* in bloom, and a superbly-coloured *Cattleya Lawrenceana*. The Phalenopsis-houses have still a good show, including a very fine form of *P. leucorrhoda*; and the large collection of *Angraecums*, *Oncoglossums*, and *Cypripediums* had some showy and rare things now in flower amongst them. Among lesser species, the pretty *Ionopsis paniculata* had a number of its attractive white and lilac flowers open.

VIEW OF SIR DAVID SALOMON'S GLASS-HOUSES, BROOMHILL, TUNBRIDGE WELLS.

Our supplementary illustration shows a range of glasshouses recently completed for Sir David Salomons, Bart., Broomhill, Tunbridge Wells. They were designed and erected by Crompton & Fawkes, Chelmsford, Mr. F. A. Fawkes, of that firm, the well-known expert on horticultural buildings, being personally responsible for all the sections of mouldings, details of construction, and calculations regarding the heating apparatus.

The illustration gives the curious appearance of an actual bird's-eye view of the houses, a high tower happening to be in close proximity, on the top of which the photographic camera could be placed.

The wood employed throughout is pitch Pine. All rafters and roof-bars have condensation grooves formed upon them; all the ventilating sashes throughout are worked by the most improved form of simultaneous opening gear, and the various details of construction have been carefully thought out. One point is worthy of special notice: the principal rafters in the two span houses, at right angles to the main range, are supported by cast-iron ornamental ribs, which form a semicircle, so that in perspective a very pleasing appearance is produced. No tie-rods are required, yet all lateral thrust is counteracted, and the roof rendered very rigid and strong.

The main range consists of a series of lean-to houses, 20 and 18 feet wide, chiefly devoted to fruit, flanked by two span-houses—stove and greenhouse—at right angles, each 50 by 18 feet. In front of the lean-to houses are two ranges of cold frames,

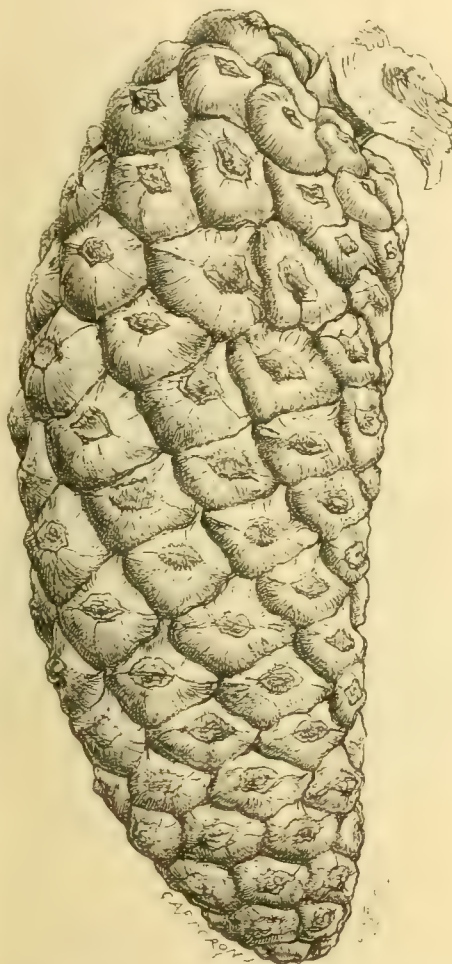


FIG. 92.—CONE OF THE *PINUS PATULA* VAR. *MACROCARPA* (=DEL DOCTOR). SCALES GLOSSY, FAWN-COLOURED.

Pinus patula, one of the Mexican Pines, which, although tender in less favoured localities, seems able to hold its own in Cornwall. Recently, Mr. RASHLEIGH has been good enough to forward to us cones of a *Pinus* received by him under the name of "*Pinus del Doctor*." This is a name we do not find in any book, not even in BEISSNER'S *Handbuch*, just published. This may be because neither it nor *P. patula* is hardy in Germany. On comparing the cone with those in the Kew Museum, we find that the so-called *P. del Doctor* is identical with the *Pinus patula* var. *macrocarpa* of SCHIEDE (ex GORDON *Pinetum*, ed. 2, p. 279). GORDON gives this description:—"Leaves in threes, but frequently in fives slender, and very like those of the species. Cones very large, from 6 to 7 inches long, and 2 inches broad, glossy, pale brown in colour, and with the

and in front of these two three-quarter span propagating or forcing pits. The total length of the houses in the whole range is 310 feet.

The heating arrangements are most complete, two points being carefully kept in view: (a) That there shall be sufficient radiating pipes in each house to produce the heat required with the water at a comparatively low temperature. This not only produces a much more equable heat, but is productive of much economy in fuel. (b) That a surplus amount of pipe shall be provided in each of the cooler houses; so that if at any future time it is desired to grow in them plants requiring a higher temperature, no alteration to the heating apparatus will be necessary. We strongly commend these two points to gardeners. Of course, the mains and valves are so arranged, that the heat in each house can be regulated independently and separately from the heat in any other house.

A most complete series of offices, fruit and Grape rooms, Mushroom-house, &c., is constructed on the north side of the main range of glass, where space is also reserved for a cool lean-to house for Masdevallias, &c., facing the north.

On the occasion of a recent visit paid to Broomhill, we were shown over the range of glass described above by Mr. J. Roberts, the able head gardener. The greenhouse was gay with well-grown flowers in season—Indian Azaleas, Deutzias, Azalea mollis, Cytisus, Dutch bulbs, Freesias; everything showing intelligent cultivation and great cleanliness. The stove contained the usual occupants of such structures, besides some fine *Calogyne cristata*, and a considerable number of large pots of *Adiantum cuneatum*, for which there is a great demand of the cut fronds. *Selaginella casia* was found in charming blue-green potsful of young growth; puns of *S. denticulata* and rooted tips of *Panicum variegatum* looked very pretty, and were doubtless of great use in table adornment. In the main range facing south the vineries contained very strong healthy canes, all planted in the inside borders, but with opportunity for the roots to pass out into the borders outside the houses. These borders are quite filled up, but the roots are restricted to a space of 6 feet wide by walls of corrugated sheet iron, and the Vines must fill this space before any increase in width is afforded them. When the time has arrived for doing this, 2 feet in width of the soil will be dug out down to the bottom of the border, the iron wall removed to that distance, and the space filled in with Vine compost, which Mr. Roberts strongly believes should consist mainly of loam, bones, charcoal, and mortar rubbish.

The Vines stand, one under each main rafter, therefore about 4 feet apart—a very reasonable distance. There is a vinery for the Muscat of Alexandria; a late house contains Vines of Lady Downes and Gros Maroc, and another was planted with Madresfield Court, Gros Maroc, and four Black Hamburgs; the early house was planted with Black Hamburg and Foster's Seedling—of the latter a few only.

Among the Peaches grown under glass, and which look very robust, but not too much so, and very clean and nicely trained, were observed the following varieties:—Bellegarde, Hale's Early, Royal George, and Alexander; and of Nectarines, Violette Hâtive, Humboldt, and Lord Napier.

On shelves in some of the houses, an excellent Strawberry, loaded with bloom, was noticed; it goes under the choice name of Harris's A1, and A1 it is said to be for early or late use. La Grosse Sucré was likewise found in good condition. There is a feature in the construction of the Vine borders not often seen elsewhere, and it is that of manholes, by means of which it is possible to observe the state of the border as regards its wetness; two main drain 6-inch pipes enter the hole on either side, and if water be observed to drop from these it is taken as proof the soil is not in need of water. Also, in watering the border, it is carried on until water runs from these pipes, and as they lay 6 feet from the surface, this is considered to be a sufficient indication of thorough watering.

The boilers, Keith's patent, are free standing, and of iron, in horizontal segments, separated by asbestos rings, and bolted together by vertical bolts. All the joints in the pipes in the neighbourhood of the boiler are flanged, and made secure by bolts. The fire-bars, two sets in a boiler, hang on trunnions, the outer end of one in each half being fitted with a key, so that it may be shaken, to remove the dust, or turned right over if it be desired to put out the fire. The boilers seem to be a compromise between the tubular and the saddle forms, and should be economical in working with the anthracite coal burned. Two boilers stand in the roomy stoke-hole in case of need, although one of them is as yet not actually connected with the system of pipes.

ROSES.

THE WINTER AND THE ROSES.

WOULD that "A. P.'s" sad records of the disastrous effects of the late winter among the Roses, p. 341, were limited to Mid-Sussex—or only a few local centres. But I fear it is far otherwise. Before leaving any or all that showed the slightest symptoms of life or hope, we have gathered up over three hundred dead Roses within the last few weeks. Many of our largest and oldest specimens suffered the most severely, so that our Rose wreckage from beds and borders made many faggots. Standards and half-standards in the open suffered most, but not a few of the larger Teas on walls were frosted into mere shadows of their former selves, or killed to the ground. Dormant buds on standards have also suffered severely—whilst those on dwarfs under the snow are generally safe. Neither is the destruction by any means confined to Teas—not a few of the perpetuals manifesting that mixture of gold and black in the wood and pith which are sure preludes of weakness and disease, if not of destruction, within the next few months. The last phrase is the most alarming of all to the experienced rosarian, reminding him by many bitter memories that the death-roll, even at the end of March, is by no means complete. No, the victims of the frost will continue to fade or fall in the ranks right up to midsummer, or even the end of the growing season. Fortunately, the general low temperature of March has given the best possible chance of recovery to our sorely-smitten Roses. The more deeply wounded by frost the greater their hurry to rush headlong into growth. Stimulated by an unprecedentedly mild and dry February, had March followed the suit set by its start, most of our Roses, sound or already wounded, would have now been in imminent danger of absolute destruction through the caprices of fickle April. But the snow-like weather of the larger portion of March, called a stern halt to Rose growth, and has given them a new chance of husbanding their resources, and concentrating their vital energy with vigorous growth and a profusion of bloom.

Dwarf Teas, Noisettes, and other semi-tender Roses on their own roots, and earthed up like Potatoes, as "A. P." so well puts it, are quite safe at the root stocks and collars, and are breaking away afresh with abnormal precocity and vigour. Still neither losses nor promises have as yet forced us to give up standard and half-standard Teas. This adherence to such risky subjects is partly sentimental, and partly of a very different character. We had through several seasons greatly added to the numbers of this class and character of Teas, because we could not grow dwarfs successfully in the flower-beds or pleasure-grounds on account of the rabbits. And then some of the fatter-budded Roses, such as the Maréchal Niel, never look so beautiful or even graceful as when bending or drooping low from a standard beneath their heavy burdens of beauty and fragrance.

Here is one suggestive and hopeful hint that may make rosarians more than half-conquerors over the severities of all coming winters. We have not had

a single Rose planted or transplanted early last November, and the majority of them are fresh and intact from base to summit, as if they had not had a handling from zero, or within 2°, 4°, or 6° of it, according to locality. *Rosa*.

FOREIGN CORRESPONDENCE.

TEA SUBSTITUTES AT THE CAPE.

IN reference to the articles on Tea and Coffee substitutes, now appearing in the *Gardeners' Chronicle*, the following notes concerning this colony may be of interest:—

Cyclopia genistoides, Vent., is the commonest Berg-thée of the western province. It is used partly as a mere substitute for ordinary Tea, and partly with an idea that it is good for coughs and difficulty of breathing. Its infusion is sickly, sweetish, and has a somewhat astringent after-taste; it is not unlike a sweet solution of liquorice. The liquorice flavour is, however, much more evident in the several *Helichrysa* used under the names of Hottentot, Bosjesman, and Kaffir Tea. *H. nudifolium*, Less., *H. serpyllifolium*, Less., *H. Leiopodium*, DC., are all employed without much discrimination, and the vernacular names change about among these species. I have seen *Geranium incarnatum*, L., gathered as a Berg-thée on Boschberg, behind Somerset-East. *Mouronia ovata*, Cav., biflora, DC., and *Burkiana*, Pl., are only used medicinally in cases of diarrhoea, but are less prized than the allied *Pelargonium reniforme*, Bot. Mag. The report of *Cassia mimosoides*, L., being used at the Cape as a substitute for China Tea is surely a mistake. The only *Cassia* I know of as in use here is *C. tomentosa*, Lam., a naturalised plant, common in farm gardens and about villages; it is a capital substitute for Senna, with or without the accompaniment of Engelsche Zout, or Epsom salts, among the coloured servants. I should doubt if any *Cassia* is a Tea in any other sense than "Senna Tea."

The Malays of Cape Town are great on native Teas; they drink lots of infusion of "Als," *Artemisia afra*, Jacq., under the idea it is good for the "peus,"—Anglice, paunch—but, I believe, partly for the peculiar buzziness of brains which it causes, something like the effect of strong tobacco on a smoker accustomed only to golden leaf. I have often been told that it makes you feel "mooi,"—that is, nice—a sufficiently suggestive term for those who are forbidden to indulge in the mooni-ness that comes of Cape brandy. *Leysera guaphaloides*, Less., is brought down from the Lion's Mount every day in the season to make "Geel-blommietjes-thée." It is credited with demulcent properties in cough and catarrh, but is used often merely as a herb drink.

My worthy friend, the Rev. A. G. Hettasch, of the Moravian Mission at Genadendal, sent a collection of thirty-three plants used medically or as herbal drinks by the Hottentots and off-colour people on his station, to the Colonial Exhibition in 1886. Whether they ever got there, or, like so many other contributions, were dropped somewhere, I cannot say. But they were submitted to me for identification, and I published the list with Mr. Hettasch's notes on their uses, in the *Volksblad*, December 29, 1885. A translation could no doubt be made for anyone interested in Cape herbalism. *P. MacOwan*.

DISEASES OF PLANTS.*

(Continued from p. 396.)

By the method of high moulding, whether applied in its full entirety or in any modified manner, our one object is to protect the tubers from the disease. No attempt is made to lessen the development of the disease in the foliage. It is obvious that no remedy applied externally to the affected leaves can kill the parasite that is already within them. If the Phy-

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.

tophthora mycelium permeated the whole host-plant, any attempt to cure or mitigate the extension of the parasites by external remedies would be utterly futile. The mycelium, however, is localised, and although destructive to those tissues with which it comes in contact, yet it is not very wide-spreading. The rapid extension of the disease is due to the tremendous rapidity with which the conidia and zoospores are produced. Now as we have seen, the zoospores demand a layer of fluid for their movement. Hence it becomes possible to check the spread of the disease if we can only find some material which, when applied to the surface of the leaves, would not injure them, and yet possessing sufficient potency to destroy the vitality of the conidia and zoospores. Various substances have been suggested and tried for this purpose, but it is only within the last two or three years that any suitable substance was hit upon.

In France, M. Prillieux obtained an almost complete mastery over the allied parasitic fungus which attacks the Vines, viz., *Peronospora viticola*, by dressing the Vines with a preparation of copper known as the Bordeaux Mixture. In 1885, M. Jouet, a pupil of M. Prillieux's, applied this remedy to the Tomato plant affected with the *Phytophthora*; so successful was this found to be in checking the disease, that M. Prillieux informs me at the present

performed a number of experiments in 1887-8. He says, "The use of preparations of copper-sulphate as a means of checking the Potato-blight has, in practice, proved a brilliant success." He employed not only the Bordeaux Mixture, but also a solution of copper-sulphate, precipitated by soda, and by ammonia. Unfortunately his data are not very exact. He says, "Although the weather was copiously moist, with the inevitable result of dissolving away the protective materials used, the plots treated with the Bordeaux Mixture and copper-soda solutions, were still green at the beginning of September, while on all other plots the plants were completely dried up. The harvest gave the following results:—Bordeaux Mixture, three-quarter average yield of sound tubers. The tubers small, but solid. Few were diseased. The strength of the mixture is not stated. Unfortunately, he does not state what the amount of disease was in the untreated plots.

Mr. Clarence M. Weed, at the Ohio Experimental Station, U.S.A., tested the Bordeaux Mixture in 1888. In his communication to the Society for the Promotion of Agricultural Science, August 27, 1889, he shows the manner in which his experiments were conducted. Fifteen feet at the end of each of twenty rows of Potatos were sprayed with the

Number of Marketable Tubers.

No. of Rows.	Variety.	Treated.	Untreated.	Gain.
4	Early Ohio ...	231	200	31
5	Early Oxford ...	321	167	154
6	Puritan ...	327	268	61
5	Lee's Favourite ..	249	175	74

The treated plants gave 320 lb. of Potatos, of which 244 lb. were of marketable size. While a corresponding number of untreated plants gave 274 lb., of which only 180 lb. were of marketable size. This is equal to a gain of 62.2 bushels per acre. Another not unimportant point was observed, viz., that the amount of scab seemed to be considerably reduced by the copper treatment.

M. Aimé Girard, Professor to the Institut National Agronomique in 1888, conducted some experiments, on a large scale, with the view of further testing the efficacy of the Bordeaux mixture. The experiments were carefully conducted, and the results accurately noted. In the first series, at Joinville-le-Pont (Seine), 200 square metres were treated with a 2 per cent mixture. These varieties were



FIG. 93.—THE POTATO DISEASE.

Two plants growing side by side: the one was treated with the Bordeaux Mixture, the other was not. (From a Photograph.)

time it has come into general use with the Tomato growers of the South of France, where Tomatos are grown on a very large scale for export to this country.

In 1888, M. Prillieux performed the following experiment:—Nine plants of *Quarantaine des Halles* were sprayed with a 6 per cent. solution of Bordeaux Mixture, so that all the foliage was moistened by it. The plants were already affected with the disease. These plants were dug up on the 16th; none of the tubers were diseased; whereas, 32 per cent. of tubers from central plants, not treated with copper, were found to be diseased.

Mons. E. Prillieux, 1888. Experiment made in the Grounds of the Institut Agronomique at Joinville-le-Pont.

	Number of Plants.		Number of Tubers.		
	<i>Quarantaine des Halles.</i>		Sound.	Diseased.	Per cent.
Treated ...	9	...	110	.....	.....
Untreated	6	...	93	17	52.07

This induced M. Prillieux strongly to recommend the Bordeaux Mixture as a remedy against the Potato disease. Many experiments have been tried in France, in Germany, and in America, during the last two years. In Germany, J. B. Bünzli

Bordeaux Mixture four times, viz., May 28, June 6, June 29, and July 16. Four varieties of Potato were employed in this experiment, viz., Early Ohio, Early Oxford, Puritan, and Lee's Favourite. The season proved favourable to the development of the blight, which appeared in the experimental field about the middle of June, and did serious damage for the next six weeks. The sprayed Vines showed much less injury than their unsprayed companions, remaining green after the others were dead. The crop was harvested on August 22. The product of 12½ feet of the sprayed part of each row was compared with an equal distance of the unsprayed portion of the same row. Subjoined is the result:—

Mr. Clarence M. Weed.

No. of Rows.	Variety.	Treated: Marketable Potatos.		Untreated: Marketable Potatos.		Gain: Marketable Potatos.
		Lb.	oz.	Lb.	oz.	
4	Early Ohio ...	48	6	31	4	14 2
5	Early Oxford ...	70	4	53	2	17 2
6	Puritan ...	70	4	53	15	16 3
5	Lee's Favourite	35	1	38	12	16 3

dressed after the disease had begun to manifest itself. In one of these, the Kornblum, the treated area produced 450 kilos. of healthy, and 5 of diseased tubers. Against 400 healthy were 30 diseased, from a similar area untreated.

Mons. A. Girard's experimental treatment of Potatos with Bordeaux Mixture on a large scale, gave the subjoined results at Joinville-le-Pont in 1888, 200 square metres in kilogrammes.

Variety.	Treated.		Untreated.		Per cent. of Increase.
	Total Yield.	Diseased.	Total Yield.	Diseased.	
Eos. ...	470	20	488	26	2.7 kil.
Kornblum	450	5	400	30	20.2 ..
Aurélien	427	21	420	31	4.4 ..

In the same year, at Clichy-sous-Bois, in an area of 125 square metres, the treated plants of the variety *Jeuxkey* produced 414 kilos. of healthy and 25 kilos. of diseased, against 365 and 48 kilos. of the untreated.

At Clichy-sous Bois, 125 square metres, 1888.

Variety.	Treated.		Untreated.		Percent of Increase.
	Total Yield.	Dis-eased.	Total Yield.	Dis-eased.	
Yellow Rose ...	339 7	10 7	300	12 3	14 3 kil.
Jeuxley ...	414	25 0	365	48	22 9 ..
Richter's ...	564	15	498	14 5	13 5 ..
Red-skinned ...	439	33	423	51	17 0 ..

In 1889, at the same place, 125 square metres, in which four varieties were growing, were treated with the copper mixture (two per cent.). Of these, the same variety, Jeuxley, yielded 341 kilos. of sound, 1 kilo. of diseased, while the untreated yielded only 321 of sound and 30 kilos. of diseased.

1889. Clichy-sous Bois, 125 sq. metres.

Variety.	Treated.		Not treated.		Per cent. of increase.
	Total Yield.	Dis-eased.	Total Yield.	Dis-eased.	
Yellow Rose ...	328	0	308	8	9 3 kil.
Jeuxley ...	341	1	321	30	16 8 ..
Richter's ...	439	0	421	1	4 3 ..
Red-skinned ...	440	0	394	1 5	1 9 ..

M. Girard infers from the results of his experiments, that (1) the copper treatment, when employed as a curative measure, does not confer absolute immunity from the disease; (2) he notes, not only was the proportion of diseased tubers greatly diminished by it, but the weight of the sound tubers was increased as compared with the untreated plots. This is just what we should expect from the fact of the foliage enduring longer. Every day that the existence of the foliage can be prolonged, obviously increases the development of the tubers.

In 1890, hundreds of Potato growers in France, following M. Girard's recommendation, treated their crops with the Bordeaux Mixture, and by the aid of it augmented their produce. At the present time, he has some 120 reports which are on the processes of tabulation; from some parts of France the disease was absent last year, in the north-east it was severe, and although the continued rain in July and August washed off the copper solution—still even here a marked amelioration was effected. In north-central France, the disease was less violent, but still active enough; here all those who used the copper solution have, like M. Girard, not only saved their crops, but considerably augmented their produce. In a field of many acres, M. Girard treated one half the rows, leaving the other half untreated. From the end of July the effect of the treatment was apparent to the eye, the untreated foliage began to fail at the end of August, while the other remained quite green. On August 31, the accompanying photograph was taken, by which it will be seen how completely the disease was checked by the copper (fig. 93). The respective yield of the treated and untreated portion per hectare was 37,000 and 27,670 kilos. respectively. The disease was by it reduced from 4 per cent. to '8 per cent.

In a letter which M. Prillieux has sent me, he states that the Bordeaux mixture employed by him in his 1887 experiment was a 6 per cent. solution, which he considers too strong; and that while many persons have employed 1 or 2 per cent. solutions, which he considers on the other hand to be too weak, that a 3 or 4 per cent. solution will be found to be the best for the Potato.

The Bordeaux Mixture consists of six parts of sulphate of copper, six parts quick-lime, and 100 parts of water—but, as has been said above, a 3 per cent. mixture is preferable.

Owing to the facility with which oxide of copper is washed off the foliage by rain, M. Michel Perret suggests the employment of a saccharate of copper made by mixing 4 kilos. of lime into a cream with water, adding 2 kilos. of treacle, and two of sulphate of copper to the hectolitre of water.

(To be continued.)

CULTURAL MEMORANDA.

BEFARIA GLAUCA.

COMING from a great altitude on the Peruvian Andes, and growing under similar conditions to the Rhododendrons of Sikkim, the Befarias may be said to represent that genus in South America, although they show differences in floral structure and habit which distinguish them from any Rhododendron in cultivation; the resemblances are, nevertheless, strong enough to justify the title of Andean Rhododendrons, which was given to them many years ago. Some six or seven species have been introduced, most of them at about the middle of the present century—only to share the fate, however, that befel so many of the beautiful plants imported about that time. At the present date, *B. glauca* is probably the only named species in cultivation, although others which have not yet flowered are at Kew. It is certainly one of the most beautiful of the Ericaceae family introduced from South America, and it probably only wants to be better known to bring about its wider cultivation. The inflorescence is a dense raceme of twenty to thirty, or even more, flowers, each of which is $1\frac{1}{2}$ to 2 inches across. The corolla is divided into seven narrow oblong segments, spreading almost to their full extent, and encircling a numerous cluster of stamens; the colour is a beautiful rose. Although the species flowers at various seasons, it is most frequently seen in bloom between January and March, a fact which adds to its usefulness. It was originally discovered by Humboldt and Bonpland in the early years of the century, but it was not until 1845 that it was introduced to Europe by Makoy of Liège. It is first met with at 5000 feet altitude, and extends up to 9000 feet. It forms a bush 3 to 5 feet high when fully grown, with oblong leaves deep green above and glaucous beneath, and from $2\frac{1}{2}$ to 4 inches long. It requires simple greenhouse treatment in a peaty soil, and the cool moist conditions that Rhododendrons and Azaleas love. *W. B.*

DELPHINIUM GRANDIFLORUM ALBUM.

This is a useful plant, belonging to a genus in which one expects to find some shade of blue in the flowers. But the one in question is pure white, and when associated with those of a blue colour, the effect is excellent. The plant has a dwarf, slender habit, when compared with others. It grows freely, and flowers abundantly, and is useful in the front rows of a mixed herbaceous border.

MUSCARI BOTRYOIDES ALBA.

The white Grape Hyacinth is a small-growing bulbous plant, which forces well, and is a charming subject. A few pots of *M. botryoides* would be found pretty plants for the greenhouse. The bulbs should be potted in the same manner and at the same time as Hyacinths and Tulips.

LATHYRUS LATIFOLIUS ALBUS.

This white-flowered Everlasting Pea is one of the best of climbing plants, being very free both in growth and flowering. The flowers, which are of a pure white, have great value in bouquet work, &c., and a few good clumps, when once well-established, yield a great quantity of fine flowers the whole summer. It is not a plant that is particular as to the kind of soil it grows in, nor the position, so long as it is not unduly shaded. *J. A.*

FREESIAS.

I noticed a short account, in the *Gardeners' Chronicle*, of *Freesias* at Barham Court, and I consider them such a grand acquisition, that I feel compelled to say something of my own experience of them. I have grown them regularly ever since they were introduced, or, at least, ever since I saw them in the seedsmen's catalogues. I think I got a hundred bulbs to begin with—fifty *refracta alba*, and fifty mixed sorts, and from these alone I have now

hundreds. I have about twenty pans full, varying in size from 8 to 12 inches in diameter, and from 3 to 5 inches in depth; they do equally well in shallow or deep ones. The height of the foliage and flower-stems will average about 18 inches. I use much the same kind of soil as is employed at Barham Court, adding a little of either Clay's Fertiliser or Thomson's Manure at the time of potting, towards the end of August or beginning of September. After flowering, they are gradually dried off, and laid below the greenhouse stage till next potting-time, when the bulbs are carefully taken out and sized. I put them close together, say a little under an inch apart in the case of the largest, and the smaller bulbs closer still. They are then given a gentle watering, to settle the soil about them, and only just kept from getting dry until some growth has been made, when they are abundantly watered, as I find they seem to like that. I have never grown them anywhere but in a cool greenhouse, never having subjected them to a forcing temperature at any time, and the only enemy they are troubled with, in my experience, is greenfly, and that only on the flower branchlets. The usual remedies easily expel them. With me, they do much better in pans than pots, and when the shoots have grown a few inches, I carefully insert a few Birch twigs in among them, putting sticks round the outside and several rings of small string. They fall down directly they have grown an inch or two; the twigs prevent that, and the coils of string outside keep all upright. I have been told that they are grown in outside beds in South Wales. Is this so? *John Heath, Sedgwick Gardens, Kendal.*

PLUMBAGO COCCINEA SUPERBA.

This is a beautiful little stove plant, not often met with in gardens, although the old *P. rosea* is found almost everywhere. In habit of growth it is very similar to that variety, but it has larger flowers, which are of a brighter colour, and stand more erect, and are shown up to much greater advantage. Given treatment such as is suitable for *P. rosea*, it grows and flowers profusely. *J. A.*

HOME CORRESPONDENCE.

LATE MELONS.—In reply to "Melon Grower," on p. 371, March 21, I still maintain that I consider the best of all Melons for late work is Sutton's Monarch. I do not understand "Melon Grower" saying that any good Melon, by which I suppose he means any variety, is fit for late use and equal to the one in question; my experience teaches me something very different. To have first-class Melons in December, means growing a variety that will keep of a good flavour for some time after being cut from the plant, and in Monarch we have that variety. Perhaps it is advisable to say that a dry border at the ripening stage is very essential to finish off the fruits in November, so much so with me that often on bright days the plants have to be syringed overhead, and the house closed, to keep them from flagging? Having of late years tried several varieties for cutting late, most of which proved unsatisfactory, a few years ago Messrs. Sutton & Sons sent me a few seeds of a Melon, asking me to grow it, and give them my opinion on it. This variety was the Monarch. See Sutton & Sons' Guide; and I may say that my employer spoke of this Melon as being excellent in November and December. Late Melons, if of good flavour, are desirable additions to the dessert at that season. As to my method of keeping the fruits after being cut, they are taken to the fruit-room and laid on a slate slab, and several good gardeners saw them while there. Two of these Melons were exhibited at the Reading and Oxford Chrysanthemum shows last year; and all being well this next autumn, if "Melon Grower" will give his name in these columns, I will send him a fruit or two as a test of quality. *W. Allen, Swallowfield Park, Reading.*

SOOT VAPOURS.—We have had evidence of late that there are distinctive forms of fog in this locality. There is the ordinary wet cold fog, the vapour of which condenses on the eyelids, almost

blinding us with moisture, and choking with its excessive density; and a real smoke fog, which is little other than smoke, and is not an aqueous vapour. Both are bad; but the smoke fog is the worse. With short intervals of sunshine, we had some twelve days of almost consecutive fog, sometimes terribly dense, at other times moderate. On the 24th ult., we had examples of both kinds of fogs; for in the morning the ordinary aqueous fog lifted, and it brightened somewhat, but presently came down in a perfect heavy vapour, a dense smoke fog, which seemed as if it would literally choke all living creatures. This proved to be one of the worst smoke or soot visitations I have seen during twenty years' residence here, for it left behind such a coating of soot that all glass roofs looked like slated ones, the roads and soil were black with soot, so that every wheel or foot mark made after was white in comparison; and on ponds, the ducks swimming made white lines on the sooty scum; we are here just 13 miles from Hyde Park corner. It would indeed be interesting to learn how far this soot vapour and deposit extended. If such visitations are henceforth to be frequent, the effect on gardening must indeed be disastrous. All residents agree that they have never seen there a similar visitation. I showed to the Scientific Committee at its last meeting a pane of glass taken from a frame-light, showing the sooty covering carefully preserved. Lord Wolmer has intimated his intention to move in the House of Commons for a royal commission to enquire into how far fogs may be mitigated by legislation. Certain it is that were the atmosphere robbed of its present horrid smoke and soot, fogs would be deprived of one-half their terrors or power to inflict innumerable evils on human life and vegetation. *A. D., Bedford, February.*

BROWNEA CRAWFORDII ×.—I am very pleased to see in to-day's issue of the *Gardeners' Chronicle*, that my late friend, W. H. Crawford's name, is to be perpetuated on his hybrid *Brownea* now in flower at Kew. If the other hybrid which has not yet bloomed, prove to be distinct and worth naming when it flowers, I would suggest *B. Lakelandensis* as an appropriate name for it, Lakelands having been the name of the garden where it was raised. Allow me, however, to correct an inaccuracy in your statement that *B. macrophylla* never flowers on the branches, as though for the first three or four years after the splendid tree at Lakelands commenced to bloom its flowers were confined to the main stem, for the last few years prior to its and Mr. Crawford's death, it bloomed profusely all over the tree, and I distinctly remember its owner telling me when it first commenced to do so. What a sin that such a splendid plant should have been allowed to perish from cold. *W. E. Gumbelton.*

THE PLANTING OF EARLY POTATOS IN CORNWALL.—So many different ways of planting Potatos are practised, that it may interest some people to know how it is done in Cornwall. The market growers begin planting in the month of February, the seed having been in sheds since the month of November, where on shelves and standing on their ends close together in single layers, they have remained the whole of the winter. As fast as the Broccoli crop is cleared, so Potato planting goes on. The sorts most grown are Myatt's Ashleaf Kidney and Lincolnshire Kidney; and the manure employed consists of seaweed and sea-sand and guano. It is spread over the land, and worked up with it by the plough. The sets are cut into single eyes, and planted 2 inches deep, 7 inches apart in the row, and 10 inches from row to row. Long-handled shovels are used for planting—or as it is styled here, drilling—the Potatos being planted in drills. When finished, the neat appearance of the ground would be creditable in a gentleman's kitchen garden. The crop is taken up in May and June, at the latter time for seed. The cost per acre for seed and labour is about £20, this year rather more. The Potatos for planting are bought in every year from Yorkshire and the Midlands. It may be stated that the same ground has been under Potatos and Broccoli alternately for the last thirty years. *T. Maeers, Marazion, Cornwall.*

GALVANISED WIRED WALLS.—I wired the walls in the Peach-houses here with unpainted galvanised iron wire at the time the young trees were planted, five years since, and I am thoroughly satisfied with this plan of securing the trees, these being in no way injured by the wire; and at the present time they are in a good healthy condition. *R. Edwards, Beechy Lees, Otford, Kent.*

THE BIRDS.—Those gardeners who detest birds have, during the past severe weather, found ample revenge, the poor birds have had a terrible time of it, and vast numbers have perished through literal starvation, through the carnivorous of their own kind or animals, or through the shot-gun of that lord of creation, man. That humane people have done something to help mitigate the birds' condition there can be no doubt, but unfortunately myriads of our sweetest song birds, because so modest and retiring, have benefited least from this kindness, whilst the wily sparrow, so perky and cheeky at all times, that we cannot help admiring his pluck, and the bold and arrogant chaffinch or chink, have been the best fed from human hands; but it seems difficult to realise that any person of ordinarily humane instincts can rejoice at the bitter privations the poor birds have had to endure. It was specially painful, for instance, to note in tramping through the snow-covered Cabbage or Greens breadths, how the larks had striven to find food in the frozen leafage. In many cases a few small leaves projecting through the snow had been riddled by the birds, and the snow surrounding was half covered with excreta. Little frozen, starved bodies have been found in all directions, and the gun has been employed in a wholesale way to destroy life, which could have been little other than mere bags of bone and feathers. The very antithesis of human nature seems to be found in the timely feeding of half-starved birds, on the one hand, and in the wanton and cruel shooting of them on the other, for it is obvious that as food these poor birds must be worthless. I have sought for evidences of what is commonly called wanton destruction of Gooseberry bush buds this winter, and have heard or of seen none; and yet when are birds more likely to be driven to such acts than when starving, because the ground is for a couple of weeks or more buried in snow? Beyond the attacks of the larks, blackbirds, and thrushes upon the green stuffs, I have seen no evidence of harm done by the birds, and as all kinds of green stuffs have been so injured by the long severe frost so that the taste is strong and obnoxious, little mischief really has been done in this way. In spite of the long-lying snow, and the great cost of labour incidental to gathering and marketing the Cabbage tribe, Turnips, &c., the price recently has been so low that growers have rather lost than gained by the marketing. It is very probable that now the snow has quite disappeared, myriads of insects and ground vermin will come to the surface, and birds left alive will find a happy hunting ground. Where birds have been so wantonly destroyed, there it may be expected that the ground will be the most populated by insect pests, and the crops suffer most injury. But where birds have been fed and protected, there better results may be looked for. In any case we shall watch the general insect aspect of the coming season with great interest, specially to note what has been the effect of very hard weather upon insect life. *D.*

SEED SOWING.—The admirable paper, presumably on hardy plants, but really upon sowing and raising of hardy flower seeds, read at the recent meeting of the Royal Horticultural Society, from Mr. Max Leichtlin, introduced matter of very great importance, because exhibiting in a most interesting way the usefulness of knowing all about the nature of the plants producing the seeds, and the proper methods of saving, storing, and finally of sowing them. So far as all sorts of common seeds are concerned, we can do very well, but in regard to seeds of many hardy plants, or of not well-known varieties, failures are not at all uncommon, because of comparative ignorance as to treatment. There seems to be necessity for some knowledge as to best methods of saving seed. Mr. Max Leichtlin continuously emphasised the importance of sowing so soon as seeds were ripe, but it is of not less importance that seeds be not gathered or harvested before they are ripe. Very many failures in seed raising result from ignorance on that head, whilst the fault, when bad growth results, is laid at the door of the sower. The question naturally arises, when are seeds ripe? And whilst any empirical answer might soon be given, there is much room for doubt, whether all seeds are really ripe the moment they appear to be. Ordinarily we should say that so soon as Nature bursts the seed-vessels, and liberates the seeds, they should be esteemed ripe. That may be so, so far as the capacities of the plant to aid maturation is concerned; but it may be that many kinds of seeds, all the same, require proper keeping or storing before the needful maturation is complete. The fact that many seeds lie a long time in the

soil after sowing before they germinate, leads to the inference that, even when apparently ripe, something was still needed, or why should the seeds, having been furnished with all the natural requirements for growth, yet refuse to grow for a long period. Some seeds seem to make the quickest growth if sown immediately; others do best if some time kept. I have found Primrose and border Polyanthus seeds to germinate rapidly if sown so soon as saved, whilst Auricula seeds have come with most regularity when sown the spring after being saved. Just now I see laced Auricula seed coming up very thickly, after being three weeks sown in a box, stood in a cool-house, but covered up closely with glass. No doubt this covering, because keeping the soil of an equable moisture and temperature, has been very helpful, and it is a good practice to adopt in most cases; still, it would seem as if the winter-keeping of the seed had helped to perfect the germinative powers of seeds. We cannot too thoroughly understand, in relation to all seeds, the point, when are they ripe; and in understanding it, may be saved many mistakes. Equally, too, is it important to the seed-grower to understand when seeds are fit to collect, and how best stored, to either preserve vitality or help to promote maturation. Many, perhaps most, of the seeds referred to by Mr. Max Leichtlin, were of plants which, though not uncommon in gardens, are seldom raised from seeds by gardeners. The paper in that respect was, perhaps, more technical than horticultural; still, it had its interest generally, in view of the fact that it raised the important question, though informally, When are seeds ripe? This latter is a question more for the plant-physiologist than for the pure botanist or gardener; but it has wide interest all the same, and needs some careful answering. Some day, perhaps, this same excellent continental horticulturist may address himself to its patient consideration. *A. D.*

MR. ALFRED PARSONS' PAINTINGS.—No lover of gardens or orchards, or, indeed, any country scene, should miss seeing a collection of these now on view at 148, Bond Street. The first virtue in them that strikes even a non-critical observer is the "nook-quality," as Mr. Henry James calls it in a preface to the catalogue, written with all the charm of style we are wont to find in his novels and critiques. The artist has the happy inspiration of picking out for his objects those fortunate corners in gardens that have developed slowly into a characteristic beauty of their own. Mr. Parsons' colouring, although very vivid, is never exaggerated, and his drawing wonderfully accurate. Indeed, Mr. Parsons shows that he has the fullest sympathy with the grace and beauty of outline and gesture shown in the growth of trees and flowers. The backgrounds are exquisitely put in, some of the skies, especially one representing the blue of a sky washed faint by a shower; and another a Daffodil, light being very realistic. Most of the pictures are taken from homely scenes, the only two show gardens that are illustrated being Holme Lacey and Gravetye. Among the best and most characteristic drawings is No. 10, a picture of Daffodils. No other artist that I know can draw Daffodils like Mr. Parsons; No. 20, a most delightful and suggestive garden in the outskirts of the quaint old town of Frome; No. 38, a study of wild flowers in an orchard; and three views of cottage gardens at perhaps the most quietly picturesque of all English villages, I mean Broadway. *C. A. M. Carmichael.*

DESCENT OF THE SAP: EFFECT OF SCION ON STOCK.—I have never felt satisfied that the sap "descends" in the manner usually described by physiologists, and yet no one can deny that in some way, not wholly clear, the lower parts of the plants are influenced by the parts above them. The lover of science is, however, chary of disputing. He may doubt, but waits for further evidence. I must say that the note (p. 310) regarding Professor Balfour's exhibition of a reddish-pink coloration of the outer layers of the alburnum in the Copper Beech, explains in some measure, but not wholly, on the theory of the sap's descent, an experience of my own, where a branch of the purple-leaved *Betula alba* came out at several feet below from the stock of the ordinary *Betula populifolia* from which it was grafted. There is undoubtedly a downward influence of some kind. It has also been placed on record in the *Gardeners' Monthly* that a branch of a Pear has appeared low down on the stock of a Mountain Ash on which it was grafted, and a similar case on a Pear grafted on the Hawthorn. It is evident something else besides sap descends; but

just how all this is brought about, I think, has not been made clear, though "guesses" have not been wanting. Actual facts, such as this, of Professor Balfour, are badly needed. *Thomas Mehan, Germantown Nurseries, Philadelphia, United States.*

TACSONIAS FOR OUTSIDE WALLS.—It was interesting to read Mr. Smythe's paragraph on Tacsonias for outside walls (p. 372, March 21), and I can substantiate all he said. I have had them out on a trellis for several years, and I can conceive nothing more beautiful from the end of July till the approach of frost. I have two plants only that go outside, *T. eriantha*, the pink variety. This I consider the most hardy and attractive for outside of three varieties we have, viz., *T. eriantha*, *T. Van Volxemi*, and *T. exoniensis*. The plants here are placed at the back of a large three-quarter span north house, hence there is no necessity for lifting in the autumn. They are put out of the back ventilators about the middle of May, and spread over a rough trellis about 40 by 12 feet, which they soon cover. They are allowed to ramble among Lamarque Roses, &c., and being in a sunny spot, the effect during the months of July, August, September, and part of October is more easily imagined than described. When in danger of frost, all young growth is cut back hard to the main branches, the plant denuded of almost all the leaves, drawn inside the house, tied up into a coil, and fastened to the rafters for the winter. *T. Neve, Sindlesham House, Wokingham.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MARCH 24.—Present: Mr. Dyer, C.M.G., in the chair; Mr. McLachlan, Dr. Bonavia, Dr. Oliver, Rev. Mr. Wilks, Professor Church, Mr. Blandford, Mr. Wilson, Mr. Pascoe, Dr. Scott, Dr. Hugo Müller, Dr. Masters, and Rev. Mr. Henslow (Hon. Sec.).

Rhododendrons, &c., Killed.—With reference to the opinion expressed at the last meeting, that *R. Falconeri* and other plants described by Mr. J. Bateman, of Worthing, had been killed by frost, he writes to say, that he thinks it was more probably heat, and not frost, which was the primary cause, though frost proved to be "an accessory after the fact." The exceptionally high temperature in November had apparently stimulated them into growth, and so rendered them more susceptible to the subsequent extreme cold. Mr. Bateman also mentions that he has been compelled to abandon the out-of-door culture of Himalayan *Rhododendrons*, not because of the winter's cold, but because they pushed their buds too readily in March, only to be cut back by late frosts. He adds that while other species were severely injured, *R. fulgens*, *R. Thomsoni*, *R. Campbelli*, *R. lanatum*, *R. campylocarpum*, *R. Roylii*, and *R. album* did not suffer in the slightest degree. Lastly, he refers to *Olearia Haasti*, described as killed, but having had one branch layered, this remained perfectly unaffected. Mr. Wilks observed that this could readily be accounted for by its having probably been covered with snow.

Observations were made by Mr. Dyer upon the fact that shrubs at Kew, *e.g.*, species of *Cistus*, which though they had apparently withstood the frost, and were perfectly healthy, and pushed forth buds, yet suddenly died. Mr. Wilks said he had no doubt that the stems would be found to have been killed at the base, as the cold was always more intense for a short distance above the surface of the ground than higher up. The shrubs, therefore, had sufficient vitality above to push their buds, but of course soon perished. He remarked that Holly bushes are often denuded of leaves to a height of 2 or more feet from the ground.

Fog Report.—Dr. Oliver presented a "Preliminary Report on the Effects of Urban Fog upon Cultivated Plants." It was decided by the Committee to forward copies to the gardening and leading daily papers with the hope that readers may be inclined to communicate their experiences, so that as much information as possible may be acquired (see our last issue, p. 391). The following are the chief lines of inquiry:—1, Urban fog and country mist. 2, Extent of the London fog area. 3, The fogs of the winter, 1890-91. 4, Constitution of fogs. 5, Physiological and microscopic work. 6, Possible remedial measures. With reference to the statement that "An increase of temperature, other things being equal, aggravates the poisonous action of the sulphurous acid in the air, a difference of a few degrees

of temperature being apparent," Dr. Müller observed that one cause of this would be probably due to the fact that sulphurous acid is converted into sulphuric by an elevation of temperature. With reference to temperatures, Mr. Dyer remarked on the importance of keeping the temperature of houses as low as possible at night compatible with the limits of resistance peculiar to the plants themselves, allowing for some kinds which are peculiarly sensitive. As a rule, gardeners are apt to keep the temperature higher than is desirable, for it tended to render the air too humid and possibly injurious; whereas a cooler temperature rendered the air dryer, and the plants were less susceptible to cold. Mr. Henslow observed that the late Dr. Lindley was continually advocating the same procedure. The thanks of the Committee were tendered to Dr. Oliver for the trouble he had undertaken in preparing the report.

SCOTLAND.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

This Society held its spring show in the Waverley Market, Edinburgh, on April 1. Compared with some recent shows there was a general falling off in quantity rather than in quality. The unfavourable weather which has prevailed in March throughout, and the fact that the thermometer in some local districts registered from 14° to 17° of frost are sufficient to account for this deficiency. The show was marked here and there throughout with exhibits of conspicuous merit.

In Azaleas, Mr. John Paterson, Millbank, outdistanced, as usual, all comers. His veteran plants, which have often been seen at these shows, were never in better form than on this occasion; while his smaller specimens were simply models of what half specimens should be. There was a great falling off in show tables of plants in the gardeners' and amateurs' class, only one table being set up, which had no particular feature worth recording.

Four Cape Heaths were worthily competed for by Mr. Paterson and Mr. J. Bald, Canaan House, Edinburgh, the former taking 1st position. Two Cape Heaths brought the same competitors, with the same result. *Azalea mollis*, six plants, again brought Mr. Paterson to the front, with Mr. David Lawson, Craigcrook Castle, as a good 2nd.

Orchids.—In the class of four plants, Mr. Curror, The Birks, Ebank, was 1st, with a fine plant of *Cœlogyne cristata*, *Ada aurantiaca*, *Cymbidium Lowii*, and *Cattleya Trianae*. Mr. Sharp, Freeland, Forgandenny, was 2nd, with an excellent *Cœlogyne cristata*, Chatsworth var.; *Cypripedium Lawrenceanum*, *Vanda tricolor Patersoni*, and *Odontoglossum Ruckerianum*.

In the class of one Orchid, Mr. Curror was again 1st, and Mr. Sharp 2nd.

The several classes of Ferns were closely competed for, Mr. John Paterson being 1st, for two *Gleichenias*; Mr. J. Napier, Murrayfield, 1st, for three filmy Ferns; Mr. David Lawson, Craigcrook Castle, 1st, for three *Adiantums*; Mr. W. Henderson 1st, for two exotic Ferns, distinct from any others in schedule; and Mr. Napier, for four exotic Ferns, distinct from any others in schedule.

For six dwarf British Ferns, for which there was very close competition, the first prize fell to Mr. J. Cumming, Dundas Street, Edinburgh.

Roses in pots were perhaps never better represented than on this occasion in the Waverley Market. The first prize lot of six plants, put up by Mr. John Paterson, were especially good, one *Gloire de Dijon* in particular, a plant about 2 feet in diameter, carried some sixty blooms and buds, the latter full of promise. In the class of three Roses, Mr. Bald took 1st position with good specimens.

Cyclamens were never better shown in Edinburgh, though it was regrettable the competitors were not more numerous and equal in calibre. Mr. J. Ford, gr., Penlaw House, was a very easy 1st, with grand plants of very superior varieties.

Mignonette, both standard and dwarf plants, were very fine and closely competed for; A. Brown, Liberton, J. Cowan, Blackford Road, Edinburgh, and G. Potter, N. Berwick, being the 1st prize men in the several classes.

Forced flowers, such as *Deutzia gracilis*, *Spiræa japonica*, *Staphylea colchica*, *Dielytra*, *Rhododendrons*, and *Gaulea Rose*, were in general good.

Chinese Primulas were good and plentiful, so also were *Primula obconica*; the latter being particularly well done, Mr. A. Bald, Oswald Road, being the leading man in both. The exhibit of Messrs. Ryder of P. Sieboldi, at last year's spring show gave a fillip to the culture of this grand spring flower, with the effect that several entries for the prize offered by the Society turned up on this occasion. Very fairly cultivated plants were staged in the class, and the 1st prize fell to Mr. Samuel Johnston, Silerbit Hall, Hawick. *Primula vulgaris*, including *Polyanthus*, we have seen in larger numbers here, but not often better presented. Mr. John Ramage, Wallhouse, and Mr. Robertson, Hartrigge, Jedburgh, were the leading men in the several classes.

Auriculas were rather a poor show. Mr. Henderson, Clermiston, set up the best six alpine, and also the best six stage varieties. The prominent sorts in the latter class were Lady Jane Gray (Dixon), Tam O'Shanter (Cunningham), Grace Darling (Low), and Eclipse (Martin).

In the class for six alpine plants there were several very meritorious exhibits, including *Soldanellas*, *Drabas*, and varieties of *Saxifraga oppositifolia*, which should have had a better position than they obtained, the points obviously on which the awards were made being the quantity of flower exhibited on each plant, a consideration which, if often repeated, will banish alpine plants from the Society's spring show—a circumstance much to be regretted, as there are many alpine plant fanciers in the neighbourhood.

Hyacinths, if somewhat fewer in number than at the average shows of the Society at this season, were really good, notwithstanding prognostications to the contrary.

In the nurserymen's class of twenty-four, not less than twelve varieties, Mr. John Sutherland, Lenzie, stood 1st; Messrs. R. B. Laird & Sons, 2nd.

Roses.—Cut blooms were well shown by gardeners and amateurs. Fine blooms of *Maréchal Niel*, *The Bride*, *Niphetos*, *Catherine Mermet*, *Grace Darling*, and *La France*, were shown in the several stands, and the principal prize takers were: John Ramage, Wallhouse; James Wynter, Rockville, Linlithgow; John Pearson, Murrayfield; and Thomas Fender, Cultochey, Creiff, whose twelve *Maréchal Niel* were superb.

FRUIT AND VEGETABLES.

Fruit was a poor show, taken simply as a display of fruit, but there were some very fine samples of Pears and Apples, some ordinary Pines, and fair last year's Grapes, and some excellent Strawberries, both in pots and dishes. "Noble" Strawberry, from its grand and attractive appearance, seemed to carry everything before it, except in the dishes, in the judging of which, presumably, there would be the infallible test of tasting the fruit employed.

Mr. McIndoe, Hutton Hall, was the first prizeman in Pines; Mr. Smith, Oxenford Castle, 1st in six pots of Strawberries. Mr. McIntyre, The Glen, Inverleithen, 1st, in a dish of thirty fruit. In Grapes the only competitors were Wm. Smith, Oxenford, and Stephen Castle, Fordingbridge, Hants. Mr. McIndoe was 1st in twenty-four kitchen Apples, which were very fine; and in dessert Apples and in kitchen Pears he also led the way.

Vegetables were a limited show, but in some cases unexpectedly good, considering the killing weather that has been experienced during the last month, particularly in this district. The best collection of twelve distinct kinds was tabled by Mr. Robertson, Hartrigge, Jedburgh, and the next best by Mr. Gideon, Rothies, North Berwick, each had excellent samples of Broccoli, Leeks, and new Potatoes, and were

without any duplication of varieties, made up of twelve distinct kinds of vegetables.

Salads in collection, without any limitation of kinds, brought out two singular lots. In order to make numbers, such things as *Oxalis acetosella*, and sundry weedy species of Dock were introduced, an effort which was freely criticised by gardeners generally.

NURSERYMEN'S EXHIBITS.

These were not numerous, and their competitive classes were sparsely entered for. In the latter, Messrs. Laird & Sons had a kind of general walk over, although, had there been competition, it would certainly have required some merit to have taken 1st honours from them.

Among their table plants was, very notable, a beautiful *Dracæna* named *Grossartii*, not yet in commerce, a neat, narrow-leaved form of graceful habit, brightly margined with crimson, and *D. Lord Wolseley*, having broader leaves, widely margined with deeper crimson. *Cupania elegantissima* appeared to be new to most of the visitors, and was much admired, and *Elæcis melanococca* was regarded as a promising Palm. The plant in their collection, however, which attracted most attention, was *Rhododendron Williamsii* ×, which is unquestionably an acquisition to greenhouse decorative plants. Messrs. Dicksons & Co. had a very nice table of miscellaneous plants of varied character, comprising such peculiar subjects as *Amorphophallus Rivierii* along with some grand seedling forms of *Cliveia* *ininiata*. Among the latter was a very remarkable variety named "Red-braes." The size of the truss of flowers, and also of the individual blooms, along with the deep orange-scarlet tint of the outer half of the sections of the perianth, and the bright yellow colouring of the base of the same distinguish the variety above anything else known in these parts. The plant was awarded a First-class certificate, and was generally looked upon as a gain in this growingly popular class of plants. Messrs. Methven & Sons had a very pleasing table of miscellaneous plants, comprising *Azaleas*, *Rhododendrons*, and other spring flowering and forced subjects, gracefully interspersed with Japan *Acers* and *A. negundo variegata*, Ferns, Palms, &c., the whole forming an attractive group. Messrs. Ryder & Son, Manchester, put up a fine exhibit of their varieties of *Primula Sieboldii*, which were much admired.

Messrs. Laing & Mather, Kelso, had an exhibit of *Carnation Souvenir de la Malmaison*, in variety; the plants were very fine, and the blooms good, considering the season.

Obituary.

MR. GEORGE CHILD, formerly a partner in the firm of Beck, Henderson & Child, of the Adelphi and Upper Thames Street, died on the 28th ult., at his residence at Balham, at the age of seventy-four. Some forty years or so ago the seed business of Field & Child became incorporated with that of Beck & Allen, of the Adelphi, and Mr. Henderson becoming a partner also, the reorganised house was known as Beck, Henderson & Child, at the Adelphi Wharf. The construction of the Thames Embankment caused the firm to remove about 1859 to Upper Thames Street, and, on the death of Mr. Henderson, it became incorporated with that of Waite & Co., of Southwark Street. Mr. Child was at one time a liberal supporter of the Gardeners' Royal Benevolent Institution, and for some years chairman of the stewards of the annual dinner. He was greatly respected and esteemed within the circle of the wholesale seed trade, but little known outside of it.

MR. JOHN GREY.—Many of your readers will regret to hear of the sudden death of Mr. John Grey, who was gardener to Lord Willoughby de Eresby and his predecessor, at Normanton Park, Stamford, for

a period of thirty-six years. He died in his chair, after a few days' indisposition, on March 26, aged 68, and was laid to rest, on March 28, in Normanton churchyard, only a short distance from the beautiful terrace garden, which he always made so pretty with spring flowers. *W. H. Divers.*

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.	
	Above (+) or below (—) the Mean for the week ending March 28.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.						Below 42° difference from Mean since Jan. 4, 1891.
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Ins.					
1	3 —	2	32	+ 52	15	7 +	61	14.6	13	22
2	2 —	8	34	+ 19	29	Over.	34	4.4	23	29
3	1 —	11	27	+ 10	58	2 —	38	3.3	31	28
4	2 —	16	37	+ 3	104	1 —	39	3.2	45	32
5	2 —	15	34	+ 6	81	2 —	33	3.3	35	30
6	3 —	14	32	+ 36	132	1 +	35	5.2	39	30
7	1 —	8	24	+ 31	1	2 +	44	8.4	23	27
8	1 —	12	23	+ 38	24	Over.	31	3.7	24	29
9	2 —	15	22	+ 18	98	1 —	34	5.8	36	34
10	2 —	12	25	+ 25	12	3 +	44	4.5	18	31
11	1 —	26	13	+ 20	28	2 —	36	4.1	40	33
12	2 —	24	8	+ 12	46	2 —	38	5.5	53	44

The districts indicated by number in the first column are the following:—
Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 28, is furnished from the Meteorological Office:—

"The weather has been in a cold and unsettled condition generally, with frequent showers of snow, sleet, or cold rain. Over the greater part of England and in the south of Ireland the showers were, as a rule, slight, and many intervals of sunshine were experienced. Sharp thunderstorms occurred on Thursday over many parts of England.

"The temperature has continued below the mean, the deficit having ranged from 1° to 3°. The highest of the maxima, which were registered on the 25th over England, and on irregular dates in Ireland and Scotland, ranged from 56° in 'England, E.' and 'S.' to 48° in 'Scotland, N.' and 'W.' The lowest of the minima were generally recorded either on the 22nd or 23rd, when the thermometer fell to 19° in the 'Midland Counties,' to 22° in 'England, E.' 23° in 'England, S.' and to between 24° and 31° in most other districts; in 'Scotland, W.' and 'England, S.W.' however, temperature did not fall below 32°.

"The rainfall has been more than the mean in the north and west of Scotland, and in the south of England, and has just equalled the normal in the east of Scotland and north-west of England; in all other parts of the kingdom there has been a slight deficit.

"Bright sunshine has been fairly prevalent over the greater part of England, the Channel, and the south of Ireland, but shows a decrease in most parts of Scotland and over northern Ireland. The percentage of the possible duration ranged from 53 in the 'Channel Islands,' and 45 in 'England, E.' to 18 in 'Ireland, N.' and 13 in 'Scotland, N.'"

MARKETS.

COVENT GARDEN, April 2.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. Ed.]

A BETTER trade doing this week, consequent upon lower prices. Heavy supplies of indoor goods. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.		s. d. s. d.	
Artichokes, Globe, each	0 4 - 0 6	Lettuces, per dozen...	3 0 - ...
Beans, French, lb.	2 0 - ...	Mushrooms, punnet	2 0 - ...
Beet, red, per dozen	2 0 - 3 0	Mustard and Cress, punnet	0 4 - ...
Brussels Sprouts, lb.	0 6 - ...	Parsley, per bunch...	0 4 - ...
Carrots, per bunch...	0 6 - ...	Seakale, per basket	2 6 - 3 6
Cauliflowers, each	0 9 - 1 0	Shallots, per lb.	0 6 - ...
Celery, per bundle	2 6 - 3 6	Spinach, per bushel...	7 0 - ...
Cucumbers, each	0 6 - 0 9	Tomatos, per lb.	0 9 - 1 3
Endive, per dozen	4 0 - ...	Turnips, per bunch	0 6 - ...
Herbs, per bunch	0 4 - ...		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Aralia Sieboldi, doz.	8 0—18 0	Ficus elastica, each	1 6—7 0
Aspidistra, doz.	18 0—42 0	Foliage plants, vari-	ous, each ...
—speci. plants, each	7 6—10 6	Genista, per dozen	9 0—12 0
Azalea, per dozen	24 0—42 0	Hyacinths, per doz.	6 0—9 0
Bouvardias, p. doz.	9 0—18 0	Lily of the Valley,	per dozen pots
Cineraria, per dozen	8 0—10 0	Marguerites, doz.	6 0—12 0
Cyclamens, dozen	9 0—18 0	Mignonette, per doz.	6 0—9 0
Cyperus, per dozen	4 0—12 0	Myrtle, per doz. pots	6 0—12 0
Dielytra, per dozen	8 0—12 0	Palms in variety,	each ...
Dracæna terminalis,	per dozen ...	—viridis, per doz.	12 0—24 0
—viridis, per doz.	12 0—24 0	Primula sinensis, doz.	4 0—6 0
Euonymus, in var.,	per dozen ...	Roots for bedding,	in boxes, each, from
Ericas, various, doz.	8 0—18 0	Spiræa, per dozen	9 0—12 0
Evergreens, in var.,	per dozen ...	Solanums, per doz.	9 0—15 0
Ferns, in var., doz.	4 0—18 0	Tulips, per doz. pots	6 0—9 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Apples, 4-sieve	... 3 6- 8 0	Lemons, per case	... 15 0 20 0
— Nova Scotia, brl.	15 0-25 0	Pine-apples, St. Mi-	
Cobs, Kent, 100 lb.	... 40 0-45 0	chael, each	... 2 0 8 0
Grapes, lb.	... 1 6- 3 6	Strawberries, p. lb....	6 0- 8 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Anemone (Fr.), 12 bun	2 0—4 0	Myosotis, 12 bun.	... 4 0—6 0
Azalea, 12 sprays	... 0 6—1 0	Narcissus (paper white), 12 sprays	1 6—4 0
Bouvardias, per bun.	1 0—1 6	— French, 12 bun.	... 2 0—6 0
Callæthiopica, 12 bl.	3 0—6 0	Narcissus (yellow), 12 bun.	... 3 0—6 0
Camellias, white, 12 blooms	... 2 0—4 0	— Poeticus (Pheasant Eye) 12 bun	6 0—8 0
„ cold., 12 blms.	0 9—1 6	Pelargoniums, scarlet, 12 spr.	... 0 6—0 9
Carnations, 12 blms.	1 0—3 0	Poinsettias, 12 blms.	... 4 0—6 0
Cyclamens, per doz	0 3 0 6	Primroses 12 bun.	... 1 0—2 0
Daffodils, various, 12 blooms	... 0 6—1 0	Primulas, double, 12 sprays	... 0 6—1 0
— (Foreign), 12 bun.	2 0—6 0	— single, 12 sprays	0 4—0 6
Eucharis, per dozen	4 0—6 0	Roses, Tea, per doz.	1 0—4 0
Gardenias, per doz.	3 0—8 0	— coloured, dozen	3 0—6 0
Heliotropes, 12 spr.	0 6—1 0	— yellow (Maréchals), per doz.	... 3 0—6 0
Hyacinths, Rom., 12 bunches	... 1 0—2 0	— red, per dozen	6 0—12 0
Hyacinth, various, 12 spikes	... 3 0—6 0	— do., French, doz.	1 0—3 0
Lily of the Valley, 12 sprays	... 0 6—1 0	Snowdrops doz. bun.	1 0—3 0
Maiden Hair Fern, 12 bunches	... 4 0—9 0	Tuberose, 12 blms.	... 1 0—2 0
Marguerites, 12 bun.	3 0—6 0	Tulips, various, 12 bl.	0 9—1 6
Mignonette, Fr., bu.	1 6—2 6	Violets, 12 bun.	... 1 6—3 0
Mimosa (French) 12 bun.	... 12 0—15 0	— Parma, Fr., bun.	2 6—3 6
— (French) basket	4 0—6 0	— dark, Fr., bun	... 1 0—2 0

ORCHID-BLOOM IN VARIETY.

OLD POTATOS have advanced 5s. to 10s. per ton, and are likely to continue firmer.

NEW POTATOS.—An improvement in price for best samples of Kidneys, and price likely to be still higher. Rounds trade very quiet, and prices still low.

SEEDS.

LONDON: April 1. —Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that the protracted winter delays sowing operations. A spell of favourable weather would create a strong consumptive demand for farm seeds, under which the moderate stocks held would be quickly consumed. As regards Clover and grass seeds, there are this week no quotable variations. Blue Peas and Haricot Beans meet a brisk request, and supplies are rapidly dwindling away. Bird seeds are unaltered. Rape and Linseed keep firm.

FRUIT AND VEGETABLES.

SPITALFIELDS: April 1.—The supplies of fresh vegetables very short; good demand. Good supply of fruit; fair demand. Potato trade good. Prices as follows.—English Apples, 4s. to 10s. per bushel; American do., 8s. to 22s. per barrel; foreign Tomatoes, 1s. to 1s. 9d. per box; forced Rhubarb, 1s. 3d. to 1s. 9d. per dozen bundles; natural do., 3s. to 4s. 6d. do.; Spinach, 2s. 6d. to 4s. per bushel; Brussels Sprouts, 1s. 6d. to

2s. 9d. per half-sieve; Turnip-tops, 6s. to 8s. per sack; Swede-tops, 7s. to 8s. do.; Sprouting Broccoli, 5s. to 6s. 6d. do.; do., 2s. 9d. to 3s. 6d. per sieve; Curly Kale, 2s. 6d. to 3s. 6d. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Savoys, 7s. to 12s. per tally; Cauliflowers, 2s. 6d. to 3s. 6d. per dozen; Greens, 4s. to 8s. per dozen bunches; Turnips, 2s. to 2s. 9d. do.; Carrots, 4s. to 6s. 6d. do.; Parsley, 7d. to 10d. per lb.; Horseradish, 1s. to 1s. 3d. per bundle; Parsnips, 1s. to 1s. 9d. per score; Beetroots, 4d. to 6d. per dozen; Endive, 2s. 6d. to 3s. 6d. do.; Cabbage Lettuces, 2s. to 3s. 6d. do.; Leeks, 4s. to 4s. 6d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; English Onions, 7s. to 7s. 6d. per cwt.; Bordeaux do., 4s. to 5s. per case; Spanish do., 2s. 6d. to 4s. do.; Belgian do., 2s. 6d. to 3s. per bag of 110 lb.; Dutch do., 2s. 6d. to 3s. do.; Carrots, 35s. to 80s. per ton.

STRATFORD, March 31.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 3s. 6d. to 4s. 6d. per tally; Savoys, 5s. to 9s. do.; Greens, 1s. 6d. to 2s. 6d. per sieve; do., 4s. to 5s. 6d. per dozen; Cauliflowers, 1s. 6d. to 2s. 6d. do.; do., 7s. to 10s. per tally; Turnips, 2s. 6d. to 3s. per dozen bunches; do., 50s. to 70s. per ton; Carrots, household, 60s. to 80s. per ton; do., cattle feeding, 33s. to 40s. per ton; Parsnips, 1s. to 1s. 9d. per score; Mangels, 20s. to 23s. per ton; Swedes, 20s. to 26s. per ton; Onions, English, 120s. to 140s. do.; do., Dutch, 2s. 6d. to 5s. per bag; German, 5s. to 5s. 6d. do.; Apples, English, 3s. to 10s. per bushel; Cress (hot and cold), 2s. per dozen bunches; Celery, 8s. to 12s. per dozen rolls; Radishes, 9d. to 1s. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: March 31.—Quotations:—Hebrons, 100s. to 120s.; Magnums, 95s. to 130s.; Dunbars, 130s. to 140s.; Bruce's, 105s. to 135s.; Imperators, 100s. to 120s.; French Chondons, 80s. per ton. Belgian Whites, 3s. 4d. to 4s.; German Imperators, 4s. 6d. to 4s. 9d.; do., reds, 4s. 3d. to 4s. 9d. per bag.

SPITALFIELDS: April 1.—Quotations:—Magnums, 90s. to 125s.; Regents, 100s. to 130s.; Champions, 90s. to 110s.; Imperators, 110s. to 130s.; and Hebrons, 100s. to 120s. per ton.

STRATFORD: March 31.—Quotations:—Magnums, 100s. to 115s.; Hebrons, 100s. to 110 s.; Imperators, 100s. to 115s.; Elephant's, 110s. to 120s. per ton.

HAY.

Averages.—The following are the averages of the prices at the principal metropolitan markets during the past week:—Clover, prime, 80s. to 102s.; inferior do., 45s. to 75s.; hay, best, 60s. to 87s.; inferior do., 26s. to 50s.; and straw, 20s. to 38s. per load.

NOTICES TO CORRESPONDENTS.

AMARYLLIS: *Thomas*. The specimen sent is badly affected with a fungus, *Saccharomyces glutinis*, as seen in the red spots on the stalk, and also on the petals; that would account for the impaired growth of the flower. Give entirely fresh soil, &c., and strengthen the bulbs as much as possible, but if any are very badly diseased, it is better to burn them.

ARAUCARIA: *Aracaria*. The gumming is probably caused by faulty nutrition, the roots may be in a bad condition, or the frost may have injured the young growths.

ASTILBE-SPIRÆA: *Querist*. It is very difficult to draw a definite line between Saxifragæ and Rosacæ, and Astilbe is one of the intermediate genera difficult to distinguish from Spiræa; nevertheless, as Astilbe stands as a recognised genus in Bentham and Hooker's *Genera Plantarum*, vol. i., p. 635, it is preferable to use the name Astilbe in gardens also till good cause is shown to the contrary.

CHARCOAL: *Anxious*. This substance is not an essential in a Vine-border, and the chalk which you mention would answer the same purpose, if the loam of which the border is made is light.

CUCUMBERS: *C. B.* Not having seen the insects which devour the plants, we cannot say with certainty what it is—probably some species of weevil. Spread a white cloth or paper under the plants towards nightfall, and then go suddenly into the house after dark with a light. If they are weevils, you will observe them drop on to the cloth or paper. To kill these predators, pour boiling water into all crevices and hiding-places. This should be done in the day-time. Let the leaves remain on the stems of the plants as long a time as possible. The tendrils may be removed. Cucumbers, unlike Melons, do not need to be much ventilated. A close steamy atmosphere at a temperature of 70° by night and 85° by day will suit them. Enough air must be admitted as will

allow of healthy sturdy growth being made. Top-dress the beds with manure and loam when the roots appear on the surface. Syringe the plants afternoon and morning in bright weather, but not in the morning in dull weather if beads of moisture hang on the leaves.

MANURE FOR STRAWBERRIES: *C.* For a sturdy habit of growth, 2 cwt. of ground bones, or bone-meal as it is sometimes called, may be applied per acre, mixed with 3 cwt. of muriate of potash. This may be sown between the rows of Strawberries and lightly forked in; or, if the plants are not set out, then a rather larger quantity of bone-meal may be used, say 3 cwt. per acre, mixed with the same amount of potash, digging the ground a good spit deep, so as to thoroughly incorporate the manure with the soil. If wood-ashes are used, from 50 to 60 bushels per acre would be required with the bone-meal, but the potash should in this case be omitted. There is no danger of applying too large a quantity of wood-ashes, even if small pieces of unburnt wood or charcoal are intermixed. As good bone-meal contains from 3 to 4 per cent. of nitrogen, a much smaller amount of stable or farm-yard manure than is usually applied for Strawberries may be employed. *J. J. W.*

MELONS: *C. S.* The plants sent are very feeble, and much drawn, a state of things due to want of light and ventilation and too much warmth combined. You will scarcely do any good with them; replace with strong plants from later sowings. The brown colour of the poor, thin leaves may be due to scalding, the presence of sulphur on the pipes, or ammoniacal fumes of stable manure. No insects or fungus.

NAMES OF PLANTS: *J. Tomkins*. Agave xylonacantha. Please send some flowers.—*A. B.* Fourcroya Bedinghausii. Flowered at Monsin, 1863, and several times at Scilly, and elsewhere since. Flower-spike attains a height of from 15 to 20 feet.—*J. H. 1*, Cryptomeria japonica; 2, Cedrus atlantica glauca, probably; 3, Abies Nordmanniana; 4, Juniperus virginiana. *Bruce*. There was only one specimen sent, Bignonia speciosa. The box was smashed, and the postage underpaid.—*J. K.* Stephanotis floribunda.—*J. H. 1*, Salvia coccinea; 2, Hepatica angulosa; 3, H. triloba, fl.-pl. var.; 4, Bifrenaria (= Lycaste) Harrisonæ.—*W. M.* Dendrobium aggregatum.—*T. H.* Rubus rosæflorus.

PALMS AND AZALEAS: *W. B.* The appearance of the leaf sent is most likely due to failure of root-action, by exhaustion of the soil in which it stands. The Azaleas are commencing to grow, because they have been kept too warm and too moist; pinching-out may do if the flower-buds are still good.

SEEDLING DAHLIAS: *C. B.* You may keep them in a cooler place than the Cucumber-house—say, in warm frame, where the thermometer at night stands at 50°. In a very warm place they would draw too much. Stop them when they have made a few true leaves; by the end of April the plants should have become inured to cool frame treatment. Do nothing that will check growth.

TOMATOS: *X. Y. Z.* The leaves have the appearance of having been checked in growth—perhaps by cold air, or it may have been fog.

WALNUT TREE: *T. A. H.* The flowing away of the sap is evidence of internal decay. There is nothing to be done in such cases; although, perhaps, clearing out the decaying wood, charring the inner surfaces of the hole, covering the surface with tar and filling in with cement, would arrest decay for a time.

CATALOGUES RECEIVED.

H. LOADER, Sydenham, S.E.—Begonias, Chrysanthemums, Pelargoniums, &c.

DIED.—At Boldre Grange, Lymington, Hants, on March 13, STANFORD COSSAR, gardener, aged 29 years, fourth son of the late James Cossar, gardener, Eskgrove, Inveresk, Musselburgh.

COMMUNICATIONS RECEIVED.—H. H. D'O.—F. W. B.—Ch. de B., Lierre.—Professor Kirk, Wellington, N. Z.—A. S. M.—A. D.—R. D.—D. T. F.—G. P.—Prof Sargent, Brookline, Mass.—J. Bywater.—T. C. & Co.—W. W.—R. E.—W. S.—W. A.—G. E.—W. F.—D. E.—W. H. S.—D. Wilkie—R. C. W.—H. H. W.—H. E.—J. A.—J. D.—R. D.—J. J. W.—Thomas Waugh, Invercargill, N. Z.—Z. Z.—W. Smith.—J. E.

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The Gardens, Rushon Hall, Kettering, Nov. 10, 1890.—Dear Sirs,—I regret I had not an opportunity of testing your Silicate on early vineries. I used it on two late vineries with excellent results. It is certainly the best artificial manure I have tried. Gros Colmar, which have lacked colour in previous years, are as black as Sloes; other varieties equally benefited.—I remain, yours respectfully, JOHN CRUICK-SHANK, Gardener to E. C. C. Thornhill, Esq.

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QUICK. LASTING. ECONOMICAL.

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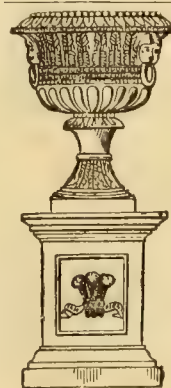
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The GARDENERS' CHRONICLE

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BRITISH QUEEN and other STRAWBERRIES; BLACK HAMBURG and other GRAPE VINES; BROWN TURKEY and other FIGS; broad leaved PRIVET, 4 to 7 feet. WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

LAXTON'S STRAWBERRIES.—April is a safe month to plant, and I can still supply good runners of the best, new, and well-known sorts, including Competitor, White Knight, Cardinal (new 1890), Latest of All, Noble, Crescent Seedling, Albert, Commander, &c. Priced Lists free, from T. LAXTON, Seed Grower, Bedford.

GOLDEN YEWS, fine specimens, 5 to 6 feet high, and 5 to 6 feet in diameter, in various shapes; also smaller sizes in great variety. Many thousands to select from. Price on application. H. LANE & SON, The Nurseries, Berkhamstead, Herts.

Trade Offer of Large Kentias and Cocos. W. ICETON begs to offer some extra fine BELMORIANA, FOSTERIANA, MOOREANA, and RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on Application. Inspection invited. Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

LOVEL'S YORKSHIRE STRAWBERRIES, for Spring Planting.—100 strong plants, in four good varieties, 3s., carriage paid for cash. Select Descriptive LIST, free. W. LOVEL AND SON, Strawberry Growers, Driffield.

WILLIAMS' EUREKA SHADING (Registered). For GREENHOUSES, SKYLIGHTS, WINDOWS, &c. Lasts the whole season. Sold in 1-lb. packets, with directions for use, price, 1s. each; 1 lb., free by Parcel Post, 1s. 4½d.; 2 lb., free by Parcel Post, 2s. 6d. B. S. WILLIAMS AND SON, Victoria and Paradise Nurseries, Upper Holloway, London, N.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney. WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next.

LILIES, PLANTS, and ROSES.

Comprising 2000 very fine bulbs of LILUM AURATUM and various other JAPANESE LILIES, a large assortment of English grown LILIES, hardy plants and bulbs, 400 Standard and Dwarf ROSES, MAKECHAL NIEL ROSES in pots, JAPANESE IRIS, FERNS and GREENHOUSE PLANTS from an English nursery, 56 lots of choice named CARNATIONS and PICOTEEES, and a few lots of LATTICE WOOD TRELLIS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 13, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Tuesday and Wednesday Next.

The entire Collection of ESTABLISHED ORCHIDS, formed by J. J. D. Paul, Esq., of The Lawns, Norwich, who is giving up their cultivation in consequence of change of residence.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY NEXT, April 14 and 15, at half-past 12 o'clock each day, the above Collection of ESTABLISHED ORCHIDS, comprising in all about 2500 Plants, including 1500 Odontoglossum Alexandrie, mostly unfowered; 400 O. cirrhosum, large plants of Cologyne cristata, Lelia amanda, Cymbidium eburneum, Sobralia macrantha, Cattleya aurea, Cologyne cristata alba, Cattleya labiata Pescatorei, Cypripedium, Cattleyas, Lelias, Oncidiums, and other Orchids. The Plants are well grown and in good condition.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 17, at half-past 12 o'clock, a grand importation of the rare and magnificent ANGLOA RUCKERII, in splendid masses. Our collector informs us that the deep blood-red form, "Sanguinea," is largely represented in this consignment, also many other forms of great beauty, some being pure white, possibly "Eburnea." It is many years since an importation of this noble Orchid has been brought before the public, and it is not often that such fine specimens as these now offered are seen.

Also a magnificent importation of the lovely SACCOLARIUM BLUMI MAJUS in splendid condition, and well-shaped masses. Large importations of DENDROBIUM INFUNDIBULUM, D. LUTEOLUM, D. DALHOUSEANUM, D. HEDYOSUM, D. JAMESIANUM FLORIBUNDUM, D. FORMOSUM GIGANTEUM, COLOGYNE LENTIGINOSA, SACCOLARIUM CURVIFOLIUM, CYMBIDIUM ERUBESCENS and TIGRIDIA, and a quantity of ESTABLISHED ORCHIDS, all in the best health and many in bud and flower.

On view morning of Sale, and Catalogues had.

Tuesday, April 21.—Preliminary Notice.

The well-grown Collection of ORCHIDS formed by H. R. Mark, Esq., of Beckenham.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, April 21.

Fuller particulars will appear next week.

Orchids in Flower.

SPECIAL SALE, TUESDAY, APRIL 23.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive notice of entries as early as possible.

Wednesday and Saturday Next.

1500 choice named Standard and Dwarf ROSES, from well-known growers; several hundred FRUIT TREES, Ornamental SHRUBS and CONIFERS, PALMS and GREENHOUSE PLANTS, L. LONGIFLORUM from Japan, Home-grown LILiums, fine collection of CARNATIONS, French PEONIES, PHLOXES, FINKS, and other BORDER PLANTS, GLADIOLI, SPIRÆAS, and an immense quantity of various BULBS and ROOTS.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, April 15 and 18, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Thursday Next.

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 16, at half-past 12 o'clock precisely, a fine collection of ESTABLISHED ORCHIDS in FLOWER and BUD, including Cypripedium Dautierii superbum, 6 growths; Cologyne cristata alba, Dendrobium Ainsworthii, D. Wardianum, D. Dominianum, D. nobile nobiliss, Seedling Cypripediums in bloom, Masdevallia Chelonii, Oncidiums, Cattleyas, Odontoglossums, &c.

On view morning of Sale, and Catalogues had.

Thursday, April 23.

ORCHIDS, CHIEFLY in FLOWER and BUD.

MESSRS. POPE AND SONS will SELL by AUCTION, on APRIL 23, at half-past 12 o'clock, at their Sale Rooms, 6, Phillips Street, Birmingham, a large and choice quantity of ORCHIDS, chiefly in FLOWER and BUD. Gentlemen desirous of INCLUDING PLANTS in THIS SALE will greatly oblige by sending their Lists as soon as possible, so that the Catalogue can be well circulated in time.

Bath, near.

LEASEHOLD NURSERY BUSINESS with DWELLING-HOUSE for DISPOSAL. 7 Glass-houses, Stock to be Valuation, say about £30, easy terms. Apply POWELL and POWELL, Union Street, Bath.

TO BE SOLD, a NURSERY, with extensive

Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, and easy of access per rail to Manchester, Wigao, and Liverpool. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

MUST BE SOLD, a bargain, an old-estab-

lished LEASEHOLD NURSERY in North London, with eight-roomed house and stabling. Main thoroughfare. Doing a good all-round trade, to which greenery could be added. Four houses, well heated and stocked. Satisfactory reasons for disposal.

G. L. WEBB, Newsagent, Grove Road, Holloway, N.

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(Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

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MESSRS. POPE & SONS, HORTICULTURAL

AUCTIONEERS and VALUERS, 6, Phillip's Street, Birmingham, hold SALES at their Rooms as follows:—

CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday).

MISCELLANEOUS PLANTS and BULBS every THURSDAY. NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

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Have an immense Stock of Orchids,

And they are constantly receiving Importations from various parts of the world.

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BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.

BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.

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MESSRS. CHAS. LEE AND SON have still

to offer the following VINES, in good strong Canes, fruiting and planting:—Ainwick Seedling, Mrs. Pearson, Golden Queen, Royal Muscadine, Buckland's, Duke of Buccleugh, Madresfield Court, Esperione, Forster's Seedling. Royal Vineyard Nursery, 2, Hammersmith Road, W.

ASPARAGUS, 3-yrs. old for planting, 3s.

per 100. Cash with order. My Asparagus always makes top price at Covent Garden.

J. J. CLARK, Market Gardener, Goldstone, Brighton.

FERNS! FERNS!! FERNS!!!—Trade

offer. Twenty most saleable sorts, 12s. per 100; Adiantum cuneatum, for potting on large stuff in 2½ pots, 18s. per 100; fine stuff in large 60s, 20s. per 100; in 48 pots, full of top, 50s. per 100. Large Ferns, in 48s, 45s. per 100, in 6 sorts. Packed free. Cash with order.

J. SMITH, London Fern Nurseries, Loughboro' Junction, S.W.

DAHLIAS A SPECIALTY.—Thousands to

select from; strong plants; best varieties only. I was awarded Royal Horticultural Society Silver Medal, and First Prizes at all the principal Shows in England in 1890, which is a sufficient guarantee that my collection is one of the best. See prices in Catalogue, on application.

HUMPHRIES, Nurseryman, Chippenham.

Gentlemen.

MY GLOIRE DE DIJON are very strong.

My CLEMATIS are being sold very cheaply.

My RHODORA CANADENSIS are covered with buds.

My AZALEAS are fine and healthy.

CHARLES NOBLE, Bagshot.

To the Trade.

JERUSALEM ARTICHOKE.—Fine quality.

Lowest price per bushel, cwt., or ton, on application to JAMES CARTER AND CO., 237 and 238, High Holborn, London, W.C.

ROYAL BOTANIC SOCIETY,

Gardens, Regent's Park.

SECOND EXHIBITION OF SPRING FLOWERS,

WEDNESDAY, April 22.

Gates open at Two o'clock. Band from 2.30 to 5.30.

Tickets to be obtained at the Gardens only by vouchers from Fellows of the Society, price 2s. 6d. each.

CRYSTAL PALACE.

The Great FLOWER SHOW of the Season,

SATURDAY, May 9. Entries close May 2.

Schedules on application to—

Mr. W. G. HEAD, Superintendent, Gardens Department, Crystal Palace, S.E.

CLAY CROSS HORTICULTURAL SOCIETY.

ANNUAL FÊTE, AUGUST 11. Schedules ready in a few days.

G. LAMB, Assistant Secretary.

Holland.

AN INTERNATIONAL FLOWER SHOW

will be held at UTRECHT on APRIL 23 to 26 NEXT. GOLD MEDALS and valuable PRIZES will be distributed for ORCHIDS and other FLOWERS and PLANTS. Railway Companies from London to Utrecht via Flushing have agreed to charge freight in one direction only, carrying gratis on return journey. The Government will pass packages through the Frontier, examining them on arrival at destination.

For further particulars, apply to G. W. J. HOOFT, Esq., Utrecht.

RICHMOND HORTICULTURAL SOCIETY.

The SUMMER SHOW will be held in the OLD DEER PARK, Richmond, on WEDNESDAY, June 24, 1891.

For Schedules and all particulars, apply to—

J. H. FORD, Hon. Sec.,

22, George Street, Richmond.

THE SOCIETY OF APOTHECARIES OF

LONDON, give notice that a COURSE of twelve LECTURES on BOTANY, will be delivered by J. G. BAKER, F.R.S., F.L.S., at their Garden at Chelsea, on the Saturdays of May, June, and July next, at 3 p.m. The Lectures will be open to all medical students and other gentlemen being desirous to attend. Tickets of admission to be obtained of the Bedell.

J. R. UPTON, Clerk to the Society.

Apothecaries Hall, London, E.C., 1891.

HARDY AZALEAS.—A selection of the

most beautiful, many of which were raised in this Nursery, well furnished plants, covered with buds, from 1½ to 3 feet high.

AZALEA MOLLIS.—Very fine plants up to 2½ feet, well budded.

AZALEA OCCIDENTALIS × MOLLIS.—White, with lemon blotch—very beautiful, offered for the first time.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

BEGONIAS A SPECIALTY.—Awarded

Four Gold Medals, and Gold Cup, and all First Prizes. Seed saved from Prize plants. In beautifully illustrated packets, choice mixed, single or double variety, 1s., 2s. 6d., and 5s. per packet. Collections—single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, named singles, from 12s. to 42s. per dozen; unnamed seedlings, 12s. to 21s. per dozen; bedding, choicest, 6s. and 9s. per dozen; choicest named doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Catalogues gratis.

JOHN LAING AND SONS, Begonia Growers, &c., Forest Hill, London.

Trade Offer.

W. ICETON begs to offer the following

PALMS:—

Strong ARECA LUTESCENS, in 60s, at 60s. per 100;

" COCOS WEDDELLIANA, in thumbs, at 20s. and 40s.;

" SEAFORTHIA ELEGANS, in thumbs, 20s. and 30s.;

" KENTIAS, BELMORANA and FOSTERIANA, in thumbs, 40s. and 75s.

SEEDLINGS in Stores, at 30s. per 100.

ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.

Extra fine PANDANUS VEITCHII, in all sizes.

Putney Park Lane, S.W.

To Nurserymen, Builders, Local Boards, Vestries,

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Road, Wandsworth, S.W., begs to offer an extensive stock of FOREST and ORNAMENTAL TREES, SHRUBS, ROSES, GRAPE VINES, FRUIT TREES, CLIMBING PLANTS, &c., which being grown in the neighbourhood of London, are especially suitable for town planting. Also a large stock of extra fine SEAKALE and RHUBARB for forcing, sample and price of Seakale sent by post if desired; descriptive CATALOGUE free.

Araucaria imbricata.

ARAUCAARIA IMBRICATA, 3 to 3½ feet, 36s. per dozen, or £14 per 100; 4 feet, 45s. per dozen, or £20 per 100. Largest and finest stocks in the country. The best season for removal.

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DUM LONGIFOLIUM, 2s. 6d. to 10s. 6d.; C. LAWRENCEANUM, 2s. 6d. to 7s. 6d., some showing spike; DENDROBIUM BENSONIÆ, flower shortly, 5s., 7s. 6d., 10s. 6d.; D. JAMESIANUM, strong growths, 5s., 7s. 6d., 10s. 6d. Please write for LIST of cheap, healthy plants. Cash with order.

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to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

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DAY LILIES and PLANTAIN LILIES,
grand hardy plants, for naturalising in grass, orchards, woodland walks, wild gardens, &c. Special Cheap Offer, to clear ground, 500 PLANTAIN and DAY LILIES, in variety, for 68s.; 100 do. for 15s.

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T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

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HOLLIES, from 2 to 15 feet high.
GOLD, SILVER, and GREEN.
CEDRUS DEODARA, fine plants, up to 20 feet, sure to move.
TEA ROSES, in pots, in good order for planting.

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Splendid Bulbs, 3s. 6d. & 5s.; the finest ever imported, 7s. 6d. each

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Best Bulbs for Pots, 5s. per dozen; special price per 100.

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GARLIES MITCHELL, Nurseryman, Stranraer.

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ARTICHOKE GLOBE, LARGE FRENCH LAON (true),

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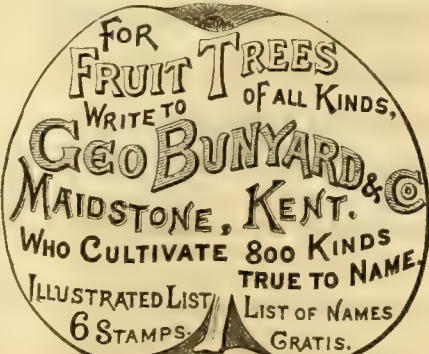
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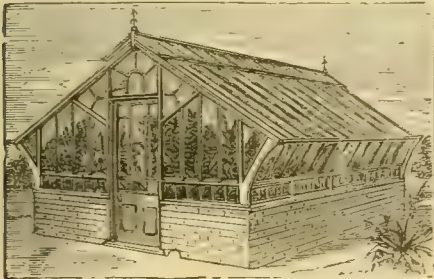
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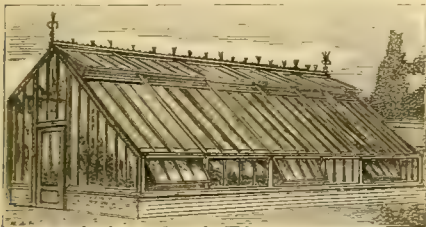
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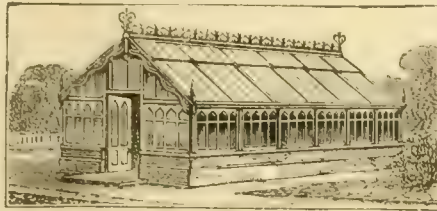
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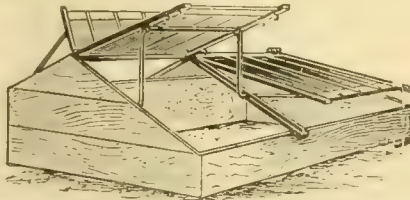
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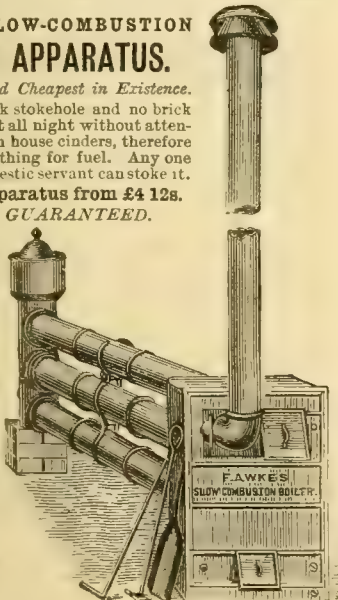
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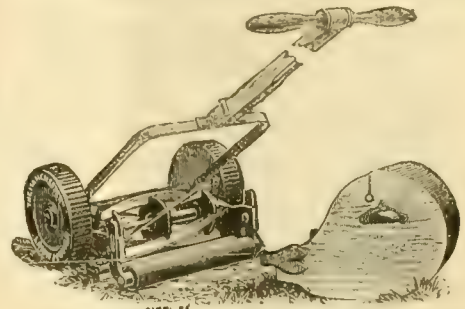


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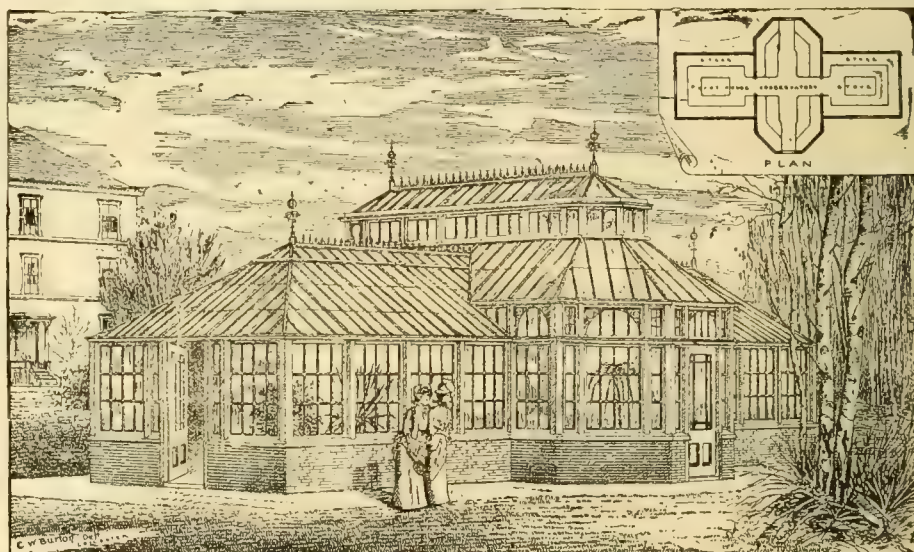
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SATURDAY, APRIL 11, 1891.

CULTIVATION OF ALPINE PLANTS IN SPHAGNUM.

FOR several years past, in the plains of Italy, the most tender alpine plants have been cultivated in sphagnum under circumstances most unfavourable to their development. For some time I had heard of similar experiments which were tried in the Botanic Garden at Genoa, and I had been so much interested that not being able to go there myself, I sent one of my friends to inspect them. He returned charmed with what he had seen. However, that is but a trifle compared to what I have just seen at Pavia, in the Botanic Garden of the University, which deserves a special visit from all amateur alpine gardeners. The head gardener of this fine establishment, which is so rich in various plants, is M. Camillo Traverso, an enthusiast where the alpine flora is concerned. He has succeeded in naturalising in this garden all the alpine species of *Vaccinium*, which are so difficult to cultivate on the Continent. *Vaccinium uliginosum*, *Vitis Idæa*, *Oxycoocus*, *Myrtillus*, seem quite at home here, and abound on the rockeries. But still, this is not all. Along a wall, which goes completely across the Botanic Garden, and which is exposed to the full south, M. Traverso has made little rockeries, which are like so many alpine botanic gardens on a small scale, and in which plants from the highest altitudes grow as luxuriantly and vigorously as if they were on a mountain-top. The top of the wall is bordered by masses of tufa, cemented to the wall, and containing a dense cushion of sphagnum, which M. Traverso placed there without even depriving it of life, and which decomposes gradually. In this sphagnum, which does not contain an atom of earth, he placed alpine plants which he already had, or which he had brought from the mountains (mountains are far away from the vicinity of Pavia!), and an even greater number which he had raised from seed. All prosper, and seem to be in good condition. I have even seen there very tender species, such as *Soldanella*.

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which were quite covered with flower-buds. *Soldanella* covered with flowers at Pavia! We have great difficulty in growing them successfully at Geneva, and even in our Botanic Garden of the Linnaea. I was there on March 12, and when I left Geneva some eight days before, we had not a single bloom. On the rockeries at Pavia, *Soldanellas* were blooming, and specimens of the bright *Draba aizoides* were opening their many flowers. Various species of *Saxifrage*, alpine *Primulas*, *Androsaces*, and *Campanulas* from high elevations were growing there, and seemed ready to flower in a few days; but I was most surprised at the Composites, such as *Achillea* and *Artemisia*, from the high alpine regions—plants which we have considerable trouble in growing at Geneva, but which are abundant, and multiply readily at Pavia. Then the *Edelweiss*, splendid masses of it, vigorous, well grown, full of promise and life, self-sown among the rocks and sphagnum; also *Arnica montana*, a plant which I have given up attempting to acclimatise at Geneva, but which here springs up capitably and thickly in the sphagnum, where it forms quite a carpet. I do not know how best to describe the beauty and vigour of the plants from the highest altitudes, which are thus cultivated in pure sphagnum in central Italy, in the broad plains of Lombardy, where the sun shines with such ardent rays—they must be seen to be appreciated. But I have now learnt the full value of sphagnum; for a long time past I have mixed some with the soil in which I sow my alpine seeds, and I have found it answer well. Henceforth, I shall utilise it for the culture in full sunshine of the most tender species of alpine, and who knows but that *Eritrichium* may find in it the materials necessary for its perfect development. I shall not fail to inform the readers of the *Gardeners' Chronicle* of the results of my experiments in this matter, and I particularly advise them also to try this method of culture for themselves. *H. Correvon, Director of the Jardin Alpin d'Acclimatation, Geneva.*

NEW OR NOTEWORTHY PLANTS.

ONCIDIUM MONACHICUM, *Rchb. f.*

This splendid species was described in these columns in 1883. The other day, Mr. F. W. Moore, of Glasnevin, sent a fine raceme, 10 feet long, and bearing fifteen of its handsome yellow and brown flowers. These bear much resemblance to those of *O. falcipetalum*, Lindl., but the petals are invariably locked together at the apex into a kind of ring, as in *O. annulare*, Rchb. f., of which a fine raceme was received a few months ago from V. Faus, gardener to Baron Hruby, Petschkau, near Kolin, Bohemia, and a few others. I have often thought over the use to the plant of this remarkable arrangement—for we now know that such peculiarities are not meaningless, though our facilities for understanding their use are necessarily limited, through our not being able to observe the plants in their native wilds, and our ignorance of the species of insects which visit the flowers. After an examination of the flowers now sent, I am able to offer what appears to be a probable explanation of the phenomenon. We know that in *Bulbophyllum Lobbii* and some others, when an insect alights on the nicely-balanced lip, the balance is upset, and in that manner the pollen-masses are removed. In *Oncidium monachicum* the tissue of the petals is very thin just at the apex of the claw, and the petaline ring rocks backwards and forwards, from the lip to the column, describing an arc half-

an-inch long, as the flower is tilted a little, very similar to the movement of the lip of *Bulbophyllum Lobbii*. The action is marvellously perfect, and is the same in every flower. I, therefore, suspect that in some way the flowers are fertilised by an insect which in some way upsets the balance of the petaline ring, and is precipitated on to the column. On imitating the action on two flowers, the pollinia came away with the slightest touch. I hope to be able some day to examine flowers of this or allied species while still attached to the plant, and in their natural position. Meantime, I record my observations, that the attention of others may be drawn to this interesting point in the economy of fertilisation in this group of Orchids, for I am not aware that it has been previously recorded. *R. A. Rolfe, Herbarium, Kew.*

CYCNOCHES ROSSIANUM, *Rolfe, n. sp.**

This is a most interesting species of the remarkable genus *Cycnoches*, often known as Swan's-neck Orchids. It has flowered in the collection of Signor H. J. Ross, Poggio Gherardo, Florence, Italy, on various occasions; but in 1889 it produced both a male and female raceme on opposite sides of the same pseudobulb. These were sent to Kew, and on comparing them I was unable to identify them with anything hitherto described, and therefore believe them to represent a new species. The origin of the plant is unknown, except that it was purchased as *C. Warszewiczii*, which, however, it is not, that species having denser male racemes of wholly green flowers. In the present species the male racemes are long, slender, and few-flowered, and the flowers, when expanded, about $1\frac{1}{2}$ inch in diameter, heavily blotched with purple-brown on a light yellowish-green ground. The female raceme bore a single flower; but as there are three bracts, I suspect that at least two flowers are occasionally produced. This flower is twice the size of the male, and of a uniform bright green, except that the lip is a shade darker than the other segments. There are no brown spots, as in the males. The great difference in size, colour, and texture of the male and female flowers is remarkable. It is a most interesting addition to the genus, and makes at least the fifth species of which both sexes are known, the others being *C. ventricosum*, Lindl. (the male of which was described as *C. Egertonianum*, Lindl.), *C. Loddigesii*, Lindl., *C. Warszewiczii*, Rchb. f., and *C. pentadactylon*, Lindl. There are about half-a-dozen others, of which only one sex is known; but it is to be hoped that ere long some other blanks in our knowledge of this sportive genus may be filled up. *R. A. Rolfe.*

PHAIUS COOKSONI ×.

We have before us a flower from Mr. Sander of the hybrid raised by Mr. Cookson, and which was figured in our columns in 1890, Mar. 29, p. 389, between *P. tuberculosus* and *P. Wallichii*. The foliage is broad and strong, like that of *Wallichii*, as is the flower-spike, which reaches in the plant now in flower at St. Albans a height of $2\frac{1}{2}$ feet. The flower is, on the whole, more like that of the seed-parent *P. Wallichii* than of *P. tuberculosus*,

* *Cycnoches Rossianum*, n. sp.—Pseudobulb subfusiform, about 3 inches high, 2- to 4-leaved. Leaves narrowly lanceolate, acuminate, about 3 to 6 inches long. Racemes and flowers sexually dimorphic. Male racemes pendulous, elongate, and slender, about $2\frac{1}{2}$ feet long, and with thirteen flowers. Bracts lanceolate, acute, $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Flowers membranous, segments variously recurved, light yellowish-green, heavily blotched with purple-brown. Dorsal sepal narrowly lanceolate-linear, acute, 1 inch long, scarcely 2 lines wide; lateral ones a little shorter, and subfalcate. Petals a little broader than lateral sepals, but similar in other respects. Lip with slender claw, about 4 to 5 lines long, and nearly circular blade, with about ten oblong or clavate marginal appendages, the whole about 4 or 5 lines in diameter. Column very slender, nearly an inch long. Female raceme erect, with three bracts and a single flower (probably two flowers are sometimes borne). Bracts ovate-oblong, acute, $\frac{1}{2}$ inch long. Flower coriaceous, the segments spreading, colour bright green. Sepals narrowly lanceolate, acuminate, $1\frac{1}{2}$ inch long, 4 lines broad. Petals $\frac{1}{2}$ inch broad, otherwise similar. Lip ovate, very acute, very fleshy, $1\frac{1}{2}$ inch long, about 7 lines broad, slightly darker green than the other segments. Column stout, 5 lines long. Habitat unknown. *R. A. Rolfe.*

especially in colour, but is curiously intermediate in size and form. The most striking difference is in the lip. In *P. tuberculosus* the lip is three-lobed, the two lateral lobes forming a deep cup with the edges rolled back; outside this cup is shining yellowish, inside it is yellow, deep red at the base, thickly sprinkled with red spots, and beset with long slender gland-tipped hairs. The centre of the lip is occupied by a narrow, yellow, two-ridged band, at the base of which is a thick tuft of glandular hairs like those on the side lobes. The anterior lobe of the lip is flattish, purplish, and marked by four rugose fleshy yellow ridges. Arching over this portion of the lip is a slender white column.

In the hybrid, the lip is rolled round the column as in *P. Wallichii*; it is of a yellowish colour suffused with deep purplish-brown, with a yellow band in the centre, destitute of the hairs and crest which are so characteristic of *P. tuberculosus*.

In habit the plant partakes of the nature of *P. Wallichii*, in being a terrestrial form, and not after *P. tuberculosus*, which is a weakly grower, difficult of cultivation, and epiphytal in habit. *M. T. M.*

THE TEMPERATURE OF GLASS-HOUSES IN WINTER.

IN the report of the Scientific Committee for March 24, in the last number of the *Gardeners' Chronicle* (p. 440), the following remarks are attributed to me:—"As a rule, gardeners are apt to keep the temperature higher than is desirable, for it tended to render the air too humid, and possibly injurious; whereas a cooler temperature rendered the air dryer, and the plants were less susceptible to cold." What is here stated is not merely the very opposite of what I said, but also the very opposite of the fact. For this latter reason it is worth a few words of explanation.

The Kew practice of keeping the winter temperature of the houses as low as we dare, is based on the result of practical experience. I do not dogmatise for other people who want to solve their own problems, and find out what is best for their particular requirements for themselves. But as Mr. Henslow has pointed out, the theory of the subject has been stated clearly by Lindley. And it may not be amiss to quote a few words from his classical *Theory and Practice of Horticulture* on the subject.

The point of the whole matter is, that in winter with a low external temperature and nocturnal radiation, it is practically impossible, in a large glass-house, to keep the internal atmosphere humid with a high temperature. I quote from Lindley, p. 207:—

"Another source of dryness is the coldness of the glass roof, especially in cold weather, when its temperature is lowered by the external air, in consequence of which the moisture of the artificial atmosphere is precipitated upon the inside of the glass, whence it runs down in the form of 'drip.'"

Again, "It is evident that the mode of preventing this drying of the air by the cold surface of a glass roof will be either by raising the temperature of the glass, which can only be effected by drawing a covering of some kind over our houses at night, so as to intercept radiation, or by double glass sashes; or else by keeping the temperature of the air as low as possible, consistently with the safety of the plants, and so diminishing the difference between the temperature of the external and internal air."

In large glasshouses it is obviously impracticable to adopt the expedients which Lindley suggests. The only alternative is to do what we do at Kew—lower the temperature as much as possible, and so secure the highest possible relative humidity, with the double result of keeping the plants at rest and of checking their desiccation.

What I was glad to learn from Prof. Francis Oliver was, that the adoption of a low temperature is also the best method of minimizing the injury which we receive from the sulphurous acid now brought to us in annually increasing quantities by the winter fogs. *W. T. Thiselton-Dyer.*

KEW NOTES.

IRIS ROBINSONIANA.—At last this plant has been coaxed into producing three flower-spikes at Kew, where in the Succulent-house (No. 5), it has been represented by an exceptionally large example. This species is remarkable in being by far the largest *Iris* known, and in being found wild only in Lord Howe's Island, where it is known as the Wedding Flower. It has been cultivated in a few gardens in England, for about twenty years, but notwithstanding the most careful and varied treatment, it has never flowered till now. Possibly, Mr. Dorian-Smith, of Tresco, will object to this statement, for this *Iris* did flower in his

through, and as the house is never shaded, it has enjoyed abundance of air and sun at all times. These conditions, together with the constant supply of water at the root, ensured by the continual dripping of a tap close to the mound, have produced a specimen 6 feet through and 7 feet high, the leaves from 3 to 4 inches wide, 8 feet in length, and erect, save the upper foot or so, which is gracefully curved over; they are a healthy glaucous-green, and remain on the plant several years. Even without the flowers, so fine a plant is, for an *Iris*, both interesting and strikingly ornamental. No flowers have expanded at Kew yet. According to descriptions of them, they are 4 inches across, and pure white,

blade divided into three roundish leaflets, dark green with reddish wavy margins. The spathe is a most extraordinary-looking object, suggesting in its large inflated, hooded, upper part the flower of *Iris Susiana*. Sir Joseph Hooker's description of it is:—"Spathe very large, tubular portion 4 to 6 inches long, cylindric, expanding above into a convex crown, which again dilates into the lamina, deeply grooved; grooves dull purple, the ridges broad and white; lamina of spathe 6 to 10 inches broad, deflexed, spreading out into broad lateral wings, which are almost convolute, deeply cleft in front; whole surface of a brown-purple colour, netted with prominent green veins." The spadix ends in a thread-like tail a foot long, and twisted tendril-like. It is almost impossible to convey by means of words a good idea of the remarkable appearance of this flower, but it is one of the strangest of the many strange things one sees in the flowers of the *Arum* family. For this and other rare and interesting species of *Arisæma*, Kew is indebted to the kindness of Dr. King of Calcutta, and Mr. Gammie of Darjeeling.

Pentapterygium serpens.—This is one of five species of *Vacciniaceae* shrubs, natives of the Eastern Himalaya and Khasia. It was introduced through Mr. Elwes ten years ago to Kew, where it flowered for the first time in 1884, and was figured in the *Botanical Magazine*, t. 6777. It has a tuberous irregular rootstock, 6 inches through, from which spring six stout branching shoots, forming a loose shrub a yard through, the upper portions gracefully arched and clothed with dark green, Box-like foliage. The flowers hang thickly in a single row from the lower side of the leafy branches, each one being an inch long, tubular, five-angled, and coloured bright crimson, with transverse V-shaped darker veins. The plant is well worth a place among popular greenhouse plants, as it is easily cultivated, of good habit, and very attractive when in flower. *P. rugosum*, better known as *P. vacinium*, is an older and better known species. (T. Range.)

Beschorneria tubiflora.—According to Mr. Baker, there are only five good species in this genus, which is related to *Agave* and *Doryanthes*. In habit they resemble some of the *Furcraeas*, differing in having a short rootstock, no distinct stem, and rosulate lanceolate leaves, from 1 to 2 feet long. The flower-spike is clothed with bract-like leaves, and on the upper branching half with drooping tubular flowers. The species above-named is in flower in No. 5. It has a scape 3 feet high, flesh-coloured, bearing numerous flowers in pairs or threes, each 1½ inch long, funnel-shaped, and coloured reddish-green. It is a native of the mountains of Central Mexico, from whence it was brought into gardens nearly fifty years ago. *B. Cohniana* is another name for this species. The largest and handsomest of all is *B. Decosteriana*, which flowered at Kew in 1884, and was figured in the *Botanical Magazine*, t. 6768.

Stenomesson (Coburgia) incarnatum.—This is a handsome bulbous plant, native of the Andes of Peru and Bolivia, and hardy enough to bear the temperature of a cold greenhouse if only frost is excluded. Its only fault is its shy flowering disposition—a fault unfortunately common to the genus. By treating the bulbs liberally when growing, resting them thoroughly in a cool dry-house during the winter, and starting them in a little warmth in spring, they will, however, flower sometimes. The above and its variety *Peruvianum*, as well as *S. luteo-viride*, are now in flower in the T range at Kew. The first-named has *Amaryllis*-like leaves, a stout scape, 18 inches high, bearing a umbel of flowers, each of which is tubular, with a spreading limb, and coloured rich rose-red, with an oblong blotch of deep green on the tips of the outer segments. *S. luteo-viride* has yellow flowers with green-tipped segments.

Pitcairnia Maroni ×.—One of the handsomest of all *Pitcairnia*s is *P. corallina*, which has broad arching leaves a yard long, and cernuous peduncles a foot long, clothed with numerous fleshy tubular flowers an inch long, and coloured bright coral red



FIG. 94.—*IRIS ROBINSONIANA*: SHOWING HABIT OF GROWTH. HEIGHT 7 FEET.

garden in 1888, where it produced a spike 5 feet high, with about sixty flowers. Perhaps, however, we may be excused if, for the sake of argument, we state that the Scilly Isles are not in England. Mr. Nock, Superintendent of the Public Gardens at Hakgala, Ceylon, also succeeded in flowering this *Iris* in 1885. He wrote:—"Planted round a pond are several interesting plants, among them being the Wedding Flower, a gigantic *Iris*. One flower-spike contains from 120 to 200 blooms, which come out a few at a time, but only last twenty-four hours; the plant is in flower for several months."

The Kew specimen was planted six years ago on a raised mound at the end of the bed inside, near the south door of the house above-mentioned. During summer, this door is open almost the whole day

except at the base of the outer and larger petals, which are marked by irregular lines of bright golden-yellow. [A full account of this plant, by Dr. G. Bennett, of Sydney, with the illustrations now reproduced, drawn from a plant which flowered in the Botanic Garden at Sydney (figs. 94, 95), will be found in our columns for March 23, 1872, p. 393. ED.]

Arisæma Griffithii.—Several examples of this Himalayan Aroid are now flowering in the T-range, where a comprehensive collection of *Arisæmas* has been for some weeks an attraction. *A. Griffithii* was figured in the *Botanical Magazine* in 1880, and described by Sir Joseph Hooker as "by far the finest species of the genus as yet known." It has a large fleshy tuber, a pair of leaves 1 foot high, with the

Between this and *P. Altensteinii*, M. Maron, gardener at the Castle of Herbault, Loire et Cher, raised a hybrid which was named in compliment to him by M. André in 1884, who published a figure of it in the *Revue Horticole* for 1885. A plant of it may now be seen in flower in the T range at Kew. In habit it resembles *P. corallina*, but the leaves are not so large, and they are devoid of the black spines which clothe the petiole of *P. corallina*. The scape is 1½ foot long, erect, and clothed with numerous flowers, the whole scape, bracts, flowers, and all, being coloured deep crimson. This hybrid deserves to rank among the best of garden Bromeliads. *W. W.*

The *Alpine-house* is worth a special visit just now, being peculiarly gay with *Narcissus*, *Primulas*, *Muscari*, *Saxifrages*, of which *S. Rocheliana* is one of the best, and plants of that character. The *Shortia*, as beautiful as it is botanically interesting, is in flower, and we were told by Mr. Dewar that it proves to be hardy also at Kew. *Dimorphotheca graminifolia*, is a very pretty Composite, with the ray florets of a golden-fawn colour on the under surface, and white above. The true *Ammoniacum* plant has not much real right to a place in the alpine-house, but its elegant foliage makes it ornamental anywhere. This house is so attractive at all seasons, that it is greatly to be hoped that it may not only be extended, but rendered more instructive by being made more distinctly representative of alpine floras, and of the peculiar organisation of the plants of such regions.

In No. 4, the show-house, the plan of grouping masses of the same species is persevered in. *Azaleas*, *Choisya ternata*, *Cinerarias*, *Conoclinium ianthinum*, *Staphylea colchica*, *Cliveias*, *Agathosmas*, *Lachenalias*, and *Tulips*, constitute the more conspicuous attractions of a house, wherein one is always sure to find something to admire.

ORCHID NOTES AND GLEANINGS.

CATTLEYA PERCIVALLIANA.

I see in your issue of February 14, that Mr. Catt in the *Orchid Calendar*, complains of *Cattleya Percivalliana* being a shy bloomer; now as that is different to my experience here, it may be of interest to some of your readers to hear how it flowers in this country, where it is fully as free as *Cattleya Trianae*. I have had it with three flowers on a stem, and have seen it with four and rarely less than two flowers. There is one plant in the collection of which I have charge, which had nine doubles and one single, and one with three flowers on a stem. Our plant has about sixty pseudobulbs. There appear to be two varieties differing as regards the growth, one having large pseudobulbs and long leaves, the entire length of which is 15 inches, and the other variety has much shorter pseudobulbs and leaves—the larger grower has the finer flowers. We grow the plants in three different ways, in pots, on blocks, and in baskets, and they succeed in all, although I prefer them in pots as being easier to attend to. *G. S., Chicago.*

ORCHIDS AND FOG.

That fog does not injure Orchids to any appreciable extent, if they are in suitable and well-managed houses, is proved by those grown in his large heated conservatory, by Dr. Richard Neale, at 60, Boundary Road, London, N.W.—perhaps one of the foggiest districts. Dr. Neale has not lost a single plant, nor had one injured. At present, or recently, in bloom or bud, were several fine *Cœlogyne cristata* major, *Odontoglossum crispum*, *O. Pescatorei*, *O. maculatum*, *O. Rossi majus*, *O. Cervantesii*, *Cymbidium Lowianum*, *Dendrobium thyrsiflorum*, *D. crassinode*, *Miltonia cuneata*, *Lycaste Skinneri*, and *Oncidium unguiculatum*. These, with *Cliveias*, *Lily of the Valley*, and other flowers, arranged with Ferns and Palms, make a pretty show, and amply reward the trouble bestowed on them. The Orchids

are chiefly growing in baskets; and the balusters of the broad flight of steps which leads from the drawing-room are furnished with numerous brackets on which the plants are arranged, thus rendering them both useful and ornamental. *J. O'B.*

DENDROBIUM SUPERBUM GIGANTEUM.

From the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Moor Green, Birmingham, Mr. Burberry, the Orchid-grower at that place, sends me a fine example of this showy species, which is more commonly known in gardens as *D. macrophyllum giganteum*. The name "*macrophyllum*," however, was previously applied to the plant which is often called *D. Veitchianum*. The flower of Mr. Chamberlain's specimen is 6 inches wide, of a rosy-lilac colour, and the lip has a purplish-crimson hue. The only drawback this showy species has is a powerful odour of Turkey Rhubarb. *J. O'B.*

CÆLOGYNE CRISTATA.

When I stated in my short note on Orchids at Clarendon Park, at p. 333, that "*Cœlogyne cristata*, which was a mass of white flowers a few weeks ago, is now showing a second lot of flower-spikes," I thought it was unnecessary to remark that the floral spikes then showing were doubtless produced by bulbs which had not flowered earlier in the year; thinking that all gardeners having any practical acquaintanceship with the plant would come to that conclusion as soon as they had read my note. But Mr. W. H. Divers' interrogatory note at p. 404, goes to show that I was not quite correct in my inference. *W. H. W.*

EFFECT OF PAST WINTER ON SHRUBS AT KEW.

In the report of the last meeting of the Scientific Committee of the Royal Horticultural Society, I am made to say, that "shrubs at Kew, which, though they had apparently withstood the frost, and were perfectly healthy, and pushed forth buds, yet suddenly died." This does not give a quite correct idea of the actual facts as stated by me. What I observed was, that notwithstanding the long persistence of a low temperature at Kew, the bulk of our shrubs and evergreen trees did not at the close show the amount of injury which might have been anticipated. I confess I was sanguine enough to hope that we should have suffered a very small amount of injury. That hope I am now afraid will by no means be realised.

As soon as the sun came out, and milder weather followed the frost, the shrubs began to go off wholesale; the green colour of the leaves disappeared, and they turned, not brown, as in autumn, but pale and grey. My conviction is that they bore the low temperature with comparative immunity, but that they could not bear the sudden transition from a low temperature to a high one. Mr. Morris tells me that precisely similar phenomena are observed at high levels in the tropics after frost.

I am quite sure that Mr. Wilks' theory that the shrubs are killed at the base, is not the explanation at Kew, though, from local circumstances, it may be true of his own garden. And certainly it is not the case that any of our shrubs pushed forth buds before their premature decease. *W. T. Thiselton-Dyer.*

CULTURAL MEMORANDA.

THE COMMON ASPARAGUS AS A DECORATIVE PLANT.

EFFECTIVE decorative plants may easily be raised every month in the year by sowing seeds of the common Asparagus singly in small pots, three-parts filled with light rich mould, the seed being covered with half an inch of soil. When the pots are placed in heat, the young plants soon appear, and, given a position near the roof-glass, they speedily attain to

useful dimensions. The light graceful habit, and fine pale-green foliage of the plant, have a good effect when intermixed with flowering and bright-foliaged plants. *H. W. Ward.*

TUBEROUS-ROOTED BEGONIAS.

Those who may wish to increase their stock of Begonias for bedding-out or conservatory decoration, may easily do so by taking off cuttings of 2 inches long from growing plants. The simplest way to work up a stock of strong plants in a short time is to place 1 inch of drainage in a wooden box or an earthenware seed-pan, 5 inches in depth, putting 2 inches of light sandy soil over this, making the same quite firm before dibbing the cuttings into it at 2 inches apart, and watering through a fine rose to settle the soil; then place the cuttings on the front hot-water pipes in a forcing-house, and cover them with a piece of glass. When the cuttings are rooted, pot them into suitable-sized pots, in a compost of three parts sandy loam, and one of leaf-mould and spent Mushroom dung. *H. W. W.*

STANDARD EUONYMUS.

The variegated forms of *Euonymus* are not frequently grown as standards, yet, when treated as such, they are welcome acquisitions to the shrubbery. The stocks for the purpose should be of the common sort (*E. europæus*), and must be well established in the pots before being grafted in January and February, which should be at about 3 or 4 feet up from the pots. When grafted, they must be removed to deep frames, or placed on their sides in close cases in the propagating-house, with a temperature of 60° to 65°, and in about three weeks' or a month's time a union will be formed; then the cases must not be kept quite so close, and after a short time the plants may be lifted out and stood in more airy and sunny positions, but they should be kept growing in the pots until the following year, giving weak liquid manure once or twice a week whilst they are growing; this not only increases the amount of growth, but greatly adds to the colouring. Syringe freely with clear water on bright days, not forgetting to apply water to the under sides of the leaves. When good heads have been made, the plants may be set out in different parts of the shrubbery, so that their heads may be seen above the neighbouring shrubs. The following are a few good varieties for the purpose:—*Duc d'Anjou*, *latifolia albo-variegatus*, *latifolius aureus*, *radicans Silver Gem*, and *radicans variegata*; the last two are, perhaps, the best of all. *H.*

CHIMONANTHUS FRAGRANS GRANDIFLORUS.

Owing to the very severe weather recently experienced, this shrub did not flower so early as usual. Although not particularly showy, the profusion of its flowers at a time when little else can be found in bloom makes it useful. The sweetly scented cup-shaped flowers are usually borne in two's, and are of a light yellow colour with streaks of red on the inside, and are produced before the leaves. To enable it to ripen its seeds, it should be planted in a sunny position; seeds should be sown soon after they are gathered in nice light soil, either in pans or pots which must have good drainage, the seeds being covered with soil passed through a fine sieve, and kept in a temperature of 55°. It is a quite hardy shrub, but with the protection of a wall it will be found to do better, besides showing off its drooping flowers to a still greater advantage. It should never be pruned until the flowering period is passed (say in March), as the flowers are produced on the wood made the previous year, and would therefore be cut away. *H.*

FORESTRY.

TREES FOR IRONSTONE SOILS.

THE district to which I refer, and where the trees mentioned further on were growing in a fairly satisfactory way, is on what may rightly be termed coal and

ironstone, the top soil being usually very shallow, and resting on a poor yellowish rag that is largely composed of iron. On such I was rather surprised to find how well certain trees succeeded, and not a few of our handsomest flowering shrubs seemed also quite at home. I was informed, however, that where the forest trees were of largest size and growing most luxuriantly, there the subsoil had been disturbed, or maybe the "lie" of the strata had much to do with the general welfare of these trees and shrubs. The Spanish Chestnut (*Castanea vesca*) did, perhaps, best of any, there being many clumps or small woods wholly composed of them, and though these were not of unusual nor yet a big average size, yet it was clearly visible to the educated eye that the trees were in a very satisfactory and flourishing condition.

Hard, firm, and of great lasting powers was the well-grained timber, and some that had been used for forcing nearly a quarter of a century before were perfectly free from taint or rot, and looked as if they would last for quite as long again.

Perhaps I should be right in saying that next to or even before the Sweet Chestnut comes the Birch, an excellent tree for such poor soils and generally miserable surroundings. For clothing marshy ground, the bare hillside, the Kentish commons or downs, and the ironstone rag, to no tree do we owe such a debt of gratitude as to the Birch.

True it is not very valuable in so far at most as the timber is concerned, 10d. per foot being gladly received; but the market value is of no or very little importance, where shelter and a clothed appearance are points of first consideration. All over this dreary waste might be seen clumps here and there, joined by straggling single specimens, it might be, of seedling Birches, and arranged in such a way as almost to defy the best landscape gardener to arrange in an equally natural manner. These clumps, when thinned out and pruned, produced very good poles and trees.

Following the Birch, come the Oak in point of merit, but the specimens were not big, though the timber was hard as bone, and highly valued in the district. Stunted and ill-grown were some—not many of the specimens—while others, where the top soil was deeper, and the "rag" more finely broken up, proved themselves to be valuable vegetation for the coal and ironstone regions.

Sycamore did well, there being many 40 feet high specimens, with straight, for, say 15 feet, clean boles, and goodly umbrageous heads. The Sycamore stands the cold, bleak winds well, and is not frightened in such places to throw out good stout limbs into the very teeth of the storm. Then the wood is of great value, and useful for country purposes generally. Seedlings of the Sycamore did not appear in any quantity, unless in one or two of the more favoured spots, and where the soil had been stirred about, most probably in the search for metal.

The Gean, or Wild Cherry, too, was growing amazingly, and flowered in that poor raggy soil in a most persistent and amazing way.

Trees of 30 feet, perhaps bigger, in height, 30 feet in branch spread, and 30 inches in girth, were not uncommon. In that district, away from good roads and towns, the timber of the Cherry did not fetch much, but for durability it was much in request. It, too, reproduced itself abundantly.

Then comes the Beech, not such specimens as the chalk produces, but flat-headed sturdy fellows that one is almost inclined to bestow a new varietal name upon, so distinct of habit and general bearing are the majority. For firewood, whether on the kiln, retort, or parlour grate, the Beech is the most valued of large growing trees. But sometimes the timber is too highly thought of to be burnt, for it may be utilised in a number of ways, and it far excels all others for certain purposes.

Of Elms, the hardy Scotch or mountain tree (*Ulmus montana*) is the best, it rarely refusing to grow under whatever circumstances it may be placed. The timber here produced is small but of great value, though not much so for firewood. The English Elm does not do so well, and I strongly

recommended my good friend the owner to substitute the American winged Elm (*A. alata*) instead, and he said he would.

This American is a fine tree, of no great size, but one of the best I know for planting where storms are of long and severe duration, and where the soil is poor and rocky.

Few conifers, the Larch excepted, did well, Spruce Fir failing in almost every clump where it had been tried.

The Highland Pine (*Pinus sylvestris*) waved its head in not a few of the belts and clumps, but it never attained to a large size, though it looked the picture of health and happiness. It, too, seeded about freely, and some of the clumps were wholly composed of self-sown seedlings.

In the Austrian Pine (*P. austriaca*) was found a good Conifer for this ironstone district, young trees of nearly 20 feet high looking bright and happy; but how they will succeed when the roots tap the coal and iron measures, I know not.

Some other Conifers, experimentally planted, were doing satisfactorily, and a lot of others are now being



FIG. 95.—IRIS ROBINSONIANA: FLOWER, 4 INCHES ACROSS, WHITE, STREAKED WITH GOLDEN YELLOW. (SEE P. 457.)

added, particularly the Pines. The same experiment is being tried with deciduous trees.

Shrubs in my friend's garden included a few choice and good things that I will retail some other time, but I may mention that Rhododendrons—yes, even good kinds—were healthy and medium-sized. *A. D. Webster.*

THE DISBRANCHING OF ARAUCARIA IMBRICATA.

This provoking weakness is referred to in "Answers to Correspondents," p. 250. A poverty of soil, or lack of food and water, are adverted to as likely causes; hence top-dressings of stiffish loam and leaf-mould, and good soakings of water on hillsides or dry sites are pointed out as likely remedies. Assuming that the causes are correctly assigned, possibly no better remedies can be found. It is also almost certain that poverty or dryness of soil, and lack of root food, may cause a loss of branches. But this weakness or disease is so general, as to lead to the inference that it amounts to something like a fault or failure in the constitution of the tree—something analogous to the branch perishing in Apricots.

How seldom, for example, do we see a symmetrical Araucaria by the time it gets into the fifties. The age of symmetry, in fact, is often much marred or wholly gone by the time they have reached the age of our own majority, twenty-one years. Of course, not a few of the trees have been petted and overfed in their growth; rich soils and even rank manures have sometimes

been given with the most gorging and debilitating results. Mushroom growths mostly—push almost as quickly. Hence overfeeding and excessive pampering account for a good many unsightly and marred specimens Araucarias and other trees. But while all these mistakes of planting and of culture are discounted, we have a large solid residuum of facts, some of which at least, would appear to point to natural disbranching. For example, I have known a good many specimens of these trees which, after a time, get into the habit of making and losing branches annually with almost as much regularity as electricity makes and breaks currents. Such plants mostly put forth a full average of vital force, and the result of each year's growth is almost nil. Production and destruction nearly balance each other, as what the tree makes on its crown it loses at its base. The longer it stands, the more lanky and top-heavy it becomes, losing, year after year, more of its symmetry and safety. Occasionally, too, there is a bold break in this correlation between gain and loss, in the ratio of growth and decay, and this generally leans to the side of decay. In addition to the ground tiers of branches dying off annually, others, at a much higher level, and running quite erratically through the substance of the tree, are also left to perish.

Having described the symptoms with, I hope, sufficient clearness, I will put the question whether this can be one of the Araucaria's ways of shedding its leaves? Before rebuking the ignorance that may lurk in this question, I trust the reader will bear in mind how the giants of the Californian swamps, performing their common functions with a giant's energy, shed their leaves mostly in branchlets, probably to economise time and husband vital energy. Again, may not this disbranching of the Norfolk Island Pine be Nature's protest against our persistent efforts to convert it into a prickly sugar loaf for the adornment of our lawns. Can it be that this disbranching is Nature's mode of clearing for more effective defence of its wood and seeds? *D. T. F.* [The disbranching may be a natural process, but when accompanied, as it often is, by gumming, we must suspect some morbid agency. *Ed.*]

DISEASES OF PLANTS.*

(Continued from p. 438.)

THE HETEROCISMAL UREDINEÆ.

This group of fungus parasites is one which has attracted a great amount of attention, not only on the part of scientific botanists, but also on the part of scientists generally. The remarkable point about these Uredineæ being, as the title of our lecture indicates, the peculiarity they have of passing one part of their life-cycle upon one host-plant, and the remainder upon another and a totally different one, belonging to a different natural order. In many cases, one of these hosts is a monocotyledonous plant and the other a dicotyledon. The first species in which this metecism or change of host was found to exist, is, as everybody knows, the Wheat mildew, *Puccinia graminis*. It had long been known to agriculturists from observation, that Wheat and Rye, when grown near Barberry bushes, were especially liable to injury by mildew.

This has been remarked, not only in this country and on the Continent of Europe, but also in the United States, where the Barberry was introduced by the European settlers; for as long ago as 1769 the State of Massachusetts found it necessary to pass a law for the purpose of extirpating the Barberry. Withering, in his *Botany* (1806), speaking of the Barberry, says, "This shrub should never be permitted to grow in corn land, for the ears of Wheat that grow near it never fill, and its influence in this respect has been known to extend as far as three or four hundred yards across a field (2nd edit., 1807, vol. i., p. 366). In 1818, Schæler, a Danish

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.

schoolmaster, published a paper detailing his experiments, which consisted of applying the dust of the Barberry fungus to Rye plants, with the effect of producing the Uredo upon them. In 1867 the late Professor De Bary produced the *Æcidium* upon Barberry by placing the promycelial spores of *Puccinia graminis* upon it, and by a series of careful investigations worked out the life-history of this fungoid parasite. Since then numerous workers have been engaged upon the subject of the heterocœious Uredineæ, so that, at the present time, we are acquainted with some sixty species, whose life-history has been worked out by experimental research. The various spore forms assumed by these Uredineæ, their structure, and their mode of formation, are given in all our modern botanical text-books, so that it is unnecessary for us to go into the details of the various processes which take place.

[The following list gives the names of the fungi in both forms, according to the plant on which it happens to be growing, and also the names of the experimenters who have proved the identity of the two forms and the date of the discovery.]

<i>Puccinia graminis</i>	<i>Æcidium berberidis</i>	De Bary	1864
" <i>rubigo-vera</i>	" <i>asperifolia</i>	De Bary	1865
" <i>coronata</i>	" <i>rhamni</i>	De Bary	1865
<i>Gymnosporangium</i>	<i>Rostelia cancellata</i>	Oersted	1865
" <i>Sabinae</i>	"		
" <i>juniperinum</i>	" <i>cornuta</i>	Oersted	1866
" <i>clavaria-forme</i>	" <i>lacerata</i>	Oersted	1867
<i>Uromyces junci</i>	<i>Æcidium zonale</i>	Fackel	1869
<i>Puccinia caricis</i>	" <i>urtice</i>	Magnus	1872
<i>Uromyces dactylidis</i>	" <i>ranunculi-balsamici</i>	Schroter	1873
<i>Coleosporium senecionis</i>	<i>Peridermium Wolffii</i>	Wolff	1874
<i>Puccinia mollinae</i>	<i>Æcidium orchidis</i>	Rostrop	1874
" <i>sessilis</i>	" <i>allii</i>	Winter	1874
" <i>phragmitidis</i>	" <i>rumicis</i>	Winter	1875
<i>Uromyces pisi</i>	" <i>cyparissiae</i>	Schroter	1875
<i>Puccinia poarum</i>	" <i>tussilaginis</i>	Nielsen	1876
" <i>limosa</i>	" <i>lysimaehiae</i>	Magnus	1877
" <i>sesleriae</i>	" <i>rhamni-saxatilis</i>	Reichardt	1877
" <i>sylvatica</i>	" <i>taraxaci</i>	Schroter	1879
<i>Uromyces populi</i>	" <i>heparicis</i>	Schroter	1879
<i>Chrysomyxa rhododendri</i>	" <i>abietinum</i>	De Bary	1879
" <i>ledi</i>	" <i>abietinum</i>	De Bary	1879
<i>Calypsotheca goepertiana</i>	" <i>columnare</i>	Hartig	1880
<i>Melampsora populina</i>	" <i>clematidis</i>	Ridgway	1881
<i>Puccinia Magnusiana</i>	" <i>ranunculi-repentis</i>	Cornu	1882
<i>Melampsora capreae</i>	<i>Cocoma eunymii</i>	Nielsen	1882
" <i>Hartigii</i>	" <i>ribesii</i>	Nielsen	1882
" <i>aciduloides</i>	" <i>mercurialis</i>	Nielsen	1882
" <i>pumtorqua</i>	" <i>pinitorum</i>	Rostrop	1883
<i>Puccinia dioica</i>	<i>Æcidium cirsii</i>	Rostrop	1883
" <i>eriphoriae</i>	" <i>emerariae</i>	Rostrop	1883
<i>Uromyces striatus</i>	" <i>euphorbiae</i>	Schroter	1884
<i>Puccinia obscura</i>	" <i>bellidis</i>	Plowright	1884
" <i>Schoerhiana</i>	" <i>jacobae</i>	Plowright	1884
" <i>perplexans</i>	" <i>ranunculi-acridis</i>	Plowright	1884
" <i>vulpina</i>	" <i>tanacetii</i>	Schroter	1884
" <i>tenuistipes</i>	" <i>centaureae-jacoeae</i>	Schroter	1885
" <i>arenaricola</i>	" <i>centaureae</i>	Plowright	1885
" <i>phalaridis</i>	" <i>ari</i>	Plowright	1885
<i>Melampsora tremulae</i>	<i>Cocoma laricis</i>	Hartig	1885
<i>Gymnosporangium bi-epitatum</i>	<i>Rostelia botryapites</i>	Farlow	1885
<i>Gymnosporangium confusum</i>	<i>Æcidium mespili</i>	Plowright	1886
<i>Puccinia polinis</i>	" <i>strobilanthis</i>	Barclay	1886
<i>Gymnosporangium calypes</i>	<i>Rostelia aurantiaca</i>	Thaxter	1886
" <i>macrospora</i>	" <i>pyrae</i>	Thaxter	1886
<i>Cronartium asclepiadeum</i>	<i>Peridermium acicola</i>	Cornu	1886
<i>Gymnosporangium tremelloides</i>	<i>Rostelia Mali</i>	Rostrop	1887
<i>Puccinia extensicola</i>	<i>Æcidium asteris</i>	Plowright	1888
" <i>paludosa</i>	" <i>pelicularis</i>	Plowright	1888
" <i>persistens</i>	" <i>thalictri</i>	Plowright	1888
" <i>Trailii</i>	" <i>acetosae</i>	Plowright	1888
<i>Cronartium ribicola</i>	<i>Peridermium Kiebhahnii</i>	Kiebhahn	1888
<i>Gymnosporangium Cunninghamianum</i>	<i>Æcidium psilae</i>	Barclay	1889
<i>Uromyces maritima</i>	" <i>glauca</i>	Plowright	1890
" <i>lineolata</i>	" <i>hippocrepidis</i>	Dieter	1890
" <i>lineolata</i>	" <i>Silicifolia</i>	Dieter	1890
<i>Puccinia agrastidis</i>	" <i>aculeolaris</i>	Plowright	1890
" <i>diaphanoides</i>	" <i>convallariae</i>	Soppitt	1890
" <i>testacea</i>	" <i>periclymeni</i>	Plowright	1890
<i>Melampsora repentis</i>	<i>Cocoma orchidis</i>	Plowright	1890
" <i>beulinc</i>	" <i>laricis</i>	Plowright	1890

Naturally, we ask ourselves why does this metamorphism occur? What advantage to the parasite can accrue from it? It is easy to understand how a change of hosts is advantageous to those entozoa which live half their lives upon an herbivorous, and the other half upon a carnivorous animal, for by this means the dissemination of the parasite is ensured,

for when the one animal feeds upon the body of the other, it, at the same time, ingests its parasites. In the vegetable kingdom, these conditions do not exist, and any similar explanation of the phenomena under consideration cannot apply. It will be remembered that these Uredineæ have a number of spore forms, each of which differs from the others in structure, in the manner in which it is produced, and in function. The function of the teleutospore is to remain dormant during the winter months, until such time as the appropriate host plant is in a condition to receive the new generation of the parasite. Now, although the teleutospore is the most bulky of all the spore forms, it owes its size in great measure to the thickness of its walls which have to protect its contents from the vicissitudes of temperature and of moisture during its period of quiescence. The products of the germination of the teleutospore—the promycelial spores—are not only very small bodies, but are also exceedingly delicate in their structure, and they themselves germinate as soon as they are produced. By reason of their minute size, the amount of protoplasm contained in them does not permit of their emitting an elongated germ-tube of sufficient length to travel over the surface of a leaf in search of a stoma through which entrance into the host plant can be effected. We consequently find that the germ-tubes of promycelial spores almost invariably enter their host-plants by boring through the epidermis. But the host plants of the majority—not all, but the majority—of the heterocœious Uredineæ are provided with very hard impenetrable epidermal structures, namely, the graminææ, junci and carices—through which the promycelial germ-tube cannot pierce. The parasite is therefore compelled, so to speak, to find a host-plant whose cuticle is sufficiently soft for its penetration, and upon which the *Æcidium* can be produced. Now the function of the *Æcidium* is to produce a succession of comparatively large spores, whose germ tubes are adapted by their length to travel over the surface of their host in search of stomata through which they can enter. It is a matter of speculation whether the graminaceous host in the first instance developed its cuticle as a protection against the parasite, or whether, as is more likely, the parasite adapted itself to this adverse condition, and assumed the remarkable habit of alternating its host. Be this as it may, the fact is patent that the promycelial germ-tube, being unable to pierce the hard cuticle of its graminaceous host, has adopted the method of establishing its temporary domicile upon a host-plant possessing soft epidermal coverings.

But there is another group of these parasites, affecting the foliage of deciduous trees, namely, the Melamporæ. Tulasne long ago noted the fact that the winter spores of these fungi would not when applied in a germinating state, give rise to the uredospores on the young foliage; but it was not until 1882 that Nielsen showed them to be heterocœious species, and that we must look for their æcidiospores amongst the *Cæcomata*. Now several of the *Cæcomata* occur on low-growing plants, such as *Mercurialis perennis* and *Orchis maculata*, or upon shrubs, such as *Eunymus* and *Ribes*. In these cases, it is evident that the physical condition of proximity comes into play. When the delicate promycelial spores are produced from the fallen leaves lying upon the ground, they come in contact with the foliage of the low-growing plants or shrubs, on which they produce their *Æcidia*, from whence the more abundant æcidiospores are wafted, later on, upon the foliage of their taller-growing tree-hosts. There is another point, however, which must be considered. The winter spores of the Melamporæ are amongst the earliest in point of time to germinate. This process begins to take place as early in the year as February, that is long before the tree foliage is ready to receive them, and time is thus gained to the parasite. While the above is true, yet it must be observed that the fact of a Uredine establishing its æcidiospores upon a plant or shrub taller than its teleutospore host is of advantage to the species,

because the æcidiospores thereby obtain a wider area of distribution than they would if they were produced upon a low-growing plant no higher than the teleutospore host. These conditions occur with the most widely distributed species of *Puccinia*, viz., *P. graminis* and *caricis*, widely distributed geographically, since they occur all over the world, widely distributed locally, since they are extremely abundant, and widely distributed parasitically, since they occur upon a great number of species of grasses and carices. In the first-named, the æcidiospores occur on a bush (the Barberry); in the latter, upon a high-growing plant (the Nettle).

The foregoing remarks do not apply to the Coniferæ, to which allusion will be made in a moment.

(To be continued.)

NOTICES OF BOOKS.

HANDBUCH DER PFLANZENGEOGRAPHIE (Handbook of the Geography of Plants). By Dr. Oscar Drude. 8vo, pp. 582. With four maps and three illustrations. (Stuttgart, Engelhorn, 1890).

This book is, in a sense, a development, with slight modifications, of the same author's *Atlas der Pflanzenverbreitung*, which appeared in 1887, and was critically noticed by the writer in the Botany of the *Biologia Centrali-Americana*, Introduction, p. xxx. In most recent works treating of the present geographical distribution of plants and animals, the authors have devoted much space and consideration to the primary divisions of the globe into botanical or zoological regions, as the case may be, but with very different results. Other writers, Dr. A. Engler, for instance, have taken palæontological record into account, and, to some extent, based their primary floras, regions, or kingdoms, as they are variously denominated, on the evidence of fossil remains. Leaving out of consideration the imperfect records of the past, there are two distinct methods of dealing with the present distribution of plants and animals—the hypothetical, and the exposition of indisputable facts, Dr. Drude has adopted the latter method, and has entered even less into speculative theories than his predecessor and teacher, August Grisebach.

The one point on which writers on geographical botany have differed more than any other, apart from hypothetical considerations, is primary division.

Dr. Engler makes four primary divisions, namely:—1, Northern extra-tropical region, which embraces all northern, temperate, and arctic countries; 2, palæotropical region, which includes tropical Asia, Africa, Australia, and Polynesia; 3, South American region, which includes, besides tropical America, the Andine flora, and that of the Galapagos; and 4, the old Oceanic region. The last comprises extra-tropical South America, New Zealand, extra tropical Australia, Kerguelen, Amsterdam Island South Africa, Tristan d'Acunha, and St. Helena.

Dr. Drude, in his *Florenreich der Erde*, proposed fourteen primary divisions in three groups—northern, tropical, and southern. I do not propose to reproduce his delimitations here; but I myself have always regarded some of them as too unequal in the composition of their floras to rank as primary divisions. For example, the floras of New Zealand and Madagascar are given primary rank, and, nominally, are equal in importance to his Indian "floral kingdom," which includes tropical Asia, the whole of the Pacific Islands from New Caledonia to the Sandwich Islands, and a large area of North Australia. Mr. Thielton Dyer has contended for three primary divisions, namely, a northern, a tropical, and a southern; and Sir Joseph Hooker's idea of what should constitute the basis of botanical division of the globe is even more restricted, for he would make only two, a tropical and a temperate. I have advocated five primary regions, and I have suggested six; and I would now, after further con-

sideration, prefer the latter course. These are:—1, northern region, including the whole of the north temperate and arctic countries; 2, a neotropical region, or tropical American region; 3, a palaetropical tropical region, nearly continuous with the tropics of the Old World; 4, Andine region; 5, Cape region; and 6, Australasian region. There is something to be said in favour of each of these proposals; and, as a matter of fact, there is very much less divergence of opinion when we come to the further division of the flora of the world into secondary and tertiary areas; indeed, Dr. Drude, in the present work, is careful not to insist too strongly on any particular method of division. The only objection I feel to Sir Joseph Hooker's proposal to begin with two primary divisions—a temperate and a tropical—is, that it does not at the outset bring into sufficient prominence the very great diversity between north and south temperate floras. Starting with three primary regions—a northern, tropical, and southern—in a measure meets this objection, because we at once disassociate the most widely different elements in the flora of the world. The north temperate flora reappears on the mountains in the tropics of all the great land divisions of the globe, and descends again to the sea level in the southern hemisphere—in ever-decreasing proportions to the whole flora, it is true; but northern extensions of southern types are few and limited. The evidence of a large Australian element in the tertiary flora of Europe, contended for by some palaeontologists, is, so far as my knowledge goes, by no means of a convincing character.

Having said thus much by way of introduction, I will now proceed to give an account of Dr. Drude's method of dealing with the subject of plant distribution. He first defines and traces the history of the science, and sets forth the main points kept in view in describing and classifying the facts of plant distribution. Concerning the origin of the science, Drude follows De Candolle in giving Linnaeus credit for having laid the foundation of it in his *Flora Lapponica* (1737), and *Flora Suecica* (1745); and Humboldt, Robert Brown, and Pyr. de Candolle's labour in rearing the edifice are duly set forth. The second section of the work treats of the relationship of the conditions of plant-life to the influences of the varying external conditions in different parts of the world. This, of course, includes the various local and general agencies which go to determine the nature and composition of the vegetation of regions and countries, such as sunlight, heat, precipitation (rainfall, snow, &c.), humidity of the atmosphere, periodicity, topographical and geological agencies, association with other organism, and so on. The third section is devoted to the consideration of the separation of geographical areas by the geological development of the present surface of the globe, and the present climate, together with the character and limitations of the floras of the various regions. Under this head come the peculiarities of insular floras, high mountain floras, and desert floras.

The fifth section deals with the position taken in various floras by the leading groups of plants, with a few statistics. Drude, in common with many other German botanists, recognises about 240 natural orders as against about 200 retained by Bentham and Hooker, and this, in many instances, to advantage in geographical botany. Of these 240 natural orders, ninety-two are almost universally dispersed, seventeen are of segregated distribution,* sixty-nine are characteristic of the tropics, twenty-two are characteristic of southern regions, and forty are characteristic of northern regions. Unfortunately, Dr. Drude does not enumerate these orders, deeming it sufficient to refer to another publication in which he has set forth the matter in detail; but he gives

particulars of the distribution of a selection of natural orders, namely, the Palmae, Coniferae, Cupuliferae, Ericaceae, Myrtaceae, Proteaceae, and the Liliaceae. Some interesting particulars might be added to the account of the distribution of some of these natural orders—the results of recent explorations. Thus of the Coniferae, almost nothing is said of the representation of the order in China, where are now known about fifty species belonging to eighteen genera, more than half of the generally-admitted genera of the order being represented by something approaching one-seventh of the known species. With regard to the distribution of the Cupuliferae, it might be added that the Birch genus extends southward to the hills of Burma and Martaban; and an important slip of the pen on p. 190 should be corrected: *Quercus pseudo-molucca* is said to occur in New Zealand, though doubtless the author intended to write New Guinea.

The fifth section is devoted to an exposition of the association of plant types forming the physiognomies of the vegetation of different regions, and occupies about 100 pages. This, generally speaking, is the most interesting and attractive part of the book, though the author has not a happy and seductive style of writing.

The sixth and last section, occupying nearly 250 pages, is taken up by the description of the floral regions of the earth, geographically arranged. Having already entered into some details on this part of the subject, I have only to add, that the last chapter of this section treats of oceanic vegetation—Sea-weeds and the few flowering plants that inhabit salt water, and the distribution of the more prominent elements.

Taking Dr. Drude's book as a whole, it may be strongly recommended as a storehouse of facts; though the author has not in all cases exercised sufficient critical acumen in selecting his sources of information, they being by no means of equal merit and trustworthiness. But what will be found of immense utility, even by the advanced student of plant distribution, is the copious citation of authorities at the beginning of each section and chapter. Here and there one misses reference to an important contribution to the subject, due probably to the long period the work was in course of compilation. For example, there appears to be no reference to the Rev. R. Baron's essay on the composition and distribution of the flora of Madagascar, which was published in the *Linnean Society's Journal* in July, 1889. As already mentioned, the author deals only sparingly with statistics, and it would have added to the value of the work had he dwelt a little more on the relative value of the figures adduced. At p. 236 he estimated the number of species of Orchids at about 10,000, and at p. 300 it is stated that the number of species of Compositae is much above 10,000. Without denying the existence of 10,000 species of Orchids, it may be asserted that scores, and even hundreds of forms or varieties of Orchids have been raised to the rank of species by various authors; and if the Compositae were all dealt with on the same lines—as *Hieracium* has been—the total number of species would be nearer 20,000. Many of the so-called species of Orchids are distinguishable only when in flower, often by comparatively trifling differences, and would be better regarded as varieties, inasmuch as the revelations of Orchids raised from seed teach us that the differences are no greater than individual seminal variation off-rs.

A word with regard to the distribution of such a well-known type as the Tamarisk. As Dr. Drude truly remarks, they are characteristic in the vegetation of the Perso-Afghan region and in Central Asia; but it would appear that they usually inhabit the beds of water-courses and the lower parts of the valleys. And with regard to dimensions, Dr. Aitchison records *Tamarix articulata* as a tree 40 feet high, with a trunk sometimes as much as 15 feet in circumference. But Tamarisks, of various species, abound in the plains of Bengal, covering miles of country, and form one of the most prominent and characteristic features. Such an extension would

hardly be suspected from Dr. Drude's statement, p. 478. In conclusion, I may observe that the author does not accept the reduction of the *Tristan d'Acunha Phyllica arborea* to *P. nitida*, a Mascarene species, though he gives no reason to the contrary. With very numerous specimens under examination, I could not separate them. *W. Botting Hemsley.*

FOREIGN CORRESPONDENCE.

NEW INTRODUCTIONS.

ALL who take an interest in the propagation of new or rare shrubs and trees, will appreciate the successful endeavours which Dr. Dieck, the proprietor of the well-known National Arboretum, in Zöschchen (Saxony), has made in that direction. A list of novelties has just been published by him, among which we meet with a good many deserving special notice, as they come from countries which up to the present time have been but partially explored.

Debozia cantabrica, Huds., var. *calyculata*, Arb. Zoesch.—This is a very striking novelty, obtained at Zoeschen. Red or white flowers, even striped red and white ones are frequently produced, as is known in the variety bicolor, but a plant of it showed three years ago a branch with flowers, of which the calyx-segments were developed in such a way as to give a resemblance to a double flower. When propagated by cuttings, this abnormality proves to be pretty constant; but, as is the case with the mother-plant, only some of the branches produce such flowers, generally white ones, which indeed are very beautiful, and valuable for bouquets, &c. By careful selection of the cuttings, this variety is likely to become still more stable.

Mespilus (Crataegus) dahurica.—Under this name we received seeds and scions of a Hawthorn from the sources of the Amur, which seems to stand between *M. sanguinea* and *M. sungarica*.

Malus dasphylla, Bork., var. *armenicifolia*, Dochn.—A form of the wild Apple from the Levant, with tomentose leaves, which are much more like those of a Plum than those of an Apricot, though the name points to the latter.

M. Parkmanni, *flor. pleno*.—This beautiful tree or large shrub was obtained under this name from America. It shows relations to *M. spectabilis* and *floribunda*; it is, perhaps, a hybrid between these two species.

M. hancea, L., *forma genuina*.—Seedlings and seeds of the typical form of the Siberian Berry-apple have been received from the Amur, the Baikal Lake, and West Siberia. The berries are only of the size of a Pea, and present a light yellowish hue. Covered with fruit, the tree is really a beautiful object.

M. Medwietzkyana.—This curious wildling has, as a wild or a cultivated plant, a wide distribution in West and Central Asia, and has apparently not yet been described. Dr. Dieck obtained it from Kashgar and the Talgar plateau in South-west Siberia, but it is probable that under the name of Kuzugjoran an identical form exists in the lesser Caucasus, and which is highly esteemed by the Swabian colonists in Trans-Caucasia. Except the old leaves, all parts of the tree are red, bark and wood, as well as flowers and fruits, which resemble small Sina-apples; even the pulp, which has a fine flavour, is of a dark rosy colour. In Kashgar the cultivated form bears the name Kisil alma; the wild variety is to be named after President Medwietzky, who collected it with many other interesting shrubs in South-west Siberia.

Orphanidesia gaultherioides, Boissier et Balgusa.—“Insigne florae Lasice decus.” This is the eulogy bestowed by the cautious Boissier on this plant, which, indeed, seems to be one of the most remarkable discoveries in botanical geography, for the nearest relations of this genus, *Epigaea* and *Gaultheria*, belong to the new world. No pains were spared to introduce this lovely Vacciniaceous plant into cultivation, and at last they met with success. For rockeries it may be recommended for its beauty and rarity.

* It is difficult to understand the author here, as he gives no particulars. Of these seventeen orders he says:—“In einzelnen Teilen zweier Florenreichsgruppen, sowie auf Amerika oder die Alte Welt beschränkte boreal-austral verbreitete Ordnungen.” This is, to say the least, obscure!

Pentstemon Menziesii, Hook., var. *Scouleri*, Gray.—A charming evergreen alpine shrub from North-west America, attaining a height of about 2 feet. Its introduction gives great satisfaction. We have already flowered it, and we are sure that the magnificent purple-violet flowers will be welcomed by all true plant-lovers. As the species grows on the Cascade mountains, at a level of 5000 feet above the sea, it will be quite hardy in the gardens of Northern Germany.

Quercus pontica, C. Koch.—Professor Koch discovered this noble species in 1842 on the high mountains of Lazistan. Excelling in beauty and luxuriance, it constitutes a passage from the Cerris group to the Chestnut Oaks of Kurdistan. The leaves attain a length of 27 cm.

Rhododendron arborescens, Forrey.—For German gardens, at least, this fine species will be a new introduction. The 2 inches long flowers are of a white, or whitish rosy-colour. The leaves possess an agreeable smell, which reminds one of that of *Anthoxanthum*, the Sweet Vernal Grass.

R. chrysanthum, Pallas.—A very interesting species, from the Alps of North-east Asia. Its culture presents some difficulty; we managed it in living sphagnum, wherein it thrives well. The flowers are of a beautiful golden hue.

R. dauricum, L. var. *macronulatum*, Turczanow.—Dr. Bretschneider introduced through *Rhododendron* from the neighbourhood of Pekin. From the typical form it is distinguished by its larger and more pointed leaves, which are not ferruginous beneath.

R. kamtschaticum, Pallas.—It was Dr. E. Regel who re-introduced this curious Arctic shrub of small dimensions. To keep the plant alive, one should always surround it with living sphagnum; in this medium it thrives very well, produces abundance of lovely flowers, which have quite a peculiar brownish-red colour.

R. linearifolium.—This is a very interesting Japanese species belonging to the *Azalea* group. Its yellowish setaceous branches are beset with narrow willow-like leaves. The flowers are rosy-violet.

R. Metternichii, Siebold et Zuccarini.—A magnificent evergreen *Rhododendron*, discovered on the mountains of Northern Japan. The large flowers are campanulate, and of a rosy colour.

R. ovatum, Planchon.—This beautiful species belongs to the *Azaleastrum* group, and is a native of North China, where it adorns the otherwise bare rocks as a neat evergreen shrub. In Foochoo the variety with dark rosy flowers is much cultivated.

R. rosmarinifolium (Burm.), Dipp. var. *leucanthum*, D.C.—A Chino-Japanese form of the *Azalea* group, distinguished by beautiful white fragrant flowers.

R. Smirnowi, Maximowicz.—This and the following species, both from the highlands of Tschoruk, possess quite the character and not less the prominent beauty of certain Himalayan *Rhododendrons*, and form like those the high underwood of majestic Pine woods. *R. Smirnowi* attains a height of 3 m., the leaves are whitish, tomentose, often ferruginous underneath, the flowers show a lively crimson hue, seldom occurring in *Rhododendrons*.

R. Ungerni, Maximowicz.—The leaves of this species are much larger than those of the preceding one; underneath they are snow-white, and the large flowers in rich umbels show the same colour. To be cultivated in the open air, there are, for northern countries, no better *Rhododendrons* than the two last-mentioned species, which at a sea-level of 6000 feet, and fully exposed to heavy winds, show a luxuriant growth.

Sorbus sibirica, Regel.—This fine species was described and figured not long ago in the *Gartenflora*. The wood is of a lively red-brownish colour, and the dark green leaves appear in spring almost as if varnished.

S. discolor, Maximowicz.—This species from East Siberia has not yet been in cultivation.

Salix amplexicaulis, Boiss.—Mr. J. Bornmüller found this remarkable Willow flowering and fruiting in the Galatian Pontus, and pointed out the transi-

tions to *Salix purpurea*. This agreed with our own observations made on cultivated plants, therefore we shall name it—

Salix purpurea var. *amplexicaulis*, Boissier.—Judging from dried specimens, this Willow was for many years regarded as not belonging to the genus *Salix*, but was considered, on account of its opposite leaves, to be the herbaceous *Apocynum venetum*!

Tamarix odessana, Stev.—In Boissier's *Flora orientalis*, this species is not to be met with, but Steven describes it as a "species elegans," and Nyman has taken it up in his *Nomenclator*. In Europe there is no other *Tamarix* further advancing to the north than this one. With *Euonymus velutinus*, *Berberis*, and such-like shrubs, it grows quite as a wild plant in the neighbourhood of Odessa.

We trust that these short notes may serve to bring English plant lovers into direct connection with Dr. Dieck, by whose exertions these and a good many other valuable shrubs have been introduced into cultivation. Dr. E. Goetze, Graefswald.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

WITH the seasonable change in the weather, vegetation is now active, and work will increase proportionately. In dry weather, ply the hoe to keep the soil open and kill weeds, and thin out seedlings where standing too closely.

ASPARAGUS.—New plantations may forthwith be made, on the old method of raised beds, or by planting in rows at 3 feet apart, and 15 inches from plant to plant, an open part of the garden being chosen as the site for the same, the land having been previously well-manured and deeply dug, and the method of planting like that of beds. Make shallow broad trenches, 5 inches deep, along the beds, and, supposing a bed to be 5 feet wide at the top, it will hold two rows of plants, 3 feet apart, which is sufficiently wide to keep the roots apart for several years, and grow strong heads. Those who do not like such a waste of land may put in three rows at eighteen inches apart, and the plants at 15 inches from each other in the rows. The trenches should be made before lifting the roots from the seed-beds, and these should be lifted with a fork, and planted soon afterwards, and some light rich soil spread over them, and then the staple, the soil being made firm about them by treading it, and in doing so taking care that the stems are not injured. Make the land smooth with the rake, and put a mulching of short manure alongside the lines of plants. If the soil be light and porous, liquid manure may be advantageously afforded during the growing season.

Asparagus seed may be sown in drills at 1 foot apart, and 1 inch deep, the plants to stand two years before transplanting them.

BEETROOT.—Seeds of this vegetable may be sown in small quantities in southern parts of the country, but the first week in May is soon enough to sow the main winter supply. The land to be sown should contain no recent manure, and it should have been moved deeply, not necessarily throwing the bottom spit to the top. Before levelling and raking the land, a moderate dressing of salt should be afforded; if it be very light in texture, a regular and even tramping will be of benefit to the crop. The drills may be 15 inches apart, and 1½ inch deep, and the seed deposited a few together at 9 inch intervals, or it may be sown thinly all along the drill. Close the drills with the feet, and make the surface smooth. On adhesive soils, burnt refuse, old Cucumber-bed soil, leaf-mould, &c., should be dug into the surface-soil before sowing the seed.

SEED SOWING.—The following may be sown in beds on well-prepared land in an open spot:—Broccoli Vanguard, Pearl, Veitch's Self-protecting, Snow's Winter White, Michaelmas White, Walcheren, Leamington Dwarf White, Knight's Protecting, and Osborn's Winter White. Cauliflowers: Autumn Giant, Sutton's Autumn Mammoth, and King of the Cauliflowers. Savoys: Early Elm, Earliest of All, Universal, and Improved Green Curled. In Cabbages, Earliest Flower of Spring should not be forgotten, Couve Tronchuda, and Chou de Burghley. Kales: tall Scotch Kale, Extra Curled, and Dwarf Scotch. Improved Variegated Asparagus. Tread the land

firmly, rake it smoothly, and draw flattish very shallow drills at 1 foot apart, and give a dressing of mixed soot and wood-ashes before sowing the seeds. Protect the seeds from birds by putting a net over the bed. I find this plan of drilling much better than broadcast sowing the seeds, as it is so easy to keep the beds free of weeds. The late varieties of Kale, Broccoli, and Savoys should be sown at the end of this month.

CARDOONS.—Seed (three) may be sown in small pots of soil, and placed in gentle heat; and when two true leaves are grown the plants may be repotted singly into 48's, and kept in heat until a good growth has been made, when they may be removed to a cool frame to be hardened-off before being planted in well-manured shallow trenches. Seeds may be also sown in well-manured trenches, placing three seeds in a patch, at a distance of 18 inches apart to be afterwards thinned out carefully to one. C. J. Waite, Glenhurst, Essex.

THE FLOWER GARDEN.

SOME HARDY PLANTS THAT MAY BE PLANTED.—One of the busiest periods of the year for the flower gardener is at hand, so many things requiring immediate attention, and much preparatory work has to be performed before the general bedding-out season arrives, and to lessen somewhat the pressure of the work at that time, it is necessary to bring up all arrears forthwith. Chief of the operations which await attention is the planting of all hardy plants, which, fortunately, are more freely made use of than formerly, and none are more valued than Carnations, Picotees, and Pinks. These plants are equally at home in borders in big bold patches, or in beds by themselves, or put in among Tea Roses, if the latter are thinly planted. Rose beds, when properly prepared and manured, are rich enough for the Carnations, &c., but the soil of the herbaceous border is seldom good enough for them without some kind of preparation; and it is better to excavate holes for the plants, and fill them with fresh loam, in which material the plants are sure to do well. If the plants are strong, they may be arranged in clumps of three, the plants standing about 1 foot apart according to size and strength of growth, when they will soon grow together. In planting, it is necessary to press the soil compactly round the roots, and if the weather is dry, to afford a thorough watering.

Other plants which should now be put out in good soil are *Pyrethrum roseum*, in its many varieties, selecting warm, well-drained sites for the plants. Like Carnations, they look well in clusters. *Phlox d-cussata*, and hybrids of it, which may have been kept in pots or nursery beds, should be planted without delay in well-enriched stations. *Achillea ptarmica*, and other varieties and species; *Ajuga reptans*; *Aquilegias*, if they have been kept in pots; *Arnebia echioides*, if similarly wintered; *Bocconia cordata*, *Campanula isophylla*, *C. fragilis*, *C. medium* *Calycanthum* (Canterbury bells), and any other species of *Campanula* from pots, may be planted, remembering that, as a rule, the plants like a cool bottom.

The beautiful *Oenothera Youngii* should be put out in clumps of several together; *O. biennis* makes a telling back-row plant, and may now be planted if it is in nursery lines; *O. macrocarpa* makes a good bordering line or clump in the immediate foreground of beds and borders. *Plumbago Larpenia* may still be planted. It is almost as good a blue-flowered marginal plant as *Gentiana acaulis*. The New Zealand novelty, *Pratia angulata*, is worth planting as an edging plant; it is very dwarf, and the *Lobelia*-like flowers are of the purest white—it is not too late to plant it. *Polyanthus* may also be planted, but not divided, if bloom is looked for this season. Sedums, Saxifrages, Megaseas, Mesembrianthemums, may be planted, and it is generally better to lay little bits of stone over the roots, or to peg them down to the soil, than to bury them, except, perhaps, the Megaseas.

The winter having almost everywhere ruined the old plants of Wallflowers and Stocks, their places will need filling with young stock, which may have survived in cold frames and sheltered nooks. For the Stock, a rich holding soil is needed if large spikes are looked for; but the Wallflower is sweetest-scented and most floriferous in a poor soil. Early-forced plants of *Dielytra spectabilis*, if properly hardened off, may be slightly divided, and planted out to make growth. *Erigerons* may be moved from the nursery lines, or turned out of their pots into the borders; also *Eryngiums*. Geums may be removed now, but it must be carefully done, and the plants not buried deeply. *Myosotis* for the

summer display, and Pansies, may be put out in moist weather, and neither, in hot dry places. Scabious raised from seed, and wintered in frames, should be put out in the border in clumps of four or five plants; or small beds of them may be made. They require a good but not recently-manured soil. Tritomas of all kinds, if taken up with plenty of roots, may be divided and replanted, but they must not be allowed to lay about before planting them, and the leaves will need to be supported for a time.

Iris Kämpferi, I. germanica, indeed, most of the species with fleshy rhizomes, may still be planted, choosing a wetish place for the first-named, but one the opposite of that for all which have rhizomes, and a soil of medium moisture for the fibrous-rooted species.

LILIUM AURATUM.—Any bulbs of these still out of the ground should be got in at once, planting them in clumps of three with no manure near them, or if it be used it should be well below them, so that no roots will reach it till the plants get into full growth. It is always advisable to surround the bulbs with half a spadeful of leaf-mould and road grit of sharp sand.

FLOWER BEDS.—Hyacinths, Tulips, &c., will now be coming into flower, and before they reach that stage, the soil, if at the base of other plants, should be mulched with cocon fibre, to prevent the splashing of the flowers or half-decayed leaves by rain. In many cases, the beds will be taken up by spring-flowering plants, but where they are not so occupied, they should be made ready for their summer occupants, having regard in manuring them what species of plant will occupy each. Begonias, Calceolarias, and other things like manure, but Pelargoniums should have but little. Calceolarias may, in most districts, be planted, for though the tops may seem to make but little progress, the roots will be descending to a good depth, making the plants secure in dry weather. *Herniaria glabra*, *Cerastium tomentosum*, *Antennaria*, and others of that class employed for carpeting beds or forming edgings may be planted forthwith—a better plan than leaving the work till May.

LAWNS.—Frequent sweeping, rolling, and mowing must now be carried out. *J. Sheppard, Woolverstone Park, Ipswich.*

THE ORCHID HOUSES.

THE ODONTOGLOSSUMS.—These are, more than any other Orchid, the flowers of the amateur, especially *O. crispum*. This is easily understood, if the cheapness of good imported plants be taken into consideration, and the high value which first-class varieties maintain, and no wonder that so many persons grow Orchids for pleasure and as a speculation. I once picked out and bought a plant for five shillings that was sold in six months afterwards for one hundred and fifty guineas. No matter how choice a collection of Orchids may be, a great deal of its interest is lost if the flower of every plant is perfectly well remembered; and the mind of man, especially of the grower of Orchids, naturally wishes for something novel. This is, in most all cases, supplied by yearly purchases of a few freshly-imported plants. A hundred of imported *O. crispum* will supply more pleasure to the amateur, "who stands on tiptoe of expectation," than the same number of proved good varieties, for the reason that he knows not what he may expect from them.

In the culture of *Odontoglossums*, there is nothing fresh to tell. The whole of the *O. crispum* family do well under very much the same conditions. They are lovers of moisture at the root, and in the air; and if a temperature of 45° can be kept up in the winter, or even occasionally a degree or two lower, it will mostly suffice. There is no reason why anyone with a love for these flowers may not grow them, as imported plants may be purchased, and started into growth at any season of the year; but the present is the best time, as the plants will have an opportunity of showing their full beauty during the spring of next year. The *Disas* are also amongst the most beautiful of cool-house Orchids, and as far as my experience goes, they are plants of easy culture. I have seen it stated that, in this or that locality, they cannot be grown satisfactorily. I am afraid the locality is not to blame. Plants of *D. grandiflora*, *D. racemosa*, &c., that have done well, will have finished flowering by the early part of September, and should be at once broken up and repotted, for to leave the plants until the New Year causes a check, that they scarcely recover from during the summer. To get good

spikes of flower, the plants should be placed in a very light position in the house; or if removed to a cold frame, the frame should face the south, the plants being shaded during the sunny part of the day, and from the present time until they flower, a good syringing twice daily afforded to keep insects in check, and encourage growth. A small quantity of guano dissolved in the water, just sufficient to colour it, will add vigour to the plants. Very little fire-heat will now be necessary for the *Odontoglossum*-house, but it is not advisable to let the house fall below 48°; if this is done now, such things as *O. triumphans*, *O. radiatum*, *O. luteo-purpureum*, &c., are apt to come with abortive flowers, caused by the check the plants have received. The temperatures for the ensuing week are:—East India-house, 68° at night; *Cattleya*-house, 62° to 65°; cool division, not lower than 50°. *A. G. Cull, Parkfield, Hallow, Worcester.*

FRUITS UNDER GLASS.

THE VINERIES.—The late-started Vines will now need to be disbudded and afforded fire-heat during cold days and nights, shutting up the vineries early in the afternoon, when the ventilation has been given on sunny days. Black *Hampshire* vineries should be kept closed on frosty or cold nights, and the borders supplied with water when getting dry. If the cut-back fruiting canes which are growing in pots for next year, have not been potted into the fruiting pots, no time should be lost in doing so, the vines being placed afterwards in a light position, so as to encourage a short and sturdy growth. The stems should be allowed a run of 6 feet before they are stopped, and the lateral shoots stopped at the first joint. A day temperature of 70° to 80°, with 65° at night, may be afforded them. Newly-planted vines will need timely attention in watering the soil about the roots, and if new roots push forth at the base of the canes, place some good compost over them. Afford the plants a moist atmosphere, and sufficient air to secure short-jointed wood. Vines struck from eyes this season will generally be ready for repotting, and this kind of work should be attended to before the roots have become bound. In potting employ rich turfy loam, with just a little sand if it be heavy, and put a small rod to each. These Vines will require good treatment in a light house; and if possible, by themselves. *G. Wythes, Syon House, Brentford.*

PLANTS UNDER GLASS.

POINSETTIA PULCHERRIMA.—Old plants of *Poinsettias* may now be started into growth by placing them in a light position in the stove, in a rather brisk temperature, giving them occasionally a small quantity of liquid manure. When the new shoots have grown to a length of 4 inches, they may be taken off within one joint of the old wood; and in making the cuttings, cut close below the joint, and apply a little dry sand to prevent the sap from flowing away too freely. Prepare a number of small pots, draining, and filling them with a compost of loam, peat, and leaf mould, in equal parts, and plenty of silver sand, before the cuttings are taken off, and insert these singly with as little delay as possible. Place in a propagating pit, and keep them close and well shaded for a few days, and give them no water, but dew them over with a fine rose or the syringe, and on no account allow the soil to become dry.

YOUNG STOCK.—The various kinds of flowering stove plants which were struck towards the end of last summer, and wintered in small pots, should now be shifted into larger ones, the size of the pots depending on the vigour and size of the plants at the present time. *Allamandas*, *Clerodendrons*, *Stephanotis*, *Passifloras*, and all the free-growing species of plants grown in stoves may have a shift, say, into 9-inch pots, the hard-wood section generally and the slower-growing ones will be better accommodated in smaller ones; when they require more space for their roots during the summer, they may then be shifted into larger pots before the end of the month of July. It may be taken as a rule to be generally followed, that fast-growing plants require a richer soil, less fine in texture, and a smaller amount of drainage than slow growers with fine roots.

DOUBLE CHINESE PRIMULAS.—The present is a good time to prepare plants of the best double varieties of Chinese *Primulas* for propagating by division, as by the time that the plants have done blooming, a large portion of the stem will be above

the soil. This portion should be carefully cleaned of old leaf-stalks or decayed parts, and moulded up as far as the lower leaves with a mixture of finely-sifted leaf-mould and silver-sand, pressed rather firmly about the stem. The moulded-up plants should then be placed in a close pit or frame till roots are pushed into the surrounding soil, which may take from three weeks to one month. When dividing the plants, it will be found that most of the divided parts are well furnished with roots. These should be potted off singly in small pots, and kept rather close and well shaded for a few days, when they will be found to have pushed out roots into the soil, and may be gradually hardened off, and when the pots are getting moderately well-filled with roots, shifted into somewhat larger pots. A good compost for double Chinese *Primulas* consists of two parts good loam, two parts leaf-mould, one of decayed manure, and a considerable quantity of sharp silver or river-sand. The best position for them during the summer months is in a wooden frame, placed in a north aspect, behind a hedge or wall, and the light should be taken off on favourable occasions. Early in the autumn the plants should be moved to a drier position.

THE GREENHOUSES.—Plants in these houses will require more water, and those that have been repotted after blooming and resting for a time should be kept at the closed end of the house, or accommodated in a pit by themselves, affording them a gentle syringing towards the close of bright days. This will apply to *Camellias*, *Rhododendrons*, *Eugénias*, *Cytisus*, *Acacias*, *Boronias*, *Cantuas*, *Choisyas*, *Chorozema*, *Correas*, and many others.

The utmost carefulness will be needed in keeping aphids and thrips in check, and in giving and taking off air, during the fickle days of this month. Nothing is worse for plants with tender young leaves, or those in bloom, than exposure to easterly and northerly winds, and to mitigate the severity of these, and yet afford air to the plants, it is a good plan to cover the ventilators with Nottingham netting—in smoky districts, of double thickness.

The *Ericas* will require especial attention in watering, remembering never to afford water without an examination of the soil as to wetness by ringing the pot with the knuckles. Any *Ericas* that may be planted out in beds of peat in frames to grow into specimens, must be well and thoroughly watered with rain-water (no other should ever be used for these plants), and abundantly ventilated. Look over the plant weekly for the least trace of mildew, and dust with sulphur when it is perceived. *R. Milner, Penrice Castle, Swansea.*

THE HARDY FRUIT GARDEN.

THE SEASONABLE TREATMENT OF YOUNG TREES.—With showers of rain and greater warmth at night, the growth of fruit trees will be rapid, and any of the misplaced shoots, or those not required to form the future heads, may be removed. Untrained maidens of stone fruits are always best to start with, as they may then be trained in any desired form. I incline to the idea that each tree should have a wilding stem of 15 inches high, reckoning up to the lowest branches, and not be budded near the ground level, as is often the case. The main leader of such young plants may be stopped at any height required, and the lateral shoots neatly trained to the wall. With due care these trees may be made to form the foundation of the future fan tree the first season. With Pears, Apricots, and Mulberries, longer time is required to lay the future groundwork.

THE FRUIT-ROOM.—As soon as all fruit is used up, the work of cleaning the room should be undertaken on some wet day, whitewashing the walls, and scrubbing the shelves, and afterwards affording full ventilation.

FRUITING TREES ON WALLS.—Let all stone fruit trees be fully exposed to the light, blinds being rolled up early in the morning, and not let down before evening. On very mild nights they need not be made use of, although there is a certain amount of risk to face from frost. Trees on walls having a good coping, or to which broad boards are fastened temporarily to serve as such, form good protection to the fruit blossoms. Grafting should be brought to a close during this month or early in May. Lord Grosvenor, an early variety of kitchen Apple, of equal goodness with some of the Codlins, and Northern Greening, a late one, which although not quite equal to a Wellington, keeps generally better, are Apples that every gardener should get scions of. *H. Markham, Merworth Castle, Maidstone.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, APRIL 14 { Royal Horticultural Society Committees, and Lecture on Lachenalias, at Westminster.

THURSDAY, APRIL 16—Linnean Society.

SHOWS.

TUESDAY, APRIL 14 { Royal Horticultural Society, Daffodils at Westminster.

WEDNESDAY, APRIL 15—Newcastle-on-Tyne (two days).

SALES.

MONDAY, APRIL 13 { Lilies, and other Bulbs and Plants, at Protheroe & Morris' Rooms.

TUESDAY, APRIL 14 { Collection of Orchids formed by J. J. D. Paul, Esq., at Protheroe & Morris' Rooms (two days).

FRIDAY, APRIL 17 { Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—48° 1.

A Horticultural Federation. For many years past the horticultural societies of Belgium have been associated in a common Federation, which, whilst leaving each individual Society free to do its own work in its own way, provides a common bond of union, and furnishes the means of accomplishing what no one Society by itself could do.

How little is accomplished by most of our own local horticultural societies, except from the point of view of an agreeable diversion, must be evident to any on-looker. The results as regards the higher developments of horticulture are by no means commensurate with the efforts made. Power is wasted for want of co-operation, and by the breaking up into sections and specialties of what should be one organic whole. It is true that the Royal Horticultural Society, the National Rose Society, the National Chrysanthemum Society, the Fruit Growers' Association, and perhaps other bodies, profess to affiliate local societies, but the affiliation does not go much, if at all, beyond the bestowal of a bronze medal at a local show, so that at present there is little or no real co-operation in matters horticultural. Still, by the very fact of "affiliation," the principle we are advocating is conceded, and we may trust that in due time—though things in this country move with tortoise-like celerity—its applications may become more numerous and more important. The Fruit Growers' Association has from the first seen the necessity for extending its work, and of adopting

the methods found so serviceable on the Continent and in the United States, and it was with much gratification that we recently read that the gardeners of Tunbridge Wells have also taken the matter up. What follows is condensed from the report of a meeting of the Tunbridge Wells Gardeners' Association, and expresses views which we have repeatedly urged on the attention of horticulturists.

Mr. D. G. CORNWELL, we are told, took the opportunity to formulate a scheme for a Central Delegate Association of Gardeners' Societies for the South of England. Gardeners' societies had become necessary, and would in the future be still more so if they as gardeners were to keep pace with the march of the times and continental competition. It might with reason be supposed that, in this age of progress in nearly every department of art and science, agriculture would not be the last in the race for improvement. Yet the fact was, that the importance of technical education of which they heard so much in the present day, had been more neglected among the professional gardeners than by the manufacturers or any other class of the country. Taking the rural schools of the district, the ignorance of boys and girls of practical subjects intimately affecting their probable condition of life was astounding, although he hoped that the Government were now doing something to alter it in their educational policy. What did the national school-boy know of many matters, such as the rotation of crops and the principles involved, which would at once affect him on entering on life? When a man became interested in his occupation, it was then he found out how little he knew of what would be valuable to him. The gardener sowed seed and grew plants, but how little did he know beyond the actual handiwork. Some of the most obvious problems of horticultural knowledge never seemed to enter some of their minds, and in this they were much behind their brethren on the Continent. Why did different plants require different treatment? Why was soil which was good for one bad for another? How was colour given to the flower, or flavour to the fruit? Why did some plants dislike the sun and flourish in the shade? How did plants grow?

Admitting that horticultural skill might be attained by experience, that is only done after many failures if the gardener be ignorant of the first principles of his art. Quickness of resource and skilled labour were called forth every day in various branches of manufacture, and the grower ought not to be satisfied to labour in a beaten track. How the industry of the country in all its branches could be better trained and developed, was a question worthy of the leading statesmen and scientists of the day. In continental countries there were more facilities for acquiring both horticultural and agricultural knowledge than we as yet possessed, and until the profession recognised the necessity of combined educational interests in their profession, so surely would the next generation of gardeners remain lacking knowledge and skill in the fundamental principles of botanical culture. To obtain better results, he suggested a combination of existing gardening societies, so as to extend their useful work still further. They must help themselves, and not expect others to do for them what their organisations might do. First, let them promote gardeners' mutual improvement societies wherever they did not now exist. Then form a mutual organisation, consisting of delegates from every society in the South of England, who would meet and

discuss matters of interest to the profession, especially where legislation was possible, as in the case of friendly societies; the societies subscribing would send delegates according to their membership, and pay their expenses. Lectures by leading scientists, and other important matters could be arranged. Next to agriculture, he ventured to say there was no class who more deserved assistance, and that it would add to the prosperity of the country to assist them, and those engaged in horticulture and market gardening, so that they should not be behind other countries. Eventually, it was moved by the Chairman, "That it is desirable that a central delegate organisation of the gardeners' societies throughout the South of England be started," and which was carried unanimously.

In reference to the School of Horticulture for Tunbridge Wells, or the starting of a class for the special study of horticulture in a practical form, the various opinions expressed were in favour of such a scheme; and it was proposed by Mr. MIER, seconded by Mr. COLLYER, and resolved unanimously: "That a school be started in connection with the Society for the education of young persons generally in the practical art of horticulture."

RHODODENDRONS AT BERWICK, SHREWSBURY.

—In our issue for June 7, 1890, p. 709, we noted the beautiful gardens of JAMES WATSON, Esq., M.P., at Shrewsbury, and as a Supplement to our number for October 4, 1890, we gave a view of the mansion and terrace gardens. We now (p. 465) give an illustration of a group of Rhododendrons which grow in the gardens at Berwick in the most luxuriant manner, many of the specimens being 20 or 30 feet in height. In the flowering season they were covered with bloom, and form grand objects in the gardens, which Mrs. WATSON and her clever gardener, Mr. ALFRED GAUT, delight to embellish with the best shrubs and trees obtainable, and more especially with flowering shrubs. The Tree Pæonies, beds of Azalea mollis, Japanese Maples, &c., at Berwick are very fine, and the rock garden near the mansion is of a beautiful and unique design, well and thoughtfully arranged and planted.

LOUIS INGELRELST.—Belgian papers announce the decease of this gentleman, the Inspector of the public gardens of Ghent. M. INGELRELST was a pupil of the School of Horticulture, and migrated to the Botanic Garden at Nancy, then under the direction of Professor PLANCHON, but returned to Belgium at the time of the Franco-German war.

ORCHID NAMES.—It is very difficult, if not impossible, to induce gardeners to take the trouble to follow the rules of botanical nomenclature. Many of them prefer, like free and independent Britons, to go their own ways, heedless of anybody's convenience but their own. Occasionally, however, commercial requirements elicit serviceable hints; thus, we have before us the wholesale price-list of Central American Orchids from Mr. RICHARD PFAU, in which the necessities imposed by the telegraphic system have resulted in a system of nomenclature adequate for garden purposes, and which has the advantage of being short. Thus, if any reader should require *Odontoglossum Schroderianum*, he need not go to the trouble of telegraphing ten syllables to Costa Rica, for the word *Schrodan* will be sufficient. Similarly, *Cattleya Dowiana* is *Dowan*, and *Warsan*, *Kraman*, *Sonovan*, *Tregan*, *Utran*, and *Gaskan* all signify various polysyllabic Orchids. There is little hope of any others following this plan, or if they did, they would be sure to add "superba" to the original name on the first opportunity!

NEW ZEALAND FRUIT.—The *Lyttelton Times*, published at Christchurch, New Zealand, February 23, says, under heading of "Export of Fruit":—"About

400 cases of this season's Apples have already left Papani for England. This is the commencement of a large exportation, one gentleman alone in the district having purchased fruit which will fill at least 5000 cases. This new industry will be watched with interest, as in addition to the manufacture of the cases, a good many hands are employed in packing the fruit, every Apple having to be wiped dry and clean, and packed in a separate paper bag before

bushel case, thus demonstrating the extreme importance of, and ultimate profit attached to, the growing of really first-class fruit.

FRANCOIS WIOT, a partner in the well-known Belgian firm of JACOB-MAKOV & Co., of Liège, died in that town on April 4, universally respected and regretted. He was sixty-eight years of age, and up to the last few weeks of his life was actively engaged

children and grandchildren. He had a most excellent memory, and could remember, after thirty and forty years, the names of plants which he had seen but once. At the same time he was an exceedingly clever gardener, successfully accomplishing feats of cultivation the most varied, and considered to be very difficult. The various systems of propagation presented no difficulties to him. Indeed he managed with equal success all departments of horticulture.



FIG. 96.—RHODODENDRON PONTICUM, AT DERWICK, SHREWSBURY. (FE P. 461)

being put in the case." A portion of these Apples arrived in London by the s.s. *Tongariro* in very good condition; and although English Apples are still on offer in the market at from 2s. to 10s. per bushel, so splendid was the quality of the New Zealand fruit when exposed for sale at auction in Covent Garden Market by Messrs. W. N. WHITE & Co., Lim., on Friday, the 3rd inst., that they realised the extraordinary price of 15s. to 25s. per

in the important business matters of which he had the control. It may be said of him that he was truly a self-made man. At the age of fourteen years he was apprenticed as a gardener to the firm, founded by one who was then known as "PÈRE JACOB," and rapidly gained the confidence of his patron by his intelligence, love of plants, and indefatigable energy. On his part he felt for his master an almost filial affection, which, later on, he transferred to his

The firm of JACOB-MAKOV is indebted to him for much of its world-wide reputation. More than fifteen years ago King LEOPOLD conferred on him the honour of Chevalier of his Order, as an acknowledgement of the active interest which he took in the progress of horticultural industry.

"THE BOTANICAL MAGAZINE."—The April number contains coloured illustrations of Vanilla

planifolia, t. 7167, the Orchid whose pods furnish the Vanilla of commerce. A brief résumé of the history of the plant from the time of CLAUDIUS, 1605, to the present time, is given. It will be remembered that Professor CHARLES MORREN was the first to show how the flower could be fertilised artificially, and made to produce its pods under cultivation.

Asarum cephalum, t. 7168. A native of Southern China, having an elongate branched rhizome, long-stalked, cordate, ovate leaves, with veins, marbled on the upper surface and prominent beneath. Kew.

Epidendrum sceptrum, t. 7169. A native of Venezuela and New Granada, with terminal, erect, many-flowered racemes, the individual flowers rather more than an inch broad, with narrow segments, yellow, with purplish-brown spots.

Eurerea Bedinghausi, t. 7170.—A species with tufts of long sword-shaped denticulate leaves, and numerous greenish flowers in a terminal much-branched panicle. The species flowered in 1890 with Mr. Woodall, of Scarborough.

Rosa Banksia, t. 7171.—The single yellow form of the Banksian Rose from the garden of Canon ELLACOMBE. Indigenous specimens of *R. Banksia* were collected in the mountains of Yehang by Dr. HENRY, and are in the herbarium at Kew. The Abé DELAVAY also met with the plant in Yunnan.

AN ANCIENT SUNFLOWER.—A correspondent of *Garden and Forest* says, that the Sunflowers are "natives, for the most part, of North America, although a few are found in Peru and Chili." Yet in an article by a learned German author, recently published in the *Deutsche Rundschau*, I read that there is a window in the apse of the Church of St. Remy, at Rheims, which dates from the twelfth century, and on which the Virgin Mary and St. John are represented standing beside the cross and wearing halos, around whose outer edges are pictured flowers of the Helianthus, "all turning towards the Saviour, their true sun." Can you tell me what flower it may be which thus resembles the Helianthus closely enough to be mistaken for it, and could have been familiar to Frenchmen of the twelfth century? I cannot believe that the writer can have mistaken for a glass painting of so archaic a period as the twelfth century one produced at the much later time, when, it seems, the true Sunflowers were introduced into Europe.

CATALOGUE PORTRAITURE.—The following extract is sent us by a correspondent "from an American paper." We do not concur in the sentiment, believing it to be advantageous in such cases to aim high, even if it be not quite within the limits of possibility to attain the ideal goal:—"Ah, yes; his was a wasted life," sighed the bald-headed gentleman. "Was he dissipated? Had he antipathy for work? Was he a gambler, a lover of fast horses, a—" "Nay, nay," interrupted the bald-headed gentleman, "none of these, but worse, far worse! He spent his life in endeavouring to raise vegetables which should remotely resemble the gorgeous specimens he had seen in the seedsman's catalogue."

STOCK-TAKING: MARCH.—Only in two sections out of the nine under which the imports are summarised month by month is there an increase noticeable; the others show a deficit as compared with March of last year, amounting to £887,575. True, the amount is not what may be termed a very large one, and the near approach of "Budget" may have something to do with it, as well as the look-out for the half-yearly balance-sheet, so "keeping things close." There is a decrease on the three months of £3,021,921. Turning, however, to the Exports, we find the increase for the month just finished over the corresponding one in 1890 is represented by £1,506,356, the decrease on the three months being brought down to £769,688—and this, be it remembered, in the face of adverse tariffs, and other and serious drawbacks. There is also the possibility of one or two "little wars" in the East, restraining or restricting development of trade. And here we are reminded that the exports of foreign

produce show a decrease of £391,644. The following is our usual extract from the "summary" of the imports of foreign and colonial products for the month of March:—

	1890.	1891.	Difference.
	£.	£.	£.
Total value of imports	£35,140,344	£35,253,059	-£87,275
§II.—(A.) Articles of food and drink—duty free ...	11,021,138	10,996,537	25,101
(B.)—do., dutiable	2,077,907	2,051,693	-26,214
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)... ..	8,463,390	8,111,316	-352,074
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,695,411	2,591,746	-103,715
§IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,060,882	1,142,685	+81,803
(B.)—Parcel Post ...	33,142	13,411	+7,409

The general mass of figures give us no idea as to whence our fruit supplies come; hence, we have no line devoted to "experimental shipment of Apples from New Zealand," so we are restricted here to our usual excerpt respecting "fruits, roots, and vegetables," drawn from countries beyond the seas, as follows:—

	1890.	1891.	Difference
§ II. Fruit:—			
Apples, raw bush.	89,746	153,941	+67,195
Unenumerated, raw "	16,269	10,791	+4,522
Onions "	117,005	368,611	+221,633
Potatoes cwt	18,031	254,075	+235,041
Vegetables, raw, unenumerated value	672,294	58,110	+5,816

The amount of "difference" in every one of the above five excerpts, is certainly sufficient to "give us pause." Each line is surely as effective as a full blast of "leading article" to the intelligent farmer, fruit-grower, and gardener; therefore, not another word is necessary here.

THE FEDERATION OF SCIENCE.—It is interesting to note that now, when the question of political federation among our colonies is "in the air," a matter involving political considerations upon which we have no desire to enter in these columns, science, which has no nation, as NAPOLEON said, or which, in other words, is not limited by artificial barriers, as political territories are, is solving the question for itself in its own way. It is only a few years since the British Association met in Canada; last year the Australian Association met, under the Presidency of Baron von MUELLER, at Sydney; and now our New Zealand correspondence tells of the success of the meeting of the Australian Association for the Advancement of Science at Christchurch, under the chairmanship of Sir JAMES HECTOR. The presence of Professor GOODALE, of Harvard University, the ex-President of the corresponding American Association, was an occurrence which afforded great gratification to the members.

THE GRASSES OF DRY CLIMATES.*—Mr. HACKEL has recently called attention to some hitherto unknown peculiarities in the grasses of dry climates, among them, as summarised in the *Botanical Gazette*, being the singular development of the lowest internodes of the culms, shoots, and basal leaves. He considers these characters just as important as the interior structure of the leaves for adaptation to a dry climate. He distinguishes: 1, tuberous and bulbous grasses; and 2, tunic-grasses. Tuberous grasses are such as *Phleum pratense* var. *nodosum*,

* E. Hackel. — Ueber einige Eigenthümlichkeiten der Gräser trockener Klimate. Verhandlungen der k. k. zool.-botan. Gesellsch. Wien Jahrgang, 1890, pp. 127-138.

Gaud., and *Arrhenatherum avenaceum* var. *nodosum* (*Avena nodosa*, L.), of which one or more of the basal internodes of the culm and shoots attain a tuberous development; while *Poa bulbosa*, L., represents a bulbous grass, since here the bases of some of the sheaths of the leaves have increased in thickness and form, a bulb very much like that of an Allium. . . . These tuberous and bulbous forms only occur in countries with periodical dry seasons, and none have been observed in the moist parts of the tropical region. It is very interesting to learn that the author does not consider these tubers or bulbs as reservoirs of starch or sugar, as are the similar organs of Liliaceæ, Iridaceæ, &c. Though they are structurally homologous with these, physiologically they are water reservoirs. The author has shown that *Poa bulbosa* on being cultivated in moist soil almost lost its bulbous character.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION), AND NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—On the occasion of the National Auricula and Primula Society's show, in the Drill Hall, James' Street, Westminster, on Tuesday, April 21, a luncheon will be provided at the Hotel Windsor, Victoria Street, at 2 P.M., for members and their friends. Tickets, 2s. 6d. each, may be obtained from the Secretary, or any member of the committee. The Mayor of Swansea, Sir JOHN T. D. LLEWELYN, Bart., will preside.

CIRENCESTER CHRYSANTHEMUM SOCIETY.—The committee of the above intend to give away £75 in prize-money at their show to be held on November 11 and 12. We hope that the awards will fall chiefly to the growers of good, well-bloomed, and naturally-grown plants, and not to the exhibitors of prodigies of cut blooms.

"HANDBOOK OF THE NEW ZEALAND FLORA." A new edition of Sir JOSEPH HOOKER's well-known volume is in preparation by our valued correspondent, Professor KIRK, of Wellington. How necessary this has become is shown by the circumstance that whilst HOOKER described 2456 species, the total now known amounts to 3355 species.

ASPARAGUS.—We learn from the *Botanical Gazette*, of March, 1891, that the "Product of marketable shoots of Asparagus is found by W. J. GREEN (Bull. Ohio Exper. Station, iii., p. 241), to be fifty per cent. greater from male plants than from female plants. Preliminary tests were made in 1889, and more complete tests in 1890. During the latter year, fifty plants of each kind were used. The difference in vigour is ascribed to the exhaustive effect of seed-bearing in the female plants, which is absent in the male plants." In this country, however, the Asparagus is usually hermaphrodite.

THE PHYLLOXERA LAWS.—When these were first instituted by one country after another, we protested, as strongly as we could, against them, on the ground, that while they would be quite inefficient to prevent the spread of the insect, they would inflict needless harm to horticultural commerce. Surely the result has proved our contentions. The laws have been in full force for years in our colonies, and on the continent, to the sore vexation of our growers, and without the least advantage to the Vine growers.

THE LATE DR. MAXIMOWIZ.—The last number of the *Gartenflora* contains a biographical notice of this eminent Russian botanist, whose death inflicts so great a loss on botanical science. Dr. VON REBEL's article contains also a list of the plants, seeds, &c., Dr. MAXIMOWIZ succeeded in introducing from Japan into Russia, as well as a catalogue of his publications.

THE LATE SHIRLEY HIBBERD'S LIBRARY.—We learn from the *City Press* that the valuable library of the late Mr. SHIRLEY HIBBERD, F.R.H.S., for many years editor of the *Gardeners' Magazine*, will shortly be put up for auction by Messrs. SOTHERBY, WILKINSON & Co.

WHINHAM'S INDUSTRY GOOSEBERRY.—If we may judge, by the rapid manner this Gooseberry is being propagated and sold by Messrs. W. FELL & Co., Hexham, 270,000 bushes during the season 1890-91, it is a variety that is getting much appreciation from growers and jam-makers in this country and Canada, and the United States. It is very early and wonderfully prolific.

LEEDS PAXTON SOCIETY. The report of the second Chrysanthemum Committee shows a slight balance in favour of the Society after paying away in prize-money £60 more than the previous year, not including the special prizes, whilst other expenses were £23 in excess. The next Chrysanthemum show is fixed for November 10 and 11.

THE MEDLAND COMPENSATION FUND. The friends of this patriarchal florist will be glad to hear that subscriptions have been received which amount to a sum nearly equal to a year's pension of the Gardeners' Royal Benevolent Institution. The fact will be fresh in the minds of some of our readers that Mr. MEDLAND failed at the last election of pensioners, and a compensation fund was inaugurated by a few friends, kindly headed by Mr. H. VERNON, and Mr. WIMBORNE, nurseryman, Chelsea. The subscription-list will soon close. The Hon. Treasurer is Wm. ROBERT WOODMAN, M.D., 23, Greville Road, Maida Vale, N.W.; and the Hon. Secretary, Mr. W. NAPPER, 489, King's Road, Chelsea, S.W.

DATE OF THE TEMPLE SHOW.—The summer exhibition of the Royal Horticultural Society, which was previously announced to be held on May 27 and 28 in the gardens of the Inner Temple, will, we are now informed, be held on Thursday and Friday, May 28 and 29, and will be opened by H.R.H. Princess CHRISTIAN on the 28th, at 1 P.M.

SHOW FIXTURES.—The exhibitions of the Ancient Society of York Florists, whose schedule is just to hand, announce shows on April 22, May 27, July 8, August 5, September 9, and the Chrysanthemum show, November 18, 19, and 20. The Norfolk and Norwich Society will hold exhibitions on April 23, July 2, and November 19 and 20, all in Norwich. The Highgate Horticultural Society's show is to take place on July 16, in the Baroness Bardett Coutts' gardens at Holly Lodge; and the Beddington and Carshalton Society's show will, as usual, be held on August Bank Holiday, August 3, in Beddington Park.

GALVANISED WIRE ON FRUIT WALLS AND ESPALIERS.—The correspondence which has reached this office on the above subject is rather bulky, but as most of the writers attribute the damage to the branches, when there is any, to the workman pulling the bast, willow, or string too tightly, it would not serve any useful purpose were we to publish any of the notes kindly sent by our correspondents. There are two or three methods of depositing zinc on iron—one by simply dipping it in a bath of zinc with a thick coat of sal-ammoniac over it, to prevent oxidation, and usually the articles to be galvanised are first dipped in muriatic acid and afterwards dried. By another process, the zinc coating is deposited by a sort of electro-plating. There would, therefore, appear to be nothing in the process itself, if the wire be washed to remove any sal-ammoniac that may be left on the surface, that is likely to be injurious to plant life. The sawing action of wire, galvanised or not, on branches moved by the wind, would, very probably, set up a diseased condition in the neighbourhood of the injury; but this kind of ill-effect of using wire can be averted by passing the tying material once or twice round the wire before passing it round the branch or shoot to be fastened.

THE PINE PLANTATIONS OF BELGIUM.—We read with regret of the appearance of the caterpillars of a moth, *Liparis monacha*, among the Pines of the district of Limburg. This is the insect which has at various times caused so great destruction in the forests of Bavaria and other parts of Germany. M. RODIGAS thinks that the appearance and multiplica-

tion of the insect may be attributable to a weakness of constitution in the trees arising from a deficiency of phosphates in the soil. The larvae are hatched about the end of May—ascend the trees to feed, and in the beginning of July descend to assume the chrysalis stage on or under the bark.

THE LATE WILLIAM RICHARDS.—By reason of his business relations, our late publisher was well known in horticultural and journalistic circles in Belgium, France, and the United States. In consequence, we find in several of the horticultural journals of those countries, sympathetic notices of our late colleague. We desire to express our warm appreciation of these marks of sympathy on the part of our contemporaries.

HORTICULTURAL INSTRUCTION.—M. F. BURVENICH, of Ghent, has been selected by the Belgian Minister of Agriculture to give a course of lectures on market gardening, fruit culture, and bee-keeping at the dairy-farm at Wevelghem, near Coutrai.

ROSE SHOWS.—From a list of fixtures sent by Mr. E. MAWLEY, we note, that in addition to those already announced in these columns, there are, on June 30 (Thursday) Winchester; July 1, Lee (two days); and on July 8 (Wednesday) Hitchin.

WOOLTON GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—We have received the following circular signed by Mr. R. G. WATERMAN, Honorary Treasurer, and Mr. J. ROTHWELL, Honorary Secretary. The Committee of the above Society propose to hold, at the Parochial Hall, Woolton, early in October, a Horticultural Conversation and Exhibition of Appliances and Specimens connected with Gardening. The Exhibition will be non-competitive, but Certificates of "Merit," "Culture," and "Comendation" will be awarded to such exhibits as the Judges may deem worthy. The proceeds will be devoted to the Library Fund of the Society, and the Committee trust they may be supported in arranging an interesting and instructive Exhibition, which will prove of considerable educational value to all lovers of Horticulture. A complete Schedule will be sent out, with Rules and Regulations, in August. Offers of assistance and suggestions are invited to be sent to the gentlemen above-mentioned.

MICHIGAN AGRICULTURAL EXPERIMENT STATION.—The last *Bulletin* which has reached us contains actual samples of the seeds of *Cnicus arvensis*, *Lithospermum arvense*, *Verbascum Blattaria*, *Linaria vulgaris*, *Plantago lanceolata*, and *Rumex crispus*. We are afraid none of these is native born, but that each has been introduced from Europe. At any rate the plan followed by the Michigan folk of calling attention to these weed seeds in this practical fashion, is one which might be advantageously followed here.

AGRICULTURE AND FORESTRY.—Dr. WILLIAM SOMERVILLE has been appointed to the recently founded Chair of Agriculture and Forestry connected with the Durham College of Science at Newcastle-upon-Tyne. This institution was established with the object of furthering a system of agricultural education by means of classes and lectures. The College is already possessed of some experimental land, and it is hoped that, in the course of time, similar stations will be established in various other districts.

THE "BOTANICAL MAGAZINE OF JAPAN."—The numbers for January and February contain figures and descriptions, in English, of *Goodyera hachijoensis*, *Chrysanthemum sinense* var. *satsumensis*, of which we shall have more to say on another occasion; *Polypodium Okubec*, a new species. The text of this publication is partly written in Japanese, partly in English.

CHISWICK GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The annual dinner of this Society took place at Chiswick on the 3rd inst., Mr. G. GORDON, the President, in the chair, there

being a large attendance of members. An interesting feature of the evening was the distribution of the prizes given by Mrs. S. A. LEE, of Chiswick. There were three classes for essayists to enter; the first had for a subject, "Horticulture: its Influence on the Masses." The 1st prize, of £2, was awarded to Mr. J. Smith, and the 2nd, of 30s., to Mr. John Barry, both of the Royal Horticultural Society's Gardens. These essays were written in the Council Chamber of the Royal Horticultural Society, under supervision; no books of reference or notes were permitted, and when completed, the papers were sealed, and handed to the person supervising the competition. The second class was for the best essays on any horticultural subject, at the discretion of the competitors. The 1st prize was awarded to Mr. A. Wright, The Gardens, Devonhurst, Chiswick, who took for his subject, the "Prolongation of the Hardy Fruit Season." Mr. T. Waugh also of the Royal Horticultural Society's Gardens, was awarded the 2nd prize, the subject being "Apples." The 3rd prize was taken by Mr. Booker, the Gardens, Dorset Lodge, Goldhawk Road subject, "The Orchard House;" and also to Mr. Bones, gardener, Tower House, Chiswick, on "Hardy Fruits," this essay being considered equal in merit to Mr. Booker's. In the third class of prizes, by members under twenty-three years of age, Mr. T. Waugh took the 1st prize; Mr. Orchard, Tower House Gardens, 2nd—subject, "Begonias;" 3rd, Mr. Roberts, Dover House, Roehampton—subject, "Amaryllis."

SCENTED BEGONIAS.—We learn from the *Illustration Horticole* that MM. LEMOINE, of Nancy, are about to let out a sweet-scented species, *B. Banmanni*, a native of Bolivia. It is stated to be a very robust-growing species, with large root-stocks, equal sided leaves, and flowers coloured and scented like the Rose.

'A YEAR IN A LANCASHIRE GARDEN.'—The title of this book will be familiar to many readers of the *Gardeners' Chronicle*, and so will the contents, which first saw the light in these columns, and which the unfeigned compliment of many imitations has been accorded. Messrs. MACMILLAN have issued a reprint which will be valued by lovers of pleasant literature.

CHRYSANTHEMUM SHOW IN BERLIN.—This will be held in Berlin from November 12 to 15 inclusive. The schedule indicates thirty-three classes, and the prizes offered include eight gold medals, thirty-one large silver medals, thirty-eight smaller silver medals, besides thirty-one of bronze. The address of the Secretary is 42, Invaliden Strasse, Berlin.

MR. WILLIAM CLARSON.—We regret to hear of the death of Mr. CLARSON, a gentleman well-known in agri-horticultural circles in Victoria, and an occasional correspondent of this journal. Mr. CLARSON visited England some years since, and took great interest in the affairs of the Royal Horticultural Society.

SALE-ROOM GOSSIP.—Tuesday, April 6 and Wednesday, the 7th, saw a fine attendance at the Great Central Auction Rooms of Messrs. PROTHORPE & MORRIS, 67 and 68, Cheapside, E.C., on the occasion of the sale of the Fernside Orchids. Good prices were realised, and the vendor at least ought to be satisfied. The *Odontoglossums*, most of the best of which had coloured illustrations in the Catalogue, commanded the highest prices. On the first day, *Odontoglossum Alexandra leopardinum* fetched 100 guineas; *O. crispum lilacinum*, 80 guineas; *O. Ruckertianum superbum*, 26 guineas; *O. Halli magnificum*, 34 guineas; *O. elegans*, 38 guineas; a fine *O. excellens*, 36 guineas; and others, proportionate prices. *Cattleya Trianae* alba realised 15 guineas; *C. Reineckiana*, 12 guineas; *C. Mossiae Arnoldianum*, 13 guineas; *Cypripedium Morganiae*, 30 guineas; *C. Schroderae*, 17 guineas; and *C. Elliottianum*, 19 guineas. On the second day there were among the lots many of an ordinary character, and not too sound, and for

these the bidding was rather slack; but for really good things the standard of the day before was attained. A *Cattleya Skinneri alba* (unwarranted), realised 6½ guineas; two hybrid *Odontoglossums*, 22 guineas each; a smaller *O. c. Bickleyense*, 18 guineas; another, *O. elegans*, 24 guineas; *O. Alexandræ punctatissimum*, 21 guineas; a good *O. Ruckerianum* var., 16 guineas; *O. Alexandræ guttatum*, 15 guineas; *O. Wilckeanum*, and another hybrid, 16 guineas each; *Cypripedium leucorrhodum*, 18 guineas; *C. orphanum*, 19 guineas; *C. Sedeni candidulum*, 6 guineas; *C. Thibautianum*, 15½ guineas; *C. Arthurianum*, 8½ guineas; *Dendrobium splendissimum grandiflorum*, 9 guineas; *Lælia elegans alba*, 7 guineas. The *Odontoglossum Alexandræ Leopardium*, and several of the other *Odontoglossums*, went to l'Horticulture Internationale, Parc Leopold, Brussels, to enrich the already fine collection of these plants which Mr. LINDEN has got together there.

PUBLICATIONS RECEIVED.—*Die Moderne Topf-pflanzgärtnererei*, by W. HAMPEL. (Berlin: Paul Parey.)—*The Nursery Book*, by L. H. BAILEY; *The New Potato Culture*, by E. S. CARMAN. (The Rural Publishing Co., Times Building, New York.)—*Potato Culture for the Million*, by H. W. WARD. (London: Eyre & Spottiswoode.)

GARDEN PICTURES AT THE FINE ARTS SOCIETY.

A PARAGRAPH which appeared in our issue of April 4, calling attention to the collection of fifty-three pictures by Mr. Alfred Parsons, and on view at 148, New Bond Street, will doubtless have excited some amount of laudable curiosity in some of the readers of the *Gardeners' Chronicle*. The pictures are in all cases of small size, but as regards the finished rendering of the aerial effects, tone, and correctness of drawing and colouring of flowers, foliage, and plants, they leave nothing to be desired except that the artist should have painted more of them.

The evening effects, observed in the "Light that Failed," a view in the garden of Fladbury Rectory, are excellent. The figure in the foreground of a lady in scarlet, reading, her back turned towards the spectator, the bright colour of the gown relieved by the black trimming of her hat, is well brought out by the old wall, with its border partially filled with dwarf Sunflowers, Roses, and *Monarda didyma* on the left. The central path is of warm red gravel, and on the right is a border of tall, massive *Thuja*s and Irish Yews, in their early tint of tender greens.

"A Cherry Orchard, Hagborne," with the trees in full bloom, and Daffodils blossoming everywhere, with masses of Cow Parsley in the rear, is a truthful picture of its kind, and one, fortunately, that is not rare in the country. It always appears to be the more pleasing manner of growing such flowers as the Daffodils, but at the same time it is one that is rarely adopted by the gardener, unless it be one who fears not to turn aside from his trim border and his labels. Mr. Ingram may be cited as an exception, for he has planted thousands of Narcissi and other species of bulbs amongst the grass in the spring garden of his creation at Belvoir.

Another Orchard of Cherry trees, and carpeted with its golden crop of flowers, is seen at "Bodenham, Hereford," but here the details do not evoke so much liking. The "Vicarage Garden, King's Langley," is portrayed at its gayest period, and the flowers are so well depicted in colour and form, that no one with the least acquaintance with common garden plants would find it difficult to pick out the various kinds. The borders to the right and the left hand are fairly ablaze with Poppies, Pæonies, both tree and herbaceous; *Primula Sieboldii*, great strong masses; *Chrysanthemum carinatum*, white Pinks, and on the distant steps at the end of the straight gravel path a young woman is surveying the ruddy scene.

"Plum trees and Daffodils—a Berkshire Scene," the Daffodils in natural masses, is a capital lesson in planting. "Gravetye, Sussex," supplies several

subjects, notably "Carnations," a profusion of blooms in a bed or border, with here and there a cool-looking blue *Agapanthus* cunningly introduced to act as foil to the warm hues of the former. The spot is embosomed amongst tall trees, yet there is enough sunshine to make Carnation culture possible.

A "View at Gravetye" shows in the rear a plain stuccoed house, purplish in tint, and in the foreground a lowly terrace wall, with some sober-hued flowers, flesh-coloured Tea Roses, Golden-rod, *Agapanthus*, *Tropæolum canariense* or other growing on it, or in the border at its foot. The border is less than half filled, the flowers few, and tones cold and hardly pleasing. "Yuccas" at the same place, shows another view of the dwelling, and an artistically arranged group of *Yucca grandiflora*, not yet sufficiently aged to be picturesque, but most faithfully drawn and coloured. "Daffodils at Stourton Garden," with water forming part of the composition, is a gem.

"Canon Swain's Garden in the Close, Salisbury," is a faithful rendering of a quiet scene, with the evening shadows falling athwart the velvety turf, and behind is the spire of the Cathedral. We wonder how monthly Roses are got to grow so tall as those at Shiplake Court, growing as bushes.

Another choice bit of Salisbury scenery is seen in "Rouge et Noir," a study of a lawn near the Avon. The spreading umbrageous trees, the tranquil stream, and smooth-shaven turf by the brink, are quite English; and a rather startling, if enlivening, contrast to the pensive scene is afforded by the black-coated parson and the lady by his side in scarlet, who are approaching the spectator.

The picture styled "The Hammock," with a woman in a lilac-coloured gown reclining in a hammock, near by a shady tree, in the sunny middle distance ripening corn, and at the further point the hill-perched town of Winchelsea. It is like nothing so much as a bit of Italian scenery; and in the immediate front grow *Malvas* and *Convolvulus tricolor*.

"A Pear tree at Willersley," is a capital rendering of autumn foliage seldom seen of so rich a tint—orange-red; and when seen, soon vanishing, the Pear rapidly losing its leaves. As it is, it equals some of the effects of American Oaks.

"Terrace-wall at Shiplake," is an instance of beauty of colour obtained by very simple means. The wall is covered in patches with climbing *Tropæolums*, and the ground at the foot with dwarf varieties of the species, whilst all around are the gayest of flowers in little patches, and plenty of the greenest of turf.

"The Gay Garden, Holme Lacey," a parallelogram, surrounded by an evergreen hedge of a great height, and laid out in the geometrical method, will please everyone who loves the glowing masses of colour that were found in gardens over all the country thirty years ago. As a garden view, evidently cut off from the rest of the garden by those thick tall Juniper hedges, it is a thing to remember, and copy, too, in its proper place.

"Shirley Poppies, North End, Frome," is the title of a little scene in a cottager's garden in that old-fashioned Somersetshire town. The foliage-bedecked cot, the single-flowered Hollyhocks, and above all for accurate drawing and colouring, the masses of *Gladiolus Breuchleyensis* and Shirley Poppies, are above all praise.

Having in the above notes endeavoured to point out some of the best pictures in the collection, we would advise all of our readers who have an eye to the lovely and picturesque in garden planting and arrangement, as apart from the usual forced and formal style, to visit the gallery, and bring away as many mental hints on these matters as they can. A. J. E.

COLONIAL NOTES.

COCHLOSPERMUM HIBISCOIDES, H. B. K.

STANDING about in different sections of the Botanic Garden at Trinidad are a few specimens of the above. At the time of writing they are leafless and

covered with large bright yellow rosaceous-shaped flowers, sometimes 4 inches in diameter. The trees are from 20 to 30 feet high. In *Nicholson's Dictionary of Gardening*, it is stated the genus to which this species belongs is evergreen. Our specimens are distinctly deciduous, the flowers being followed by long-stalked palmate leaves, so that it would be interesting to know whether *C. hibiscoides* is evergreen under hothouse cultivation in England or elsewhere, or not, as no doubt the above description was obtained from plants placed under artificial conditions. Numerous trees at this time of year are leafless in Trinidad, which suggests very forcibly the corresponding state of affairs in England, but under very different climatic circumstances. Here the loss of leaf is caused by a check to the growth, owing to the prevalence of dry weather and fresh northerly breezes, which have the effect of causing the trees to assume a "wintry appearance" by their leafless state. The wintry droughts of February and March are shown to be of most regular occurrence, from the records of twenty-nine years past. W. E. Broadway, Royal Botanic Garden, Trinidad.

AMHERSTIA NOBILIS, Wall.

This undoubtedly is the most handsome and brilliantly-flowered tree we possess. Similar to many other members of the vegetable kingdom that hold a prominent place in the colony of Trinidad, this is an adopted subject, its home being the far-off East Burmah. Mr. Prestoe, I believe, planted this particular tree under notice. Judging from its size, many years must have passed since it was first placed in its present position, which is in the Nutmeg ravine, quite near to a large bath and not far from our offices. In height the tree stands about 40 feet; 3½ feet from the ground branches are thrown out which assume more or less a horizontal position, and carry gigantic racemes of gorgeous flowers at their extremities. Fifteen to sixteen flowers is the average number on each raceme. Many hundreds of flowers open at one time, but their glory is evanescent, as they fall to pieces in the short space of three or four days. The flower individually, is large, and has no scent. The three petals, which stand out at nearly right angles to the staminal tube, have each a rich yellow spot at their tips, which greatly enhance their beauty. Its leaves are abruptly pinnate, with the upper part of the leaflets pale green, and their under side glaucous. When developing, they hang as though they were flagging, and are of a dullish red colour at this stage. In this respect they resemble their nearest allies, the genus *Brownea*. To propagate the plant is no easy task; this we do by layering, but seldom successfully. Since my connection with this garden, I have never seen a single matured seed on the tree, neither can I learn from our men that such has ever been seen by them, although it flowers profusely at various times of the year. I learn from Mr. Hart that it has matured fruit occasionally in Jamaica, from which seedlings have been raised, but that the tree does not grow to more than one-third of the size of the specimen of which I am writing; and that the fact of its producing fruit is partly owing to the somewhat stunted condition of the Jamaica trees. W. E. Broadway, Royal Botanic Garden, Trinidad.

CAPE TOWN.

We are not surprised to see that the Commissioners of the Cape Town Botanic Garden, finding that the Government grant is quite inadequate for the support of the garden, are prepared to resign their honorary office, and to recommend that the garden be kept as a public garden, without any pretence of being a scientific establishment. Mr. Roland Trimen, one of the signatories, adds his individual opinion, that it would be a public calamity if all hope and intention were abandoned of keeping up a botanic garden at the Cape, the seat of the most varied and remarkable Flora on the globe. This resignation, therefore, refers solely to the present unworkable condition of garden affairs, and in conclusion he most strongly advocates the maintenance of a Government botanic garden on a proper

footing. The Director's report is in keeping with the statement of the Commissioners, and is a distressing acknowledgment of unmerited failure. We can only hope that, now things have come to a crisis, some reorganisation may be effected. We on this side of the globe have ample opportunities of knowing how very valuable a properly-equipped botanical establishment is, and we can heartily appreciate what has been done under such disheartening circumstances by Professor M'Oaun and his aides-de-camp. The value to the colony itself must be so great, that it is very remarkable the governing body should shut its eyes to the fact.

CALOCHORTUS.

This splendid genus of half-hardy bulbs, from California and Mexico, are not much grown. No doubt this is because they are so little known, and also are somewhat difficult to cultivate, unless carefully attended to. By many they are known as "Butterfly Tulips" and "Mariposa Lilies."

The exquisite beauty of their peculiar forms, colours and markings, are indescribable; very few Orchids approach them in this respect. They are cheap, growing in any greenhouse with a sunny aspect, and yet how very seldom we see them. It is

good sandy loam on the south side of a thick Yew hedge, and in a very sheltered spot; here they stood out all the winter, with *Ixias*, *Sparaxis*, and other half-hardy Cape bulbs.

No doubt such a severe winter as we have just gone through, would have killed them. Where I am now, there is unfortunately no such favourable spot, so the *Calochortus* must be grown in pots. These should be well drained, and filled with a compost consisting of peat and leaf-mould in equal proportions, adding an eighth part of good coarse sand. As soon as the bulbs have flowered, stand them on a shelf, and gradually withhold water, treating them the same as *Freessias*, &c., keeping them dry and in a sunny position. Do not take the bulbs out of the pots until spring, when they show signs of growing again; then repot them very carefully. The cut flowers of *Calochortus* are very lasting and showy, and where wanted for this purpose alone, they may be grown in frames on a raised border. The frames will give sufficient protection during ordinary winters, if the soil in them is kept dry. The different varieties of these beautiful flowers need not be named and described here; any good bulb list will give them, and with a full description of their lovely colours. *A. P.*

PLANT PORTRAITS.

ALLAMANDA GRANDIFLORA, Garden, Feb. 28.

HEMAREA OLLEYI, Rolfe.—A *Goodyera*-like plant, with lanceolate leaves, vinous-red on the under surface, dark olive-green above, with golden-coloured veins, and erect spikes of small white flowers. Native of Tonkin. *Illustration Horticole*, t. 224.

LILIUM SZOVITZIANUM, Garden, March 14.

ODONTOGLOSSUM TRIUMPHANS, *Moniteur d'Horticulture*, March.

STENOMESON INCARNATUM alias *Coburghia incarnata*. *Illustration Horticole*, t. 223. A superb bulbous plant, rarely seen now-a-days.

HOME CORRESPONDENCE.

PEACHES AND NECTARINES.—My reply to Mr. Sheppard, p. 342, has been unavoidably delayed. He arrives at a totally wrong and unfair conclusion, as I have by no means "dropped the advocacy" of any of the varieties I recommended at first, nor have I any intention of doing so. I have merely noticed any criticism that has arisen, not considering it necessary to repeat any of the original list, and all that I have written has been fully proved here during the last six years, in which over sixty varieties have been grown and fruited under glass. The selection I gave has proved to be the best, taking all points into consideration. It is just possible that some of my critics have not grown all the varieties I have mentioned under glass, and have not had therefore a good opportunity of comparing them. It is quite wrong to suppose that a Peach or Nectarine, which does well inside, will do as well outside, the conditions of growth are totally different, and it is not a question of hardiness alone as Mr. Sheppard infers, as I quite agree with him that all are probably alike in that respect. *W. H. Divers, Ketton Hall, Stamford.*

A MONSTER MARECHAL NIEL ROSE.—There is at the present time flowering in the Vicarage Street Nursery, Warminster, a wonderful *Maréchal Niel*, which was planted on April 16, 1888, which made the first year after planting shoots 25 feet long, and produced 200 Roses before it had been planted twelve months. Next year its shoots reached to the length of 30 feet, and the number of blooms amounted in 1890 to 2000. The plant covers at the present time an area of 450 square feet, and is carrying flower-buds and blooms of more than 3000 in number. The best time to see the plant will be in about a fortnight. *T. H. Hannay.*

ACACIA DEALBATA.—I came across a specimen of it to day, or rather specimens, as they appear to the eye, which very greatly surprised me. It seems that about eighteen years ago, the late Mr. Clayton



FIG. 97. — *CALOCHORTUS LEICHTLINII*.

ECONOMIC PRODUCTS OF JAMAICA.

Mr. W. Fawcett has prepared an index of the medical and economic plants which are, or may be, cultivated in Jamaica. The arrangement is alphabetical. Of each plant a very brief description is given, together with indications of the properties which render it useful. For the purpose for which it was prepared, the list will be very serviceable.

QUEENSLAND.

The Colonial Botanist, Mr. F. M. BAILEY, has issued a bulletin containing the description of some dozen or more additions to the flora of Queensland, among them is the *Peronospora* of the Tobacco, figured in these columns recently.

of the greatest possible aid, in the cultivation of any plant, to know its natural country, and the places and kind of soil it grows in.

Amateurs would do well to invest in a good garden dictionary, such as Johnson's or Nicholson's, and spend a few minutes in looking up the country, soil, &c., natural to any particular plant, and then try and imitate the same as far as is practicable. By doing this, they would have fewer failures, besides feeling greater interest in their plants. Now, the *Calochortus* is found growing freely in dry, sandy, and sunny positions in California and Mexico; therefore, they must be treated the same here. They are half-hardy. We had great success with them in one of our gardens, where they were planted in

(the senior partner in the firm of Clayton and Shuttleworth, in Lincoln) bought the property at the foot of this hill, which now belongs to the Isle of Wight College, and he took an interest in planting some fine trees and shrubs in the grounds, among the number of which was *Acacia dealbata*, which grew very rapidly, and soon came to be of great size. All went well with it for about eight years, when it was cut down by a hard frost. And now comes the curious part of my story. Towards the end of the month of June, a whole forest of suckers, so to say, appeared above ground, and they covered a space of about eight feet in diameter. These suckers have by this time grown into really fine trees, and they must be considerably more than 20 feet high, and have spread, so that at the top they must have a diameter of 25 feet, I should say, and the whole clump is of very imposing dimensions indeed. And strange to say, at least it seems so to me, these fine specimens of *Acacia dealbata* have not felt the severity of the late very hard winter at all, perceptibly. They are all covered with buds, which will soon break into those beautiful bright yellow blossoms that we admire so much, and the trees wave about unharmed in the slightest degree by the cold they have experienced. I had here, at the top of the hill, a fine specimen of *Acacia dealbata*—it was about 18 feet high—which I planted a few years ago against the eastern end of St. John's Church, but it has been, to all appearance, completely destroyed by the frost, unless it comes up again towards the end of June. These trees in the college grounds seem to have laughed at the cold they experienced, and they dance about in every breath of wind that may come on them as though their life were the most joyous that could be conceived. Does not this say to us, that if we want to acclimatise *Acacias* and such-like things, we should look for suckers to come up more than anything else? If my weebegone and at present most disappointing tree sends up suckers in June, it will be a hundredfold more valuable than it ever was before. But at present I cannot divine its intent. I can only hope for the best. *H. Eubank, Ryde.*

VIOLETS.—To have a fine and an early show of bloom, it is of importance to put in cuttings taken off frame-grown plants, and the present is a very suitable time. The cuttings should be taken with a few rootlets attached; if possible, and dibbed a few inches apart, in a sandy soil, containing leaf-mould, raised near to the glass on a mild hot-bed of leaves. The cuttings must be slightly shaded at midday, if sunny, and syringed till the plants have recovered, and when they have got plenty of roots, transplant them on to a piece of well-manured ground at 10 inches apart. Keep the runners picked off, and the beds clean of weeds, and afford waterings in dry weather, and sometimes manure-water. When planting Violets in frames, do not use a poor soil, as is sometimes done, as it is a mistaken practice; and if the soil is light, it should be trodden to make it firm. *H. Markham.*

LATE MELONS.—Some of your correspondents appear to be differing as to the best varieties of Melons for fruiting late. I have given but limited attention to the cultivation of late Melons, from the fact that there are only four months in the year when people care to eat Melons. I generally reckon upon the last crop of Melons being cleared off about the middle of the month of September, and although I have in a few years carried them on to the middle of October, the result was not quite satisfactory. The remark that late-ripening Melons "are pretty good for the time of year," scarcely encourages one to grow the fruits to a late period. The fact that Melons grow strongest, and are the best flavoured, during the hottest part of the year, coupled with one's natural inclination to eat them at that season, is, in itself, a strong argument against growing late fruits. *J. P. Leadbetter, Tranby Croft, Hull.*

ARSENICAL COMPOUNDS.—Regarding a circular referred to in an editorial note in last week's issue, relating to Paris Green, I wish to state that I have used arsenic for some time as a weed-destroyer on walks, drives, &c., and have always found it most effectual. Is it necessary that weeds should absorb arsenic to effectually kill them? If so, would not the humidity of the soil in time render the arsenic in Paris Green capable of absorption by the tubers or rootlets of the Potato, or anything else? As arsenic is one of the most virulent poisons, not only when taken into the stomach, but even when applied to a wound, I would advise those who make use of

arsenical insecticides to handle them very carefully, more especially if an open cut or scratch be on the hands. I have experienced a very unpleasant sensation by inspiring a little of the vapour while preparing it for use. *J. Robertson, Ojheare Hall.*

LATE-FRUITING MELONS.—For a few weeks past we have been interested and a little enlightened by articles from the pens of two or three good old Peach growers, and each stood firm by his choice, and died hard. Now I suppose I shall not get into hot-water if I say that there are ten or a dozen good Peaches—I mean varieties—for growing in Peach-houses; but as for Melons, may they not be reckoned by hundreds? Mr. Allen in his reply to "Melon Grower," still maintains The Best of All Melons as the best. Why not say it is one of the best, which would not be misleading. I do not doubt Mr. Allen's facts about late ripening, &c. But keeping? I know that choice Melons are short-lived. Mr. Allen says, to have first-class Melons in December, means growing a variety that will keep well; but to have Melons in December and keep them on till nearly March, as he has told us recently, that is a very long stride. After all, to have a Melon to show on the table in November or the first days in December, is like the hired fruit one may get in London, which is more often for show than consumption. Mr. Allen offers to send a Melon to "Melon Grower," but he does not say whether he will send one in the autumn or spring, or state if the Melons that he will exhibit in the autumn will keep till the following February. I can grow and ripen Melons of good quality, but cannot keep them. *A. Douglas.*

CEOLOGYNE CRISTATA.—Mr. Divers questions "W. H. W.'s" statement as to whether he did not mistake the young growths for flower-spikes, when referring to a large plant of this Orchid growing in these gardens; but I can assure him that no mistake was made, as many of the pseudobulbs are now carrying, or showing both growth and flower-stems. Had the plant not flowered twice before, I might have been a little doubtful about the matter. Last year I had several good spikes of bloom as late as June. I am not aware that this is a common freak, neither do I attach any advantage to it, for it is not the pseudobulbs that flower early in the year that flower later on, but those which have failed to do so, and the flowers would be just as useful in January as in June. I think the explanation is to be found in the plant not making and maturing all its growths at one time. *C. Warden, Clarendon Gardens, Salisbury.* [It sometimes will happen, that the pseudobulbs at the outside of a large mass of *Ceologyne* will flower early, owing probably to the direct impact of warmth from the hot-water pipes, and the inner ones at a later period. *Ed*]

EARLY VARIETIES OF PEARS.—A good many Pears, naturally early ripeners, may be made still earlier by planting them against south and south-west walls. The fruits will in some cases, as for instance, William's Bon Chrétien, will come of a finer size on these aspects, while others will be rather smaller than when cooler grown. This holds good for Jargonelle, Citron des Carmes, Summer Franc Real, a very abundant cropper, if not very richly flavoured; Doyenné d'Été, Beurré Giffard, B. superfin, Clapp's Favourite, large if not very good; Souvenir du Congrès, of which the same may also be said; Colmar d'Été, and Madame Treve. What the gardener has to guard against is leaving the fruits on the tree too long, thus causing meanness. They should be gathered a few at a time, as they become fit, which is easily ascertained by gently raising them, when the stalk should part from the spur without needing a wrench. I have hastened the ripening Pears by placing frame lights and sheets of iron over the space occupied by the roots, seeing, of course, that the ground was abundantly watered before doing so. The enclosed space was heated in a higher degree if the lights or sheets of iron sloped towards the sun, and the ends were closed. The same contrivances are equally serviceable in forwarding Tomatoes, where the contrivance also tends to prevent gross growth from a too wet soil, and to render the plants less liable to disease. *A.*

"WANTED, A GARDENER."—As a further proof of what some employers expect, I saw the following advertisement in *The Daily Telegraph* recently. "Wanted, an experienced gardener to take charge of 2 acres of kitchen garden, two greenhouses, and about 2 acres of pleasure grounds. Must be married, with no encumbrance. Wife good laundress,

Salary for both £30 a year, with house and gas." On reading the above one can only exclaim, "What next, and next!" It is to be hoped that any parent or guardian who may be thinking of apprenticing a boy to gardening, may see the above, as also the paragraph in your last issue, so that he may pause before putting a boy to learn a business that has such poor prospects for him. I do not deny there are some employers who are fair, and even generous in the matter of wages, but they are few. How comes it that a gardener is generally the worst paid of all the upper servants on a gentleman's place? And yet he must of necessity be better educated and more intelligent than any of them. I know I shall be told it is simply a question of supply and demand, and that as long as there is an excessive supply of gardeners the wages will be low. No doubt this is true, and it is also true that the present state of affairs has, to a great extent, been brought about by head gardeners in large establishments, who take apprentices, and employ young gardeners to do work which any ordinary labourer could have performed better. This is even now the case in the North of England, and in Scotland; and it is my opinion that our nurseries should not be, as they now are, filled with men glad to take any situation which promises them the bare necessities of life. *T. C. D., Newbury.*

OLD APPLE AND MULBERRY TREES IN NEW ZEALAND.—An English patriarchal tree, the Cedar of Lebanon, has recently had full justice done to it in the *Gardeners' Chronicle*. It will not, perhaps, be out of place to notice another patriarch—the oldest Apple tree in New Zealand. It is, however, a mere infant of seventy summers, and, like the majority of infants of that age, it looks considerably the worse for wear; it is growing upon the farm of Mr. Press, at Waimate, New Zealand; its somewhat seedy condition is owing not so much to overfruitfulness as to the unsuitability of the soil in which it is growing. A dry and light soil is not at all the most favourable one in New Zealand for this kind of fruit, although some young trees growing in close proximity to the patriarch thrive well. It is very probable that under the most favourable circumstances, Apple and other fruit trees indigenous to such temperate regions as Great Britain will never attain to a venerable age. Of the "oldest inhabitant" in the way of Apple trees, Mr. D. Garner Jones, the master of the Government Schools at Waimate, sent a sketch, made in October, 1889, to *The New Zealand Farmer*, in which journal it appeared a few months since. The produce of this tree, as will be imagined, are small both in size and quantity, whilst the taste is inferior. The variety is of a nondescript kind, the tree being probably a seedling; in fact nobody in the colony seems to know the particular variety, and nobody seems to care! The "finest Mulberry tree in New Zealand" seems to be worthy of a note in connection with the Apple, for it, too, appears to belong to the tribe of patriarchs. It was planted at Ohinemuri half-a-century ago, and its present—or rather recent—measurement will be of interest to readers of this journal. The stem is 7 feet round, and at a height of 2 feet divides into as many branches of 4 feet 6 inches each, and these again into four branches of 3 feet 3 inches, 2 feet 1 inch, 3 feet 6 inches, and 2 feet 8 inches respectively. The spread round the branches exceeds 41 yards, and this bulk is pretty well sustained to the top of the tree, which is estimated as at least 35 feet. The bearing branches come down to within 2 feet of the ground, and from that height to the top the bearing twigs form one thick mass extending right into the centre of the tree. In spite of its productiveness, it does not appear that the Mulberry is a very profitable fruit in this particular district, for the cost of boxes, packing, and steamboat hire to take the fruit to Auckland, leave a balance on the wrong side. The "borer" appears to be the worst enemy of the Mulberry, which is not saying much, for it does the tree very little harm. *A Travelling Botanist.*

PROTECTING BROCCOLI FROM FROST.—The dictum of most gardeners would be to "lay" the crop, or some part of it, in late autumn or early winter, as a preventive of loss from possible frost. Those who have not taken up the new-fangled idea that our winters are milder and our summers cooler than of yore, will have done this, and thus saved, in a measure, a part of their Broccoli; and those who hold to that belief will have become reconverted this winter on beholding the havoc done by frost. But there is another way of preservation, or one which might supplement the laying or heeling-in

method, and that is at planting time, to plant in drills taken out with the hoe or spade to a depth of 6 inches. By doing this, the plants would stand up to their lower leaves the greater part of the summer, and in late September, not earlier, they might be moulded up, by drawing in towards them the soil which was thrown out of the drill. This earthing-up would be rendered more effectual if the soil were drawn round each stem pyramidal fashion, instead of in a long ridge. With very gross plants, the safer method would be partial lifting, and pressing over the plants towards the north; but rich land should never be selected for this crop, and then redundant growth would scarcely be possible. There is another advantage obtained by planting in drills—at least to those who have to deal with light dry soils, and that is, that the plants are secure from the evils of drought; and should watering become necessary, it is the more effectual by reason of the trench or drill. *Non-Vegetarian.*

the temperature at that season being admirably suited for the Roses. There is also enough light and air for them until the roof becomes shaded by the Vines. Usually the roof is thus shaded by the time the flowers open, but we are then able to place the Roses in theinery succeeding that one which has a suitable temperature. The plants were placed in theinery this season about Christmas, the first flowers opened in the first week in March, and we shall be able to gather a succession of Roses until the out-of-door plants bloom. The difficulty comes in after flowering is over; for unless the plants are well-cared for, we cannot expect many good flowers next year. We possess three vineries, and it is found that they are all of use for growing Roses in pots. When the early plants have bloomed, they are taken into the latestinery, and if freely exposed to light and air, they may be placed after a time in

DEATH OF A CENTENARIAN GARDENER.

JAMES WELLS who for so many years headed the list of pensioners, has passed peaceably away to that bourne from which no traveller returns. His history reveals a remarkable example of the great work the Gardeners' Royal Benevolent Institution has done, and is still doing, for aged and distressed gardeners and their widows.

Born in the year 1788, in the reign of George III., he passed through the reigns of George IV. and William IV. Added to this, he has lived through the long and happy reign of our present Queen and patroness, completing his 100th year in the year of her jubilee; and after living an active and honourable life, he died on March 20, 1891, at the age of 103 years. His first connection with the Gardeners' Royal Benevolent Institution was in 1842, when he, at the age of fifty-four, became an annual subscriber of one guinea. At that time he held the position of gardener to Lord Keane, of Barton Lodge, Christchurch, Hants. Some years after, he went as gardener to J. D. Shute, Esq., of Bromshaw Hill Stoney Cross, Hants; and he finally became gardener to J. B. Phillips, Esq., Lyndhurst, Hants, where he remained till 1860. During the whole of these eighteen years he paid his subscription with regularity, thus benefiting his brethren and showing his faith in the Institution, which was then in its infancy.

The wisdom of his thus immediately helping others, and at the same time providing against his own "rainy day," was proved in 1860, when, at the age of seventy-two, he applied for a pension, and having subscribed over the allotted time fixed by the rules of the Institution (fifteen years) he was at once placed on the pension list without an election. That his faith in the Institution has been amply rewarded, the books of the Secretary show, for on referring to them, it is found that James Wells, during the thirty-one years he has enjoyed his pension, received no less an amount than £520. It is earnestly hoped that all gardeners will follow his example, and that they, with all lovers of gardening, will do their utmost to help on the excellent work done by the Gardeners' Royal Benevolent Institution.

SCOTLAND.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

THIS Association held the first monthly meeting of the current session in 5, St. Andrew Square, Edinburgh, on the 7th inst., Mr. Wm. Welsh, President, in the chair. The President delivered his inaugural address, in which he sketched the history and progress of the Association, at the origination of which he assisted.

Mr. Malcolm Dunn, Dalkeith Gardens, directed the attention of the members of the Association to the claims which the Gardeners' Royal Benevolent Institution had upon all connected with gardening. He explained the aims and the working of the Institution, alluded to the excellent work it was doing in England; but pointed out that though its head-quarters were situate in London, it was thoroughly national in its operations. Scotland, he said, received more benefit from its funds than it contributed to them, and he hoped that gardeners in Scotland would numerously become members of the Gardeners' Royal Benevolent Institution, not only because of the good it had done, and was doing there, but on the broader ground that it was alleviating the misfortunes of distressed but deserving gardeners everywhere in the United Kingdom.

Mr. Matthew Todd also urged the claims of the Gardeners' Orphan Fund on the thoughtful consideration of the members of the Association, making an eloquent appeal on behalf of this young scheme of benevolence.



JAMES WELLS, ATAT. 103.

ROSES.

POT-GROWN ROSES.

THE profusely-flowered Rose bushes exhibited by Messrs. Paul & Son, of The Old Nurseries, Cheshunt, Herts, at the Royal Botanic Society's Gardens on March 18, were sufficient evidence, if that were needed, of what may be done by intelligent culture. Gardeners who are able to grow in pots a few dozen only, and have but limited accommodation for them, cannot hope to rival the best cultivators in the United Kingdom. It may be that the owners of large gardens think, when they see such Roses at exhibitions, that they also should have similar plants in their gardens, even if their gardener has to grow half-a-dozen or more classes of plants in the house besides the Roses, and perhaps with Vines overhead. At any rate, that is the state of affairs in the garden under my charge. We have for many years started the earliest Roses in December, in an earlyinery,

a sheltered spot out-of-doors, and a covering of scrim is sufficient to shelter them from frosty winds, if they have been kept in a house that is well ventilated. It would be much better if, after flowering, the plants could be placed in a light airy house to make their growth. Mildew and aphids are apt to afflict the Rose, and red spider soon makes its appearance on the under sides of the leaves if the air be dry. The green aphid will do most mischief, and should be destroyed by fumigation on its first appearance, liquid insecticides to a certain extent spoiling the beauty of the tender green leaves. Flowers-of-sulphur are the best antidote for mildew; and syringing the undersides of the leaves with rain-water will dislodge the red-spider. All this ought to be seen to without delay, so that plants may be quite clean when the first flowers open. In all the stages of its cultivation, the fact should not be lost sight of that the Rose loves much light, and as much fresh air as it may be prudent to admit into the house. *J. Douglas, Great Gearys, Ilford.*

Dr. Wilson, curator of the Herbarium, Royal Botanic Garden, Edinburgh, announced that arrangements had been made to resume the horticultural classes at Heriot-Watt College, Edinburgh, next session, and that he had been appointed lecturer. The announcement was received by the meeting with expressions of satisfaction. Mr. John Methven stated that he would not only urge young men in the employ of his firm to avail themselves of the course of lectures, but would, if necessary, also pay the fees.

On the table were some beautiful Cinerarias, exhibited by Mr. John Downie. The plants were only just starting to bloom, but their superior quality was much admired. Mr. Mathieson, gardener, Curriehill, exhibited a plant and some cut flowers of an excellent strain of Cineraria; the plant, including the inflorescence, did not exceed 10 inches in height above the pot, but the corymb was some 15 inches across, the effect being too squat or dumpy to be elegant. Mr. Bell, of Baronscourt, Ireland, sent specimens of common Holly, richly berried, which at Christmas last would have been scrambled for by the members, so scarce was berried Holly in these parts last season.

TRADE NOTICE.

WALTER CARSON & SONS, dealers in anti-corrosion and other paints, colours, oils, and varnishes, owing to a great extension of their business during the last few years, have found it incumbent upon them to remove from La Belle Sauvage Yard to Battersea, where they have taken the Grove Works.

LAW NOTES.

NO GUARANTEE WITH SEEDS.

In the City of London Court on Monday, before Mr. Registrar Wild, the case of Legerton v. Stacey & Bradley was disposed of. The action was brought by the plaintiff, Mr. Alfred Legerton, seed merchant, of 5, Aldgate, E.C., against the defendants, Messrs. E. Stacey & Bradley, Florists, of 2, Caroline Villas, Park Lane, Tottenham, to recover the sum of £3 8s. for seeds sold and delivered. The plaintiff's manager having deposed to the sale and delivery of the goods, Mr. Stacey said the defence was, that the seed did not come up to the guarantee. The seeds he purchased were Matchet Mignonette seed, and Spiraea seed, but they were quite worthless, as they failed to bloom. It was denied that there was any guarantee. The Registrar said he should very much doubt that there was any guarantee given with seed. It might have been want of attention on the part of the defendants that prevented the plants from blooming. There would be judgment for the plaintiff, with costs.

Obituary.

MR JAMES BIRD.—We regret to announce the death on Saturday, April 4, of Mr. J. Bird, nurseryman, Downham, at the age of sixty-eight years. The deceased was for many years with Mr. Mackie, of Norwich, and left his service to take the then small, and old-established American Nurseries at Downham, which he greatly increased and successfully carried on, together with a good seed business, for twenty-eight years. Mr. Bird was greatly respected and esteemed in Downham and the neighbourhood.

AN AGRICULTURAL PARCEL POST.—I am sending by this post to friends in England, boxes of flowers, at a cost of 3d. each for postage. The distance is over nine hundred miles, and I know by experience that these flowers, packed in frail boxes, will arrive, and be delivered fresh and uninjured, on Monday morning. The object of the French Govern-

ment in giving these facilities, is, of course, to encourage native industry. The obvious question then arises, why we cannot establish an agricultural parcel post in England, at special low rates, for the benefit of farmers, market gardeners, dairymen, and others? By doing this, we would encourage an important home industry, which is at present subject to the fiercest foreign competition. Thousands of householders in London who pay cash for everything would gladly arrange to receive fresh butter, eggs, poultry, and such garden produce as is in season, if the parcel rates were reduced to 1d. per lb., with a minimum of 3d. for a parcel 3 lb. in weight. In order to give practical effect to this suggestion, I beg to say that I do not wish to hear from people who have long thought of or advocated the idea, and believe it impossible to carry out, but I ask ladies and gentlemen in the country, and fellow-members in the House of Commons, to write to me at 36, Eaton Square, London, expressing their willingness to form a deputation to wait on the Postmaster-General. I am confident Mr. Raikes will not give us an unfavourable answer. *J. Henniker Heaton, Cannes, South of France, April 4, in "Times," April 8.*

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	Above (+) or below (—) the Mean for the week ending April 4.	Above 42° for the Week.	Below 42° for the Week.	Accumulated.	10ths Inch.	Days since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
1	4	2	31	49	25	5	65	14.8
2	5	0	43	2	47	1	38	4.8
3	5	1	33	10	71	0	43	3.8
4	4	12	36	14	117	1	43	3.7
5	3	16	35	7	94	4	37	4.1
6	3	19	23	19	143	1	34	5.7
7	4	7	31	19	15	1	17	9.2
8	3	11	28	26	30	4	35	4.6
9	2	17	23	30	107	5	38	6.9
10	3	11	21	13	20	4	49	5.4
11	1	30	9	17	25	8	42	5.5
12	1	26	2	18	44	1	43	6.1

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 4, is furnished from the Meteorological Office:—

"The weather has been changeable and inclement, with frequent showers of snow or sleet over the northern parts of the United Kingdom, and large amounts of rain in Ireland. In the south and east of England, however, the weather was mostly fair and dry until the closing days of the week, when some considerable falls of rain were experienced. Thunder and lightning occurred in various parts of England and Wales on the 4th of April.

"The temperature has been below the mean in all districts, the deficit varying from 1° in 'Ireland, S.' and the 'Channel Islands,' to between 3° and 5° in nearly all other parts of the Kingdom. The highest readings were registered on very irregular dates in

Ireland and Scotland, but mostly on the 4th of April over England; in Scotland and the northeast of England the thermometer did not exceed 50°, but in other parts of our islands it mostly exceeded 55°, while in 'England, N.W.' and 'Ireland, S.' it reached 60° or a little more. The lowest readings which occurred at various times during the early part of the week ranged from 17° in 'Scotland, E.' to between 20° and 25° in all other districts, excepting the Channel Islands, where the thermometer did not fall below 31°.

"The rainfall has been less than the mean in 'Scotland, N.' and 'Scotland, E.,' and about equal to it in 'England, N.E.,' but more in all other districts. Large quantities of snow are said to have fallen in North Wales.

"The bright sunshine has been less prevalent than it was last week over England and the south of Ireland, but more so in Scotland and the north of Ireland. The percentage of the possible duration has ranged from 23 in 'Ireland, N.' and 26 in 'Scotland, E.,' to 36 in 'Scotland, W.,' and 39 in 'Scotland, N.'"

MARKETS.

COVENT GARDEN, April 9.

TRADE brisk, with clearance generally. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.		s. d. s. d.	
Artichokes, Globe,	each	Lettuces, per dozen	3 0
Beans, French, lb.	1 4 2 0	Mushrooms, punnet	2 0
Beet, red, per dozen	2 0 3 0	Mustard and Cress,	...
Brussels Sprouts, lb.	0 6	punnet	0 4
Carrots, per bunch	0 6	Parsley, per bunch	0 4
Cauliflowers, each	0 6	Seakale, per basket	2 0 2 6
Celery, per bundle	2 6 3 6	Shallots, per lb.	0 6
Cucumbers, each	0 6 0 9	Spinach, per bushel	1 0
Endive, per dozen	4 0	Tomatoes, per lb.	1 0 1 6
Herbs, per bunch	0 4	Turnips, per bunch	0 6

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Aralia Sieboldi, doz.	6 0-18 0	Ficus elastica, each	1 6-7 0
Aspidistra, doz.	18 0-42 0	Foliage plants, vari-	...
—speci. plants, each	7 6-10 0	ous, each	2 0-10 0
Azalea, per dozen	24 0-42 0	Genista, per dozen	8 0-12 0
Bedding plants, va-	...	Hyacinths, per doz.	6 0-9 0
riety, per doz.	1 0-2 0	Lily of the Valley,	...
Bouvardias, p. doz.	9 0-18 0	per dozen pots	9 0-18 0
Cineraria, per dozen	8 0-10 0	Marguerites, doz.	6 0-12 0
Cyclamens, dozen	9 0-18 0	Mignonette, per doz.	6 0-9 0
Cyperus, per dozen	4 0-12 0	Myrtle, per doz. pots	6 0-12 0
Dielytra, per dozen	8 0-12 0	Palms in variety,	...
D. acena terminalis,	...	each	2 6-21 0
per dozen	30 0-60 0	Pelargoniums, doz	12 0-18 0
—viridis, per doz.	12 0-24 0	—scarlet p. doz.	5 0-9 0
Euonymus, in var.,	...	Primula sinensis, doz.	4 0-6 0
per dozen	6 0-18 0	Roots for bedding,	...
Ericas, various, doz.	8 0-18 0	boxes, each, from	1 0-3 0
Evergreens, in var.,	...	Spiraea, per dozen	9 0-12 0
per dozen	6 0-24 0	Solanums, per doz.	9 0-15 0
Ferns, in var., doz.	4 0-18 0	Tulips, per doz. pots	6 0-9 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Apples, ½-sieve	3 6-6 0	Lemons, per case	15 0-25 0
—Nova Scotia, brl.	15 0-25 0	Pine-apples, St. Mi-	...
Cobs, Kent, 100 lb.	40 0-45 0	chael, each	2 0-8 0
Grapes, lb.	3 6-5 0	Strawberries, p. lb.	3 6-8 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Anemone (Fr.), 12 bun.	2 0-4 0	Narcissus (paper	...
Azalea, 12 sprays	0 6-1 0	white), 12 sprays	0 9-1 6
Bouvardias, per bun.	1 0-1 6	—French, 12 bun.	2 0-6 0
Callaethiopica, 12 fl.	3 0-6 0	Narcissus (yellow),	...
Camellias, white, 12	...	12 bun.	2 0-4 0
blooms	2 0-4 0	—Poeticus (Pheas-	...
—cold., 12 blms.	0 9-1 6	ant Eye) 12 bun	4 0-6 0
Carnations, 12 blms.	1 0-2 0	Pelargoniums, scarlet,	...
Cyclamens, per doz.	3 0-6 0	12 spr.	0 6-0 9
Daffodils, various, 12	...	Poinsettias, 12 blms.	...
blooms	0 3-0 9	Primroses, 12 bun.	0 8-1 0
—(Foreign), 12 bun.	2 0-6 0	Primulas, double, 12	...
Eucharis, per dozen	4 0-6 0	sprays	0 6-1 0
Gardenias, per doz.	2 0-4 0	—single, 12 sprays	0 4-0 6
Heliotropes, 12 spr.	0 6-1 0	Ranunculus (Fren.),	...
Hyacinths, Rom., 12	...	12 bun.	1 0-2 0
bunches	1 0-2 0	Roses, Tea, per doz.	1 0-3 0
Hyacinth, various, 12	...	—coloured, dozen	2 0-4 0
spikes	3 0-6 0	—yellow (Maré-	...
Lilium Harrisii, doz.	3 0-4 0	chals), per doz.	3 0-6 0
Lily of the Valley, 12	...	—red, per dozen	3 0-6 0
sprays	0 6-1 0	—do., French, doz.	1 0-3 0
Maiden Hair Fern,	...	Snowdrops doz. bun.	1 0-3 0
12 bunches	4 0-9 0	Tuberose, 12 blms.	0 9-1 6
Marguerites, 12 bun.	3 0-6 0	Tulips, various, 12 bl.	0 9-1 6
Mignonette, Fr., bu.	1 6-2 6	Violets, 12 bun.	0 9-1 6
Mimosa (French) 12	...	—Parma, Fr., bun.	2 6-3 6
bun.	12 0-15 0	—dark, Fr., bun.	1 0-2 0
—(French) basket 4	0-6 0	Wallflower (Fren.),	...
Myosotis, 12 bun.	4 0-6 0	12 bun.	1 0-2 0

ORCHID-BLOOM in variety.

OLD POTATOS.—The stocks on hand have been very materially reduced since last report, and prices have risen a further 5s. to 10s. per ton. Best samples making now £7 to £7 10s.; Ordinary £5 10s. to £6 10s. per ton. The stocks now held by the farmers is reported to be very small, which with a continuance of cold weather show a probable finish at very high prices not experienced for the last eight or ten years.

NEW POTATOS.—Although arrivals are not heavy, yet the trade keeps quiet. The boom will come with warmth and sunshine. *J. D. Thomas.*

SEEDS.

LONDON: April 7. — Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that at the easier rates now accepted, there is a somewhat improved demand for Clover and other seeds. Trefoil, more particularly, can to-day be obtained at a substantial reduction from recent top prices. Meantime, stocks all round are not excessive, and with no fresh supplies, either foreign or domestic, coming to hand, the quantity to be kept over will probably be very small. French and perennial Ryegrasses hold their own. Sainfoin continues exceedingly cheap. Tares keep steady. In rape seed the tendency is upwards. Mustard is without alteration. Blue Peas are dearer; stocks seem nearly exhausted. Haricot Beans are also advancing. Scarlet Runners are now quoted at very tempting figures.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure, for the week ending April 4, and for the corresponding week in 1890:—1891. Wheat, 36s. 5d.; Barley, 27s. 10d.; Oats, 18s. 11d. 1890: Wheat, 29s. 8d.; Barley, 31s. 0d.; Oats, 18s. 1d. Difference: Wheat, +6s. 9d.; Barley, -2s. 2d.; Oats, +13d.

FRUIT AND VEGETABLES.

SPITALFIELDS: April 8. — Improved supplies of fresh vegetables. Demand good. Fruit trade fair. Potatoes advancing. Quotations:—English Apples, 4s. to 10s. per bushel; American do., 3s. to 22s. per barrel; foreign Tomatoes, 1s. to 1s. 9d. per box; Savoyas, 6s. to 8s. per tally; Turnip Tops, 3s. to 4s. 6d. per sack; Swede Turnips, 3s. 6d. to 4s. 6d. do.; Sprouting Broccoli, 3s. 6d. to 4s. do.; Cauliflowers, 2s. 6d. to 4s. per dozen; Rhubarb, 3s. to 4s. per dozen bunches; French Endive, 2s. 6d. to 3s. 6d. per dozen; French Cabbage Lettuces, 2s. to 3s. 6d. do.; Jersey Radishes, 2s. 6d. to 3s. 6d. per dozen bunches; Parsnips, 1s. 6d. to 2s. per score; Turnips, 2s. to 2s. 9d. per cwt.; Carrots, 35s. to 40s. per ton.

STRATFORD: April 7. — There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 3s. to 5s. per tally; Savoyas, 8s. to 12s. do.; Greens, 2s. to 2s. 6d. per sieve; do., 4s. to 6s. 6d. per dozen; Cauliflowers, 1s. 6d. to 3s. do.; do., 8s. to 12s. per tally; Turnips, 35s. to 50s. per ton; Carrots, household, 100s. to 110s. do.; do., cattle feeding, 35s. to 40s. do.; Parsnips, 1s. to 1s. 6d. per score; Mangels, 22s. to 26s. per ton; Swedes, 25s. to 27s. do.; Onions, English, 100s. to 130s.; do., Dutch, 2s. 6d. to 3s. 6d. per bag; Apples, English, 2s. 6d. to 6s. per bushel; Watercress, 7d. per doz.; Cress, hot and cold, 2s. per dozen bunches; Celery, 9s. to 12s. per dozen rolls; Radishes, 9d. to 1s. per dozen bunches.

NOTICES TO CORRESPONDENTS.

BISMARCK APPLE: *F. Müller, Pinneberg*. Grown by many large fruit nurserymen in this country.

BOOKS: YARRELL, OR SELBY ON BIRDS. *J. S.* The most compact and inexpensive is Harting's Handbook of British Birds. All these are published by J. Van Voorst, Paternoster Row.

CHAUDRON: *P.* This name is given to the barrel-shaped swelling of the Silver Fir and other Conifers, caused by the attacks of a fungus, *Æcidium elatinum*, the same to which the so-called Witches' Brooms are attributable. The full life history of the species is unknown, probably it passes part of its life-cycle on another plant, and then after the custom of its kind, has a totally different appearance.

CHREYSANTHEMUM MRS. ALPHEUS HARDY: *F. J. B.* A very good bloom for the season—if you can depend upon it, it will be valuable for Easter decoration.

DAFFODIL: *S. W. W.* The corona seems to have been checked in its growth, perhaps from frost.

EUCHARIS: *S. Wood*. The specimens sent are attacked by the bulb mite. Better destroy them and the soil in which they grow.

FORCED STRAWBERRY PLANTS AND RUNNERS: *Fragaria*. If you can get the mother plants planted out in good soil, after duly inuring them to the outside air, sometime towards the end of this month, fairly strong runners may be obtained; but these should be reduced to three or four on a plant, all others being cut off. A better plan, and one that assures strong crowns for forcing, is to select strong runners from healthy plants, which have always grown in the open air, taking them as early as possible—during the fruiting season, if that be practicable.

HAMAMELIS: *L. B. H.* arborea, a hardy Japanese tree, with primrose-yellow petals, within claret-coloured calyces, and flowering in winter; would be by many preferred to *H. virginica*, a North American species, growing as a large bush, with

yellow flowers. Both are hardy in this country. Try some of the large south country nurserymen.

HILL AND SMITH'S BLACK VARNISH: *J. B.* This substance contains naphtha, and is very likely to be injurious to young trees if placed on the bark; but to old trees with thick bark, its application in the way you have done it would not be injurious.

MUSHROOMS: *T. F. Cornish*. The occurrence of one Mushroom reversed and growing on the top of another is not uncommon.—*H. G.* The brown skin which some Mushrooms have, is merely a natural variation, and not due to anything in the soil in which they are growing.

NAMES OF PLANTS: *J. B. K.* The miserable scrap sent looks like *Aristolochia elegans*, but it is impossible to say for certain.—*W. C. & Sons*. Tussilago fragrans.—*C. J. D.* *Dendrobium fimbriatum* oculatum.—*J. U.* 1, *Dendrobium densiflorum*; 2, *D. chrysotoxum*; 3, *Bifrenaria Harrisonæ*.—*Greenock*. *Ruscus aculeatus*.—*W. W.* 1, *Lycaste costata*; 2, *Dendrobium nobile* (a bright form).—*A. B.* *Dendrobium crassinode*.—*Fidus Achates*. *Rhododendron Countess of Haddington*.—*J. E.* *Spiræa Thunbergii*.

NITRATE OF SODA: *A. P.* It may be strewn over the land previous to planting, and twice during full growth: say once in June, and again in July; or early in August in the case of late sorts. Early Potatoes may have only one dressing. It is best to give the dressing in showery weather to a growing crop. Do not put any under the manure in the drills, or in immediate contact with the tubers. We know of no manure distributors that would be of any service in a Potato field, unless the manures are liquid ones. It should be applied before the tops are standing erect, and by a person walking down the furrows, sprinkling the nitrate by hand. The nitrate would answer for a Carrot crop, at the same rate as for Potatoes—2 cwt. per acre, but if top growth be excessive, a second dressing would be undesirable.

PEACH TREES WITH DISEASED BRANCHES: *J. J.* The branches are attacked with a malady which is very difficult of cure. It will more frequently appear in trees planted in over-rich soils, where the growth is continued to a late period of the year, with consequent imperfect ripening; and the matter is made worse by the liberal use of the knife at the winter pruning, in removing the over vigorous shoots, which induces "gumming," itself always a sign of failing health in the Peach. The only cure known to us is a kind of semi-starvation at the roots, and growing the trees on the extension plan, wherein the knife is seldom used, but the shoots not wanted are removed with the finger and thumb, and in all cases this is the safer kind of pruning.

SEA-SIDE EVERGREENS: *A. F.* The following is a list of those which would do best in the situation you name, but the exact locality should be known before a definite list is given. Evergreen Oak, *Pinus austriaca*, *Cupressus macrocarpa*, *C. Lawsoniana*, *Pinus insignis*, and several other Conifers; *Euonymus japonica*, if the situation be not too cold, *Laurustinus*, *Portugal Laurel*, *Arbutus unedo*, *Berberis Darwinii*, and others.

SPORES OF FERNS: *Spores*. These are not seeds in the usual sense in which the word is used, but they produce prothalli, on the under surface of which are placed the reproductive parts of the plants. The sporangia or spore cases are the organs which contain the spores, and are borne in masses upon various parts of the fronds, and they are called superficial, immersed, or elevated above the surface of the frond, according to their position.

WALNUT TREE: *J. A. H.* There is nothing that you can do to stop the flow of the sap.

WHITE-WOOD CABBAGE TREE: *C. S.* We are sorry not to be able to tell you. We know of some twelve different trees recorded as "White-wood," and as many "Cabbage Trees." Popular names of this kind, with no literary or sentimental associations, but mere blunders, are abominations which should be remorselessly stamped out.

COMMUNICATIONS RECEIVED.—*C. R. P.*—*R. E.*—*W. W. B.*—*W. E. B.* Trinidad.—*A. Melon Grower*.—*W. A.*—*W. G.*—*R. D.*—*H. W. E.*—*E. M.*—*W. K.*—*B. A.*—*R. Baron F. von Mueller*.—*J. O. B.*—*F. R.*—*Frazer & Co.*—*W. S.*—*J. W.*—*W. G. S.*—*A. P.*—*H. E.*—*J. B. W.*—*A. G. C.*—*T. B.*—*E. J.*—*W. W.*—*C. H. R.*—*Professor Kirk*, Wellington, N.Z.—*J. O. B.*—*J. G. B.*—*Professor Trelease*, St. Louis.—*W. R. & Co.*—*Free Trade*.—*H. E.*—*Ryde*.—*Dr. Goetze*, Greifswald.—*E. P.*—*Ghent*.—*H. A.* (many thanks).—*W. T.*—*Rugby* (many thanks).—*D. S. C.*—*C. W.*—*D. J. J. W.*—*C. De B.*—*J. F. M.*

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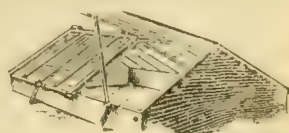
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CASH PRICES. CARRIAGE PAID.

6 ft. by 3 ft. ...	£2 0 0	6 ft. by 4 ft. ...	£2 5 0
12 ft. by 3 ft. ...	3 2 0	12 ft. by 4 ft. ...	3 15 0

No. 73.

NEW SPAN-ROOF GARDEN FRAME.



CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 14 0	12 ft. by 6 ft. ...	£5 14 0
8 ft. by 6 ft. ...	4 4 0	16 ft. by 6 ft. ...	7 4 0

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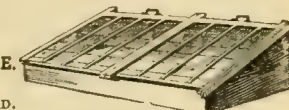
THREE-QUARTER SPAN GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 14 0	12 ft. by 6 ft. ...	£5 17 0
8 ft. by 6 ft. ...	4 5 6	16 ft. by 6 ft. ...	7 8 6

No. 75.

MELON AND CUCUMBER FRAME.

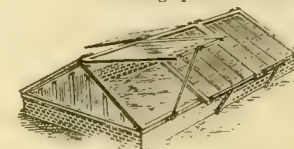


CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 0 0	12 ft. by 6 ft. ...	£4 3 0
8 ft. by 6 ft. ...	3 0 0	16 ft. by 6 ft. ...	5 6 0

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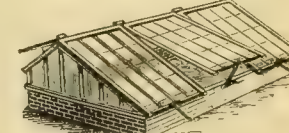
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12 ft. by 5 ft. ...	£5 0 0	12 ft. by 6 ft. ...	£6 0 0
24 ft. by 5 ft. ...	£9 0 0	24 ft. by 6 ft. ...	£11 0 0

No. 72.

THREE-QUARTER SPAN-ROOF FORCING FRAME.



CASH PRICES. CARRIAGE PAID.

10 ft. by 6 ft. ...	£3 0 0	10 ft. by 7 ft. ...	£5 0 0
20 ft. by 6 ft. ...	£3 10 0	20 ft. by 7 ft. ...	£10 0 0

No. 76.

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CASH PRICES. CARRIAGE PAID.

12 ft. by 6 ft. ...	£3 11 0	12 ft. by 7 ft. 6 in. ...	£4 4 0
20 ft. by 6 ft. ...	£5 13 0	20 ft. by 7 ft. 6 in. ...	£6 12 0

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For Destroying Weeds on Garden Walks, Carriage Drives, Roads, Stable Yards, &c., also for Killing Plantain on Lawns. Saves more than twice its cost in Labour. No Smell. Does not stain the Gravel.

One application will keep the Walks clear of Weeds for at least Eighteen months.

Mr. W. G. HEAD, Superintendent, Crystal Palace Gardens, writes:—"We were so satisfied with your Composition and its price, that we have used it absolutely, and have every confidence in recommending it."

Mr. J. BELL, the Duke of Wellington's Gardener, says:—"Your Weed Killer will prove to be a great boon. It not only destroys every form of Weed, but leaves the gravel bright and clean."

The Empress Eugénie's Gardener, Mr. E. S. McLAURIN, writes:—"The Weed Killer has proved so satisfactory that I purpose using much more of it next year."

The solution is applied with an ordinary watering can.

Prices, in 1 and 2-gal. Tins, 2s. per gal. (Tins included); in 5-gal. Drums, 1s. 6d. per gal. 10 and 15-gal. Drums, 1s. 4d. per gal. Special quotations for larger quantities. Carriage paid on 10 gals. and upwards.

Used in the proportion of one gallon to two to five gallons of water.

Highly Commended by the Judges at the Alexandra Palace Rose Show, 1883, after fifteen months' trial. Awarded a Certificate of Merit by the Scottish Horticultural Association, 1889.

ANTI-FUNGI POWDER, THE ONLY EFFECTUAL REMEDY FOR TOMATO DISEASE, MOULD AND MILDEW ON ROSES, VINES, &c.

It can be applied with an ordinary Powder Distributor, has no smell, and is harmless to the plants or fruit.

Mr. W. HILLS, Gardener to Viscount Gort, East Cowes Castle, writes:—"I have used your Anti-Fungi Powder on Tomatoes badly diseased, and found it at once stopped its progress. It is a great boon to Tomato growers."

Mr. W. CHILD, Gardener to the Rev. W. Wilks, Secretary to the Royal Horticultural Society, says: "I have found it to be very good, and entirely dispels all traces of mildew on Chrysanthemums and other plants."

Mr. CHAS. ROSS, Welford Park Gardens, Newbury, writes:—"The Powder answered for checking the disease on the Tomato leaves."

Prices: 1 lb. 1s., 3 lb. 2s. 9d., 7 lb. 5s. 6d., 14 lb. 10s., 28 lb. 18s., 56 lb. 35s. Carriage paid on 28 lb. and upwards.

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Destroys all weeds on Garden Walks, Carriage Drives, Stable Yards, &c.

Kills Dandelions, and other Weeds on Lawns.

Saves many times its cost in labour.

Improves the colour of the Gravel—has no smell. One application will keep the walks clear of weeds for a whole season.

Can be applied with an ordinary watering-can.

PRICE IN TINS.— $\frac{1}{2}$ gallon, 1s. 9d.; 1 gallon, 3s. each; 5 gallon, 2s. 6d. per gallon; 10 gallon, 2s. 3d. per gallon; 40 gallon casks, 2s. per gallon (tins and casks free). Carriage paid on all orders of 10 gallons and upwards to any Railway station in the Kingdom.

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The Gardens, Buckhurst Park.—The Grapes where I used your manure certainly colour better and shank less; in fact, the Vines look better altogether. I think it very good for Vines, and also Tomatoes.—Signed, JOHN F. HEWITT, Gardener to the Right Hon. the Earl de la Warr.

The Gardens, Bifrons Park.—Your Silicate on the Vines when I used it has greatly improved the colouring of the Grapes, and with less shanking.—Signed, JAMES HOSSACK, Gardener to the Marquis Conyngham.

The Gardens, Rushton Hall, Kettering, Nov. 10, 1890.—Dear Sirs,—I regret I had not an opportunity of testing your Silicate on early vineries. I used it on two late vineries with excellent results. It is certainly the best artificial manure I have tried. Gros Colmar, which have lacked colour in previous years, are as black as Sloes; other varieties equally benefited.—I remain, yours respectfully, JOHN CRUICKSHANK, Gardener to E. C. C. Thornhill, Esq.

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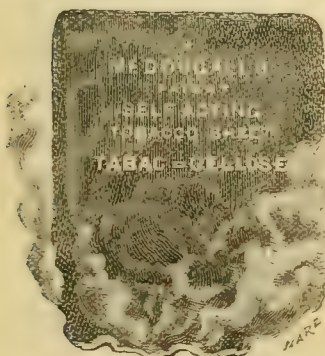
10s. per cwt.; £2 per $\frac{1}{4}$ ton;
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No Hot Fuel
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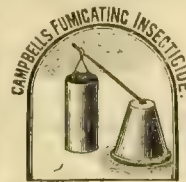
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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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11 " ..	0 6 6	22 " ..	0 12 0
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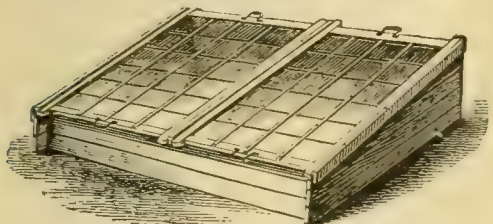
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2 "	8 ft. by 6 ft...			3	0	0
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4 "	16 ft. by 6 ft...			5	5	0
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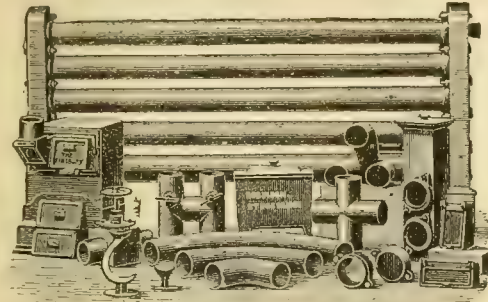
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WARNE'S
(LATE MATTHEWS)
CELEBRATED WESTON
FLOWER POTS
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CONWAY G. WARNE,
Royal Potteries, Weston-super-Mare

BOILING WATER OR MILK.
E P P S'S
GRATEFUL-COMFORTING.
C O C O A
BREAKFAST OR SUPPER.

GARDENING APPOINTMENTS.

MR. WILLIAM NEISH, for five years Gardener
at Porthgurdren, Truro, as Gardener to ALFRED
BARTON, Esq., Caldry Manor, West Kirby,
Cheshire.

MR. J. MAYNE, for the past five and a half
years Gardener to E. ALLEN, Esq., J.P., Stow-
ford Lodge, Ivy Bridge, Devon, as Head Gar-
dener to the Hon. MARK ROLLE, Bicton,
Budleigh Salterton, Devon.

MR. FRANK SANSOME, until recently Foreman
at Perry Hall, Birmingham, as Head Gardener
to F. E. WOOLLASTON, Esq., Shenton Hall,
Nuneaton.

W. G. CLOSE, Esq., late of Condover Hall,
Shrewsbury, has taken Loxley Park, Uttoxeter,
and his Gardener, Mr. MACKECHNIE, has gone
there with him.

MR. WM. SMITH, late in charge of Loxley,
still retains the management of the estate for
C. SNEYD-KYNNERSLEY, Esq., and also the
Highfields Gardens for Mrs. SNEYD-KYNNERSLEY.

MR. J. GRAHAM, who was for some years Gar-
dener at Milne Graden, Coldstream, Berwick-
shire, as Gardener to JAMES HOULDSWORTH,
Esq., of Coltness, Wishaw, N.B.

The Board of Works for the St. Giles' District.
APPOINTMENT OF GARDENER.—THE

BOARD are prepared to receive Applications from
Persons willing to fill the post of GARDENER and CARE-
TAKER of the BURIAL GROUND, adjoining the Church of
St. Giles' in the Fields, within the district, at a Salary of 24s.
per week. The person appointed will be required to keep the
Garden in proper order, and to see that the Bye-Laws made by
the Board are duly complied with. He will be provided with
a Uniform. The Garden will be open from 8 o'clock in the
morning until 30 minutes after sunset every day, including
Sundays. Applications, in candidate's own handwriting,
stating qualifications and age, which must be not less than 21
or more than 40 years, accompanied by recent testimonials,
are to be addressed to me, at the Offices of the Board, not later
than the 15th inst. The engagement will be subject to a
month's notice on either side. Personal canvassing of the
members is strictly prohibited, and will disqualify any
candidate.

HENRY C. JONES, Clerk to the Board.

Offices: No. 197, High Holborn, W.C.
April 3, 1891.

A COMMISSION is offered to a TRAVELLER
calling upon first-class FLORISTS in Scotland and the
North of England.—S. E., *Gardeners' Chronicle* Office, 41,
Wellington Street, Strand, W.C.

WANTED, IMMEDIATELY, a really good
and competent all round Man as WORKING PROPAGA-
TOR, GROWER, and HEAD GARDENER in a Private
Place, where the produce is sold. Must be well up in Growing
and packing for Sale, and able to produce a good quantity of
Cut Blooms, Cucumbers, Tomatoes, Mushrooms, &c. Private
Gardeners need not apply unless they have previously held
similar appointments. Preference given to a married man
without encumbrance. Applicant must be a good discipli-
narian with undermen, and character to bear the strictest
investigation as to industry, honesty, sobriety, and regularity.
Wages 30s. per week, and house.—Apply by letter only, to
HORTICULTURE, *Gardeners' Chronicle* Office, 41, Wellington
Street, Strand, W.C.

WANTED, about April 20, a GARDENER
(SINGLE-HANDED), married man, abstainer, without
family preferred, understanding Greenhouse, Flower and
Kitchen Gardens; Pony, Trap, Poultry, Pigs, and Bees; and
make himself useful in the house. Wages, 12s. per week,
with Cottage.—MRS. MACFARLANE, Emberton, Newport
Pagnel, Bucks.

WANTED, a HEAD WORKING GAR-
DENER, where two Under Gardeners are kept, an
experienced, steady, married man, without family, to fill the
above situation, and reside in Lodge; Wife to attend to
gates.—Applicants to send full particulars of experience, quali-
fications, and terms required, to "GARDEN," care of Messrs.
Street & Co., 30, Cornhill, E.C.

WANTED, a GARDENER, 6 miles from
town. One Assistant. Young man preferred. Wages
25s. a week.—Apply, by letter, HOUSEKEEPER, 11, Queen
Victoria Street, E.C.

Working Rose Budder.

PAUL AND SON want a married MAN to
live in lodge, at the High Beech Nursery; well up in
Tea Roses. Wife during Summer to undertake Cut Flower
Sale.—The "Old" Nurseries, Cheshunt, N.

WANTED, a HEAD WORKING GARDENER (married) in May, for small country place, 30 miles from London. Must understand all branches of his business. Wife good Laundress, able to manage small Dairy. Assistance given. Joint wages, 30s. a week, cottage, coals, vegetables. No accommodation for children.—Apply to Mrs. BARCLAY, 199, Cromwell Road, South Kensington.

WANTED, active MAN, to start Single-handed on small place. Must be thorough Rose Grower and good Propagator of them in every way.—State experience and wages, MURRELL, Sunbury-on-Thames.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, are in WANT of a few young MEN for their Orchard Department.—Apply to the Vineyard and Nurseries, Garston, near Liverpool.

WANTED, young Man as PROPAGATOR in Market Nursery. Must have had experience in raising Ferns, Bouvardias, Carnations, &c.—Apply, stating wages, experience, &c., to R. B., 7, Catherine Street, Strand, W.C.

WANTED IMMEDIATELY, a NURSERY FOREMAN, for In and Outdoors.—ARMITAGE BROTHERS, Nottingham.

WANTED, a smart, active, and obliging young MAN, about 25, as FOREMAN; must be well up in early and late Forcing of Fruit and Flowers, Orchids, Ferns, Chrysanthemums, House Decoration, &c. Must have had at least ten years' experience in good establishments; Church of England; abstainer preferred. Wages to commence at £1 per week; Milk and Vegetables; no bothy. Lodgings can be had near.—Full particulars to W. J. EMPSON, The Garden, Amphil House, Amphil, Beds.

WANTED, a thoroughly practical MAN as WORKING FOREMAN, SALESMAN, PROPAGATOR, and GROWER of Plants for Market, age not more than 35. To produce Flowers in large quantity, and well up in Wreaths, Crosses, &c., with good general knowledge of Nursery Stock.—State age, wages (with house) required, and send testimonials next post, to ISAAC MATTHEWS and SON, The Nurseries, Milton, Stoke-on-Trent.

To Working Men Everywhere.

WANTED, a number of YOUNG WORKMEN, in a first-class Nursery in the South-West of England, for Potting, Watering, Planting, Training, Packing, and general Plant Nursery Work. Hours, 6 to 6 in Summer; 7 to 7 in Winter. Wages, about 12s.; encouragement given to those who make themselves useful, and require permanent employment.—By letter to STERLING, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, ONE or TWO industrious young MEN, accustomed to handle herbaceous plants.—VERTEGANS and CO., The Nurseries, Chad Valley, Birmingham.

WANTED, an experienced MAN, able to Water Pot Plants, &c.—THE ORCHARD NURSERY, Mritlake, Surrey.

WANTED, an energetic young MAN, for the Houses, under the Foreman; 14s. per week, bothy, and vegetables.—State age, experience, and reference, to A. G. NICHOLS, Nuneham Park, Abingdon.

WANTED at once, two active young Men for Palm-houses, in a Market Nursery.—Apply personally, W. ICETON, Granard Nursery, Putney Park Lane, Putney, S.W.

WANTED, a young MAN, accustomed to Potting and Watering, in small Nursery. No objection to Jobbing Gardening occasionally. State wages.—Apply FRENCH, Water Lane Nursery, Wembley, Harrow.

WANTED, a young MAN, in Nursery—Active, and willing. Wages, 18s.—S. W. BROWN, Crook Log Nursery, Bexley Heath, Kent.

WANTED, IMMEDIATELY, ONE or TWO smart young MEN, quick at Potting and Watering; wages, 18s. per week.—Apply, with age and reference, to ALFRED A. WALTERS, Florist, Bath.

WANTED, AT ONCE, an IMPROVER in houses in good gardens; premium required. Strong and willing, fair experience; Church of England. Good bothy, one quart Milk, Vegetables, &c.—State Wages and particulars, to J. WARD, The Gardens, Ballywalter Park, co. Down, Ireland.

WANTED, a young MAN, to look after Horse and Garden.—Apply by letter, to HENRY TILSTON, Heathlands, Belvedere.

WANTED, AT ONCE, a CLERK, for Seed Trade, with knowledge of Book-keeping. State age, and salary expected.—THOMSON and CO., Seed Merchants Birmingham.

WANTED, an ASSISTANT, in a good retail Seed, Nursery, and Floral business; age about 20 to 23, with some experience in all branches.—Wages and full particulars to LAXTON BROTHERS, Bedford.

WANTED, a JUNIOR ASSISTANT NURSERY CLERK (under 20 years of age); one with some knowledge of the Nursery Business, and an abstainer.—Address, stating age, and wages required, to N. S., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, AT ONCE, a SHOP ASSISTANT for a Retail Seed Business. Former experience indispensable. Character must bear the strictest investigation. Apply, stating age, experience, and wage.—PENNEL and SONS, Seedsmen, Lincoln.

WANT PLACES.

Advertisers are cautioned against having letters addressed to initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, Liverpool, are in a position to recommend a first-rate man as HEAD GARDENER, or GARDENER and BAILIFF; also a thoroughly competent man as HEAD GARDENER, who has a good knowledge of Orchids; unexceptional references in each case.

B. S. WILLIAMS AND SON beg to intimate that they have at present in their Nursery and upon their Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Victoria and Paradise Nurseries, Upper Holloway, N.

SANDERS, St. Albans, can thoroughly RECOMMEND several first-class HEAD GARDENERS.

GARDENER (HEAD), where three or more are kept.—Age 34, single; good practical experience in all branches. Excellent character. Foreman in present place six years.—J. KAYE, Apley Park, Bridgnorth, Salop.

GARDENER (HEAD).—Thoroughly efficient in all branches; sixteen years' Head Gardener to the late Lord Cottesloe.—F. SMALL, Buckingham Road, Winslow, Bucks.

GARDENER (HEAD), well up in all branches.—A Gentleman wishes to recommend his Head Gardener as above. Sixteen years' character; intelligent, industrious, and perfectly reliable.—SIR H. DOULTON, Tooting Common.

GARDENER (HEAD), or ORCHID GROWER.—Age 31; seventeen years' experience in Orchids, Stove and Greenhouse Plants, Early and Late Forcing, Hardy Fruit, Flower, and Kitchen Gardens.—WILLIAM LAKE, Quorn Lodge, Loughborough, Leicestershire.

GARDENER (HEAD); aged 45.—Over twenty-five years' practical experience in the cultivation of Flowers, Fruit, and Vegetables; inside and out. Five years as Head Gardener to Lord Egerton of Tatton; ten with Lord Wantage. First-class references.—JOSHUA ATKINS, Caldwell & Sons, Knutsford.

GARDENER (HEAD).—A GENTLEMAN wishes to recommend his Head Gardener (Scotch). Has eleven years' good character. Is a hard worker, and thoroughly efficient in Flowers and Vegetables. Leaving for no fault.—W. W. CARLILE, Esq., Gayhurst, Newport Pagnell, Bucks.

GARDENER (HEAD); age 31, married, one child.—ADVERTISER will pay £3 to anyone, or public institution, who is the means of procuring him a suitable appointment as Head Gardener. Sixteen years in all branches. Recommended by late employer, who he served as Head.—A. B., 4, Elgin Terrace, Maida Vale, London, N.W.

GARDENER (HEAD), or GARDENER and BAILIFF, where a thoroughly practical man is required.—Age 33; married, one boy, 11 years. Thoroughly understands the profession in all its branches, Land and Stock. Twenty-four years' practical experience in good establishments. Highly recommended for honesty, sobriety, &c. Also GARDENER (UNDER), age 22; energetic, steady man. Please state full particulars, wages, &c.—GREY, Messrs. Cuthbert, Seed Merchants, Southgate, N.

GARDENER (HEAD), and ORCHID GROWER.—C. WOOLFORD, for thirteen years gardener to W. Lee, Esq., Downside, Leatherhead, and late Orchid Grower to the Right Hon. Joseph Chamberlain, offers his services as above, or as General Gardener.—2, Rochester Cottages, Cavendish Road, St. Albans.

GARDENER (HEAD).—Age 30, single; fifteen years' experience; three years in present situation. Good references.—E. RUSSELL, Moray Lodge Gardens, Campden Hill, Kensington, W.

GARDENER (HEAD).—Age 38, married, no family. Thoroughly experienced in all its branches. Good reference from present and previous employers.—GARDENER, Mr. Hann, Stationer, Gipsy Road, West Norwood, S.E.

GARDENER (HEAD).—Age 40, married, no family.—F. PAY, Head Gardener to Lord Tennyson, Farringford, Isle of Wight, seeks re-engagement; understands Vines, Stove and Greenhouse, Fruit Trees, Flower and Kitchen Garden, &c.—Address as above.

GARDENER (HEAD).—Gentleman breaking up establishment, wishes to recommend his Gardener (Scotchman), age 34; most efficient in Orchids, Stove and Greenhouse Plants, Forcing, Fruits; all requirements of good establishment.—For particulars, apply to Captain MALLAN-DAINE, Junior Army and Navy Club, St. James' Street, S.W.

GARDENER (HEAD), age 29.—T. LAMBERT, The Gardens, Burton Constable, Hull, wishes to recommend his Foreman to any Lady or Gentleman wanting a trustworthy man. Fourteen years' thorough experience in all branches.

GARDENER (HEAD); age 36.—Reference to Mrs. Hewetson, address below, where advertiser has been nearly eight and a half years; or to Mr. Westcott, Baby Castle, Darlington. Twenty-two years' practical experience. Staying until engaged.—ROBERT NELSON, Hwith House Gardens, Ravenstonedale, Kirkby Stephen.

GARDENER (HEAD).—Age 36, married; thoroughly experienced in Vines, Stove Plants, Orchids, Fruit Houses, Kitchen and Flower Gardens. High recommendation.—GARDENER, Trematon Castle, Saltash.

GARDENER (HEAD).—Middle age, married, no family; thoroughly experienced in all branches. Wife good laundress. Both can be highly recommended.—GARDENER, Offchurch, Bury, Leamington Spa.

GARDENER (HEAD WORKING, or good SINGLE-HANDED).—Age 30; married, one child, four and a half years' of age; fifteen years' experience with Vines, Flower and Kitchen Gardens; nine years in present situation.—BOVINGTON, Spike House, Great Church Lane, Hammer-smith, W.

GARDENER (HEAD WORKING); age 28.—J. FRIEND, Gardener to the Hon. P. C. Glyn, Rooknest, Godstone, can confidently recommend his Foreman, W. Penton, to any lady or gentleman requiring a capable and deserving man. Fourteen years' experience.

GARDENER (HEAD WORKING), where three or more are kept.—The recent Bishop of WINCHESTER wishes to recommend highly his Gardener as above. Thoroughly experienced in all branches. Left through breaking up of establishment.—SMITH, 25, Castle Street, Farnham, Surrey.

GARDENER (HEAD WORKING).—Age 27, single; fourteen years' experience. Abstainer. Good character.—A. NORTHWAY, Indio, Bovey Tracey, Devon.

GARDENER (HEAD WORKING), where two or more are kept. Age 36, married. Twenty years' experience in all branches of the profession. Please state particulars.—J. SHEPHARD, Nutfield, Red Hill, Surrey.

GARDENER (HEAD WORKING).—Middle-aged, married, no family; thorough practical experience in all branches. Character with testimonials will bear strictest investigation.—G. H., 1, Bath Cottages, Eastworth, Chertsey.

GARDENER (practical HEAD WORKING), where two or more are kept.—Thoroughly understands Fruit, Flower and Kitchen Gardens, Forcing-houses, Vineries, &c. First-class reference.—GARDENER, Daniels Bros., Nurserymen, Norwich.

GARDENER (HEAD WORKING).—Married, no family; thoroughly understands Orchids, Stove and Greenhouse Plants, Early and Late Forcing, Flower, Fruit, and Kitchen Gardens. Highly recommended.—S. WEST, 16, St. Mary's Villas, St. Mary's Grove, Richmond, Surrey.

GARDENER (HEAD WORKING), or good SINGLE-HANDED.—Well up in Vines, Peaches, Melons, Cucumbers, Greenhouse Plants, Vegetables, &c. Excellent references.—FRANKLIN, Pusey, Faringdon, Berks.

GARDENER (SINGLE-HANDED or otherwise).—Age 28, single. Thoroughly practical in all branches. Ten years' experience. Good references.—A. B., 32, Chestnut Place, Wimbledon Common.

GARDENER (SINGLE-HANDED), or where help is given.—Age 25; eleven years' practical experience through the general routine of Gardening.—JOHN TAYLOR, The Gardens, Tilgate, Crawley, Sussex.

GARDENER (SINGLE-HANDED, or with help).—Age 28, married, one child; twelve years' experience. Good reference and character.—F. LANCASTER, Ashtead, near Epsom, Surrey.

GARDENER (SINGLE-HANDED).—Age 28, married; twelve years' experience. Abstainer.—GARDENER, 23, Balcombe Street, South Hackney, N.E.

GARDENER (SINGLE - HANDED), or KITCHEN GARDENER.—THOS. ROGERS, Frimley Park, Farnboro Station, can with every confidence recommend the above.

GARDENER (good SINGLE-HANDED), or where more are kept.—Fifteen years' experience; understands Vines, Cucumbers, Kitchen and Flower Gardens. Good recommendations.—W. R. CLARKE, 63, Palmerston Road, Wimbledon, Surrey.

GARDENER, where two are kept, or good SINGLE-HANDED; fifteen years' experience in Vines, Melons, Cucumbers, Tomatoes, Fruit, Flowers, and Kitchen Garden. Good character. Leaving for no fault.—A. BOOKER, Gardener, Cedar House, Feltham, Middlesex.

GARDENER (SECOND), where three are kept.—Age 25, single; one year and eight months' good character. Total abstainer.—H. WAYLING, Bulford, Cressing, Braintree, Essex.

GARDENER (SECOND), age 23; experienced; ten years Inside and Out; good character. 5s. given to an institution, or to any person procuring advertiser good situation.—W. FRENCH, Nayland, Suffolk.

GARDENER (SECOND); age 27; married, no family.—Mr. LANDHAM, gardener, can recommend a strong, active young man as above; near London preferred.—BOLDERY, Kelso, Streatham, S.W.

GARDENER (SECOND), where three or four are kept.—Age 24; situation wanted by a respectable young man. Good character from last situation.—E. BOYLING, West Ashling, Chichester.

GARDENER (SECOND), or good UNDER.—Age 24; nine years' experience Inside and Out. Willing to take turn at fires. Excellent references from last two situations if required. **W. WHITE, Lady Erie, Bramshott Grange, Liphook, Hants.**

GARDENER (UNDER), Inside and Out.—Age 24; ten years' experience. Can be well recommended. Disengaged. **H. RUMGAY, Wootton Lodge, Uckley, Lincolnshire.**

GARDENER (UNDER), Inside and Out.—Age 23; seven years' experience. Good character. **L. T. The Gardens, Ham Hall, Ashbourne, Derbyshire.**

GARDENER (UNDER).—Age 23; understands Potting, Cleaning Plants, Dressing Vines, &c. Two years and four months' character. **H. H. W., On Appelle Cottages, the Rise, Sunningdale.**

GARDENER (UNDER); age 21.—Six years' Inside and Out; good character; abstainer; bothy preferred. **R. WALKER, The Gardens, Oulton Hall, Leeds.**

GARDENER (UNDER or SECOND), where three or four are kept.—Age 21. Twelve months' character; three years' previous. **W. MATTHEWS, Holly Cottage, Cotham Green, Hillingdon, Uxbridge, Middlesex.**

GARDENER (UNDER).—The Rector of RIBBESFORD, Bewdley, can recommend a lad, age 16, for work under a good gardener; four years in present place. Small premium if required.

GARDENER (UNDER), Inside and Out.—Age 20; Five years' experience. Anxious to improve; abstainer. Please state wages. **W. M. HARRINGTON, Stow, Downham, Norfolk.**

GARDENER (UNDER).—Age 20; strong, and willing to make himself generally useful. Good character. **C. W., Elmdon, Saffron Walden, Essex.**

GARDENER (UNDER); age 21.—A Gentleman can recommend a strong Man to help in garden, and if required in stables. Thoroughly willing and trustworthy. Four and a half years' good character. **G. STEVENS, Newlands, Harrow.**

GARDENER (UNDER), in a gentleman's Establishment.—Age 18; five years' experience, both Inside and Out. Good reference. **A. C. COX, Burton Villa, Middle Road, Bournemouth West.**

GARDENER (UNDER), in a Gentleman's establishment.—Age 21; six years' experience, Inside and Out. Two years' good character. **C. STEELS, The Lodge, The Hollies, Westwood, Yorks.**

GARDENER (UNDER).—**E. S. COLES, Gardener, Woodside, Sneyd Park, Bristol,** wishes to recommend a young man, age 21; over two years' experience as above.

GARDENER.—Age 22; young man seeks situation in good establishment. One year nine months in present place. Good character. **T. HALLETT, Bisterne Park Gardens, Ringwood, Hants.**

GARDENER.—Reliable and experienced Man (age 26) requires situation in a Gentleman's garden or nurseries. Three years' good character from Nursery. **H. HURST, 88, Hall Place, Paddington.**

TO GARDENERS.—**Mr. H. KERSHAW, Beechwood, Middleton Road, Higher Crumpsall, Manchester,** can recommend his Gardener; ten years in present situation; thoroughly understands Vines, Flowers, &c. Any further information will be given on application at the above address.

MANAGER, Market Nursery, under Glass; age 26; ten years in Business. Understands growing Strawberries, Cucumbers, Carnations, and Soft-wooded Plants. **S. D., 10, Mayleigh Cottages, Petersham, Surrey.**

MANAGER, FOREMAN, or GROWER.—Age 30; fifteen years' practical experience in Fruits, Flowers, and Plants. Good character. **J. R. DIMMICK, Hartley Villas, Church Road, Bexley Heath.**

To Nurserymen.

PROPAGATOR.—Age 23; nine years' experience in Hard and Soft-wooded Stuff for Market. Good references. **W., 13, Artesian Place, Park Lane, Lower Tottenham.**

FOREMAN (WORKING), and GROWER.—Cucumbers, Tomatoes, Cut Flowers, &c. First-class references. **W. S., Bletchley Nursery, Bucks.**

FOREMAN.—Age 24; nine years' practical experience in good establishments. Character and abilities will bear strict scrutiny. Full particulars to **CHAS. CARR, Sunnyside, Worksop, Notts.**

FOREMAN, or SECOND.—**W. DANCE** can highly recommend a persevering man (age 25), who has been with him two years, both in the Fruit and Plant Houses. Seven years previous experience and good character. **The Gardens, Gosfield Hall, Halstead, Essex.**

FOREMAN, in a good establishment; age 29. **Mr. M. REED, Ingress Abbey, Greenhithe, Kent,** can with confidence recommend his late Foreman to any Gardener requiring a competent man as above.

FOREMAN, in a good establishment; age 27. **W. PETERS, Gardener, Givons Grove,** can thoroughly recommend Charles Cole as above. Five and a half years character; two as Foreman. Twelve years' experience.

FOREMAN (Inside).—Age 26; well up in all branches. Three years in present situation as above. **W. DALTON, The Gardens, Colney Park, St. Albans.**

FOREMAN, in the Houses; age 26. **Mr. O. F. R. Handcross Park Gardens, Crawley,** can recommend a highly respectable young man as above. Has been with him three years, and lived previously at Old Warden Park, Beds.

FOREMAN; age 26. **Mr. J. BEAMISH, Gorse Hall, Stalybridge, Cheshire,** would be pleased to recommend his Foreman, Harry Lee, to any Gardener requiring a good practical trust-worthy man. Address as above.

FOREMAN, in a good Garden.—Age 28; well up in Fruit and Plant Growing, &c. Unexceptionable references from first-class establishments. **E. H., 41, Kilmersdon, Bath.**

To Nurserymen and Others.

PLANT-GROWER.—Good experience with Stove and Greenhouse Plants. Permanency required. **FLORIST, Brook View, Coombeinteignhead, Teignmouth, Devon.**

JOURNEYMAN (FIRST), under good Foreman.—Age 22; seven years' experience, Inside, and bothy preferred. Abstainer. **H. GALLIFORD, 27, Porten Road, West Kensington, London.**

JOURNEYMAN in the Houses.—Age 22; for the last two and a half years at Hylands Park, Chelmsford; has been through both plant and fruit departments. Highly recommended. **W. PILGRIM, 68, Moulsham Street, Chelmsford, Essex.**

JOURNEYMAN.—Age 21; Inside and Out. Six years' experience as above. Can be well recommended by Head Gardener. **C. DOLTON, Priory Gardens, Reigate, Surrey.**

JOURNEYMAN, Inside or Out; age 21. **Mr. JEFFREY, Caversham Park Gardens, Reading,** would be pleased to recommend A. Grant as above. Total abstainer. Two years' character.

JOURNEYMAN, Inside or Inside and Out.—Age 22. Good character; abstainer. **W. N., The Cottage, Hertford Lodge, Church End, Finchley, N.**

JOURNEYMAN, in good Establishment, Inside, or Inside and Out. Age 24; excellent character. Bothy preferred. **A. WARREN, The Gardens, Ogbear Hall, Holsworthy, Devon.**

JOURNEYMAN, in the Houses, in good establishment.—Age 21; seven years' experience. Good character. **W. SEARS, The Gardens, Elsham Hall, near Brigg, Lincolnshire.**

JOURNEYMAN, Outside.—**W. COTTERELL, Yotes Court, Mereworth, Maidstone,** wishes to recommend a young man as above; age 24.

JOURNEYMAN, in a good Establishment; age 22. **J. FRANCIS** would be glad of an engagement in a Private or Trade Establishment. Excellent references. **Knowsley Gardens, Prescott.**

JOURNEYMAN, in the Houses in a good Establishment. Five years' experience Inside and Out. Can be well recommended. **E. WHITTLE, Langley Burrell, Chippenham, Wilts.**

JOURNEYMAN (FIRST), or would take entire charge of Houses; age 22; eight years in Flower and Fruit; Orchids included. **H. HARRIS, Stud Farm, West Clandon, Guildford.**

JOURNEYMAN, Inside and Out.—Age 20; seeks situation as above, in large establishment. Knowledge of Inside and Out. Four years' excellent character. Bothy preferred. **S. E. A., The Gardens, Child's Hill House, Hampstead, London, N.W.**

JOURNEYMAN, under Glass; age 21. **J. FRY, Haydon Hall Gardens, Pinner,** can thoroughly recommend a young man as above. Five years in present place.

JOURNEYMAN, in the Houses.—Age 20. Five years' experience. Good references from present and previous situations. Bothy preferred. **A. PIKE, The Gardens, Rooksnest, Godstone, Surrey.**

JOURNEYMAN (FIRST), in the Houses.—Situation wanted by a young man as above. Good references. Three years' character. **R. NICHOLAS, Castle Hill Gardens, South Molton.**

JOURNEYMAN, in a good establishment; age 21. **A. HEWITT** is anxious for improvement in the Houses, as above. Bonus offered. Bothy preferred. **Northlands Cottage, near Chichester, Sussex.**

IMPROVER, in the Houses, in a Gentleman's Garden.—Age 18; bothy preferred. Four years' experience in present situation in the Houses. Good character; strong and willing. **P. C., The Gardens, Holmbush, Horsham, Sussex.**

IMPROVER, Inside and Out in a Gentleman's garden.—Age 19; three years in present situation. **A. THATCHER, St. Ann's Road, Chertsey, Surrey.**

IMPROVER, in Houses, under Foreman.—Age 16; strong. Four years' experience, Inside and Out. **E. HEARN, J. Reelas, Esq., Whiteknights, Reading.**

IMPROVER, in large Establishment.—Situation wanted by respectable Farmer's Son, age 23, as above. Two and a half years Foreman in a small general Nursery. Excellent references and character. **CHEESMAN, Orchard Place, Chichester.**

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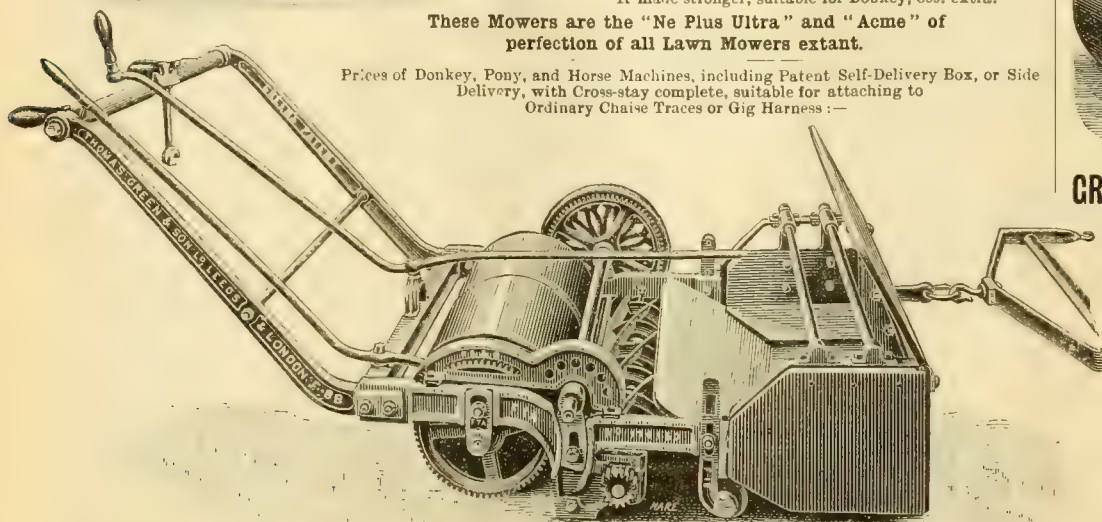
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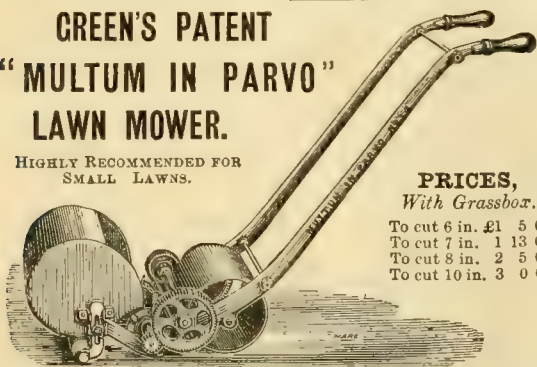
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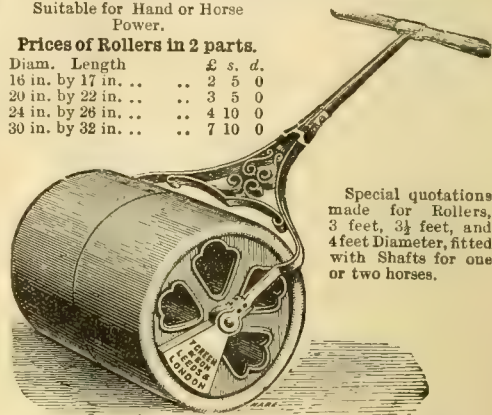
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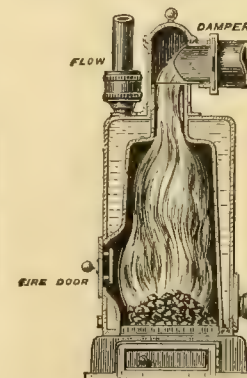
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MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY** NEXT, April 22, at half-past 12 o'clock, 129,000 seeds, *KENTIA BELMOREANA* and *FORSTERIANA*; 21,000 *ARECA LUTESCENS*, 12,000 *COCCAS WEDDELLIANA*, 40,000 *ARECA BAUERI*, 1000 *GEONOMA GRACILIS*, 1000 *PINGANGA DECORA* (a new Palm), 4000 *ARECA RUBRA*, 2000 *KENTIA MOOREANA*, 200 enormous bulbs of *LILIUM ALBUM KRETZERI* and *RUBRUM CRUENTUM*, magnificent roots of *LILIUM AURATUM*, *BROWNII* (true), *JAPONICUM ODORUM* and *PLATYPHYLLUM* and other *JAPANESE LILIES*; 40 lots of named *CARNATIONS* and *PICOTEEES*, finest stage flowers, plants from Belgium, *STOVE* and *GREENHOUSE FERNS*, Standard *ROSES*, a few *TREE-FERNS* from New Zealand, *BEGONIAS*, *TRELLIS WORK*, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.—Palm Seeds.

129,000 *KENTIA BELMOREANA* and *FORSTERIANA*.

MESSRS. PROTHEROE AND MORRIS beg to call attention to the large importation of Palm Seeds **FOR SALE**, at their Rooms on **WEDNESDAY** NEXT. See particulars in preceding advertisement.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY** NEXT, April 24, at half-past 12 o'clock, a superb consignment of *ONCIDIUM SARCODES*, just to hand in splendid condition, well leaved, and no doubt the finest lot ever offered. The Sale will also include *ODONTOGLOSSUM ALEXANDRE* (*CRISPUM*), best Pachy strain; *CATTLEYA AMETHYSTOGLOSSA*, the new and beautiful *LELIA GRANDIS*, *MESOPINIANUM VULCANICUM GRANDIFLORUM*, *CATTLEYA SCHRODERE*, *ONCIDIUM CONCOLOR*, *O. FORBESII*, *PROMENIA CITRINA* and *STAPELOIDES*, *ONCIDIUM CRISPUM*, *SOPHRONTIS GRANDIFLORA*, &c.

On view morning of Sale, and Catalogues had.

Orchids in Flower.

SPECIAL SALE, TUESDAY, APRIL 28.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next **SALE** of **ORCHIDS** in **FLOWER** will take place as above, for which they will be glad to receive notice of entries as early as possible.

Bassett, near Southampton.

CLEARANCE SALE of **CHOICE EXHIBITION** and **OTHER PLANTS**.

By order of the Executor of the late Mrs. Pearce, of the Firs, Bassett.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at the Red Lodge Nurseries, Bassett, Southampton (kindly lent by Mr. W. H. Rogers for the purpose) equidistant 2 miles from Southampton, West and Northern Stations, on **THURSDAY**, April 30, at 12 o'clock, without reserve, the celebrated Collection of **CHOICE EXHIBITION PLANTS**, exhibited with such great success at the leading Shows in the South and West of England, and consisting of Specimen Palms and Ferns, fine Kentias, grand Crotons, Stove and Greenhouse Plants in variety, *Lapageria alba* and *rubra*, *Azaleas*, a small Collection of *Orchids*, *Fuchsias*, &c.

The Plants may be viewed two days prior to the Auction. Catalogues had at the place of Sale, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Tuesday and Wednesday, April 21 and 22.

Bellfield Nurseries, Inchinnan Road, Paisley.
IMPORTANT PUBLIC SALE of **STOVE** and **GREENHOUSE PLANTS**: *CAMELLIAS*, *ORANGE TREES*, *GERANIUMS*, *AZALEAS*, *LILY OF THE NILE*, *ASPARAGUS*, and *MAIDENHAIR FERNS*. **VALUABLE COLLECTION** of *ORCHIDS*, embracing many Rare Varieties, including 100 *CYCLOGYNE CRISTATA*, 20 of which measure 4 feet across; 30, 2½ feet, and the remainder 12 to 18 inches across. Note.—The above Rare Collection of *Orchids* will only be Sold by Public Auction. Several *GREENHOUSES*, built by Boyd, Paisley, with *PIPES* and *STOVES*; *FORCING FRAMES*, Large Quantity of *FLOWER POTS*; *BROWN PONY*, "Charlie," 12 Hands; *SPRING VAN*, built by McNair, Paisley; *HARNESS*, *GARDEN IMPLEMENTS*, and *WOODEN SHED*. The Property of Mr. Peter McKenzie, Nurseryman and Florist, 75, St. Vincent, Glasgow, and Bellfield Nurseries, Inchinnan Road, Paisley, who is retiring from business.

ROBERT M'EAR and **CO.** will **SELL** the above, by **AUCTION**, at Bellfield Nurseries, Paisley, on **TUESDAY** and **WEDNESDAY**, APRIL 21 and 22, beginning at 11 o'clock Forer on each day.

On view on Monday, April 20, from 9 A.M. till 5 P.M., and morning of Sale. Catalogues may be had on application to the Auctioneers, Royal Exchange Sale Rooms, Glasgow.

MUST BE SOLD, a bargain, an old-established **LEASEHOLD NURSERY** in North London, with eight-roomed house and stabling. Main thoroughfare. Doing a good all-round trade, to which greengrocery could be added. Four houses, well heated and stocked. Satisfactory reasons for disposal.
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PROTHEROE AND MORRIS, **HORTICULTURAL MARKET GARDEN** and **ESTATE AUCTIONEERS** and **VALUERS**, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

MESSRS. POPE & SONS, **HORTICULTURAL AUCTIONEERS** and **VALUERS**, 6, Philip's Street, Birmingham, hold **SALES** at their Rooms as follows:—**CUT FLOWERS**, every **TUESDAY**, **WEDNESDAY**, and **FRIDAY** (fresh entries invited, account Sales with Cheque every Saturday).

MISCELLANEOUS PLANTS and **BULBS** every **THURSDAY**. **NURSERY STOCK SALES** conducted and **VALUATIONS** made in any part of the Country.

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Ditto, *CHATSWORTH VARIETY*, 1s. 6d.
TRUSTEES, late **J. STEVENSON**, **TIMPERLEY**, Cheshire.

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BEST SELECTIONS of **VEGETABLE SEEDS**, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.

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GLADIOLI, **TUBEROSES**, **TIGRIDIAS**, **ANEMONES**, and **RANUNCULI**, &c., for spring planting.

DESCRIPTIVE CATALOGUE free on application.

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THE CHINESE ARTICHOKE (*Stachys tuberosa*).—**JAMES CARTER** and **CO.** have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An illustration and full Cultural Directions are given in their illustrated **CATALOGUE** of sterling Novelties. Post-free to intending customers.

Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

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The Great **FLOWER SHOW** of the Season,
SATURDAY, May 9. Entries close May 2.
Schedules on application to—
Mr. W. G. HEAD, Superintendent,
Gardens Department, Crystal Palace, S.E.

ROYAL AQUARIUM,

WESTMINSTER, S.W.
The **SECOND SPRING SHOW** will take place at the above on **WEDNESDAY** and **THURSDAY**, April 29 and 30.
Entries made and Schedules of Prizes to be had from the Superintendent—
42, Ranelagh Road, Ealing, W. **RICHARD DEAN**,

ROYAL BOTANIC SOCIETY of **MANCHESTER**. The **SECOND SPRING FLOWER SHOW** of this season will be held in the Town Hall, Manchester, on **TUESDAY**, the 28th inst., in connection with the **NATIONAL AURICULA SOCIETY'S EXHIBITION**. The **GRAND NATIONAL HORTICULTURAL EXHIBITION** of 1891, will **OPEN** at the Society's Gardens on **MAY 15**. For Schedules, apply to the undersigned.

BRUCE FINDLAY,
Botanic Gardens, Manchester.

RICHMOND HORTICULTURAL SOCIETY.

The **SUMMER SHOW** will be held in the **OLD DEER PARK**, Richmond, on **WEDNESDAY**, June 24, 1891.

For Schedules and all particulars, apply to—

J. H. FORD, Hon. Sec.,

22, George Street, Richmond.

Cercle Horticole Van Houtte, Ledeborg, Ghent.

GREAT GENERAL HORTICULTURAL EXHIBITION, under the patronage of the Government and the Provincial and Town Councils. From **SUNDAY**, August 23, to **SUNDAY**, August 30, 1891. For programmes and schedules, address—
ERNEST DELARUYE, Secrétaire du Cercle V. H., Chaussée de Bruxelles, Ledeborg, Gand.

Now ready, descriptive Catalogue of **HARDY HERBACEOUS PERENNIALS**, free on application, describing the **BEST HARDY HERBACEOUS PLANTS** for Borders, Rockwork, and Cuttings. **BARR & SON**, 12 and 13, King Street, Covent Garden, London; and Nurseries, Long Ditton, Surrey.

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MY GLOIRE DE DIJON are very strong.

My *CLEMATIS* are being sold very cheaply.

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My *AZALEAS* are fine and healthy.

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50,000 Lobelia, **Emperor William**, warranted true from Cuttings.

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Pteris Victorice.

MR. WILLIAM BULL

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Price 10s. 6d. each, 3 plants for 1 guinea.

A Coloured Illustration free by post, price 1s.

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The following beautiful kinds will be sent out the first week in May. They belong to the Regal, or semi-double section, and will be found four most handsome and very desirable varieties, useful alike for pot culture, and for supplying cut flowers:—

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SHIRLEY HIBBERD MEMORIAL FUND.

THE Committee beg leave to announce that this fund, instituted for the purpose of securing a portrait of the late Mr. HIBBERD, to be placed in the Lindley Library, and with the object of securing a fund for the benefit of Mr. HIBBERD's orphan daughter, will be closed on April 30, 1891, and they particularly request that all subscriptions may be paid to the Treasurer on or before that day. The amount received or promised up to this date, is about £240, a sum which it is hoped may be considerably augmented before the closure of the fund, especially by the receipt of numerous small sums from the many who hold Mr. HIBBERD's name in respect. Subscriptions should be sent to the Treasurer of the Fund, Dr. MASTERS, at the Royal Horticultural Society, 117, Victoria Street, Westminster.

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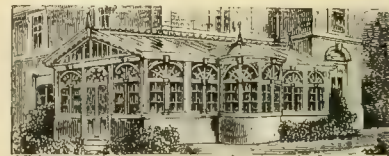
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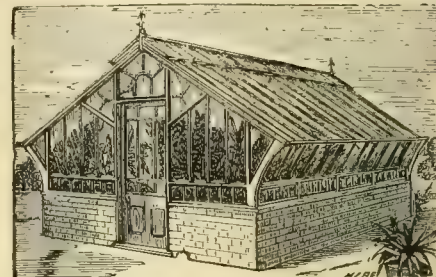
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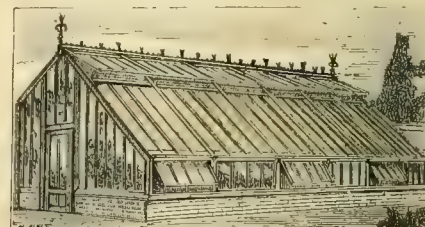
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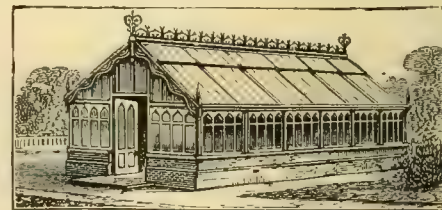
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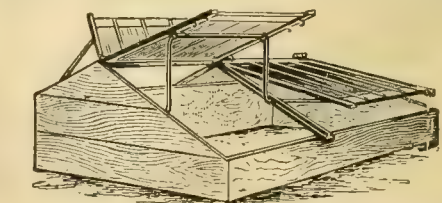
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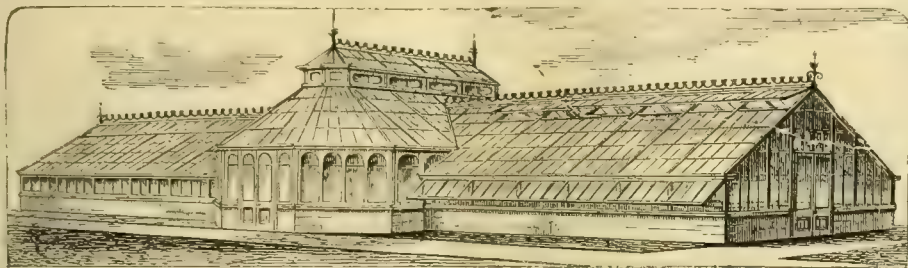
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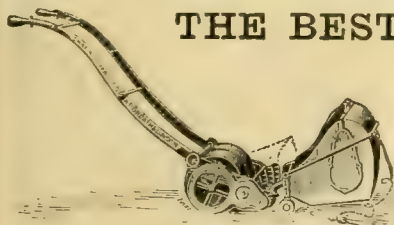
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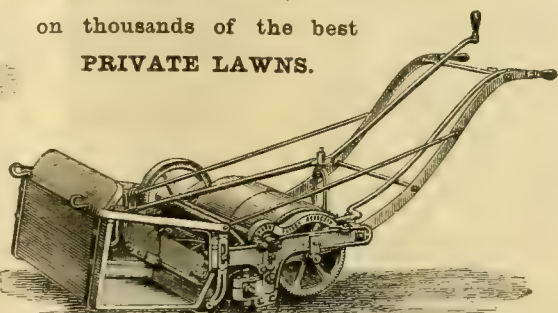
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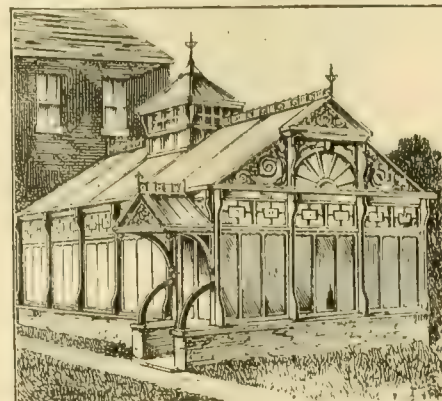
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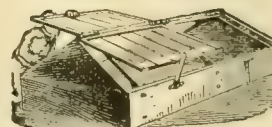


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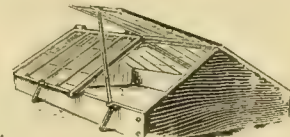
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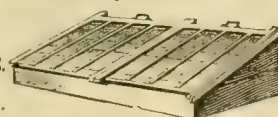
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THE

Gardeners' Chronicle.

SATURDAY, APRIL 18, 1891.

ROOKS AND STARLINGS.

IT would hardly be imagined that a bird so staid as the rook, and so well protected, at least in nesting time, would be capable of playing the rôle of a restless wanderer; but a scarcity of food induces strange migrations, alike among men and the inferior animals. The tower of Babel might have remained till now a beacon for the whole human family, but for their rapid increase; and the same may be said of rooks, which might otherwise have been content with England for a home, instead of travelling over the greater part of Europe and Asia, spending the summer sometimes in Astrachan, and wintering occasionally in the neighbourhood of Jerusalem, where they fearlessly follow the Arab ploughmen at their work. Even in Jerusalem itself, rooks and their congeners, jackdaws, hooded crows, and ravens abound in winter, congregating familiarly at that season in the central enclosure of the mosque every evening, going out in the fields to feed together, and returning in consort at night. These foreign rooks wander from the same motive that induces many of our common birds to move from one part of the country to another. The summer migration is enforced by the dryness of the country, and the consequent absence of such food as freshly-ploughed land usually affords. In the south of France, as in Spain and southern Europe generally, the rook becomes a winter visitant only, but when the climate of these warm, dry countries becomes humid for a time, when rain falls freely, and the sun goes in and the slugs come out; then rooks arrive, finding their *raison d'être* in the abundant supply of food.

We might follow the discursive rook further afield, to Greece and the Crimea, to the Delta of Egypt, Afghanistan, Cashmere, the Punjab, and the steppes and wooded districts of Turkistan; and in all cases we should find the bird a migrant, or otherwise, according to circumstances that is, according to the food supply. Before parting with the rook, it should be said, in regard to the uniformity of its manners, that in all the countries it has been induced to reside in, it has everywhere displayed the same habit of following the footsteps of the farmer, affecting tilled fields chiefly, and shunning uncultivated lands. Its choice of food is very varied. Possessed of an astonishing appetite, nothing comes amiss to it.

The rook has been caught in traps baited with eggs for carrion crows and magpies; it has been shot at the edge of harvest, with its crop full of unripe grain; and, on the other hand, it

does an immense amount of good in clearing the land of insect pests, grubs, tipula, and wire-worms. It does not very much care for farinaceous food, and if it eats corn in the stress of hot weather, it plays a useful part in helping to raise and save the crop by clearing the ground of the pests that would otherwise destroy it. It is, in fact, a farmer's friend, and a useful agent in the economy of Nature, labouring incessantly, with very few exceptions, on the side of civilisation. Miss Ormerod, the entomologist of the Royal Agricultural Society, who has waged uncompromising war with the pests of the farm, has highly praised the rook. The practical ability of the bird, as well as its omnivorous appetite, is sometimes exhibited on the seaboard, when, if the fields are frozen hard, it joins the gulls, and learns from them their method of preying upon shell-fish by carrying them up high in the air, and dropping them on the stony beach, so as to break their shells. It must be admitted that the sober rook thoroughly deserves the esteem of the public, and that it fairly earns its time-honoured privilege of nesting in rookeries, where it finds the protection it deserves, and throws aside for a time its habitual caution.

The starling is another very useful bird, and a general favourite, more innocent of mischief than the rook. Insects and grubs are so necessary to it, while corn is so little to its taste, that it must of necessity indulge in fluctuating movements, and resort to such migrations as are dictated by appetite and stomach. In hot summers, for example, it quits the dry eastern counties for those of greater moisture, and in hard winters it is almost entirely missed from some of its accustomed haunts. Speaking generally, it begins to move westwards soon after midsummer, when, amid increased confabulation and chattering discussion, it soon commences to roost in flocks, which grow larger as the season advances. The food question does not become pressing till winter approaches, and by that time the starlings will have migrated by tens of thousands either across the sea, or into the grass districts of the west. It is true they are found in several parts of Sussex throughout the winter, especially in mild seasons, but only in numbers which vary with the weather, and are always, at that period, very much reduced. In Cornwall, where ice is rarely found thicker than a sixpence, as well as in the Scilly Islands, they abound in winter, as they do in the moist pastures of Ireland, where they arrive in early winter in flocks that number 10,000 or 12,000. So far as England is concerned, the starling may be regarded as a migrant from east to west in autumn, and from west to east in spring, when for several months it becomes far more generally dispersed throughout the country than in winter.

As the starling is found throughout the whole of Europe, and spends the summer and breeds in the far north, where insect life abounds at that season, it follows that in winter he must be frozen out, and must migrate southwards. Large arrivals accordingly take place on our eastern coast in autumn. A naturalist in that part of the country has described some immigrations which he witnessed in October, when the birds landed after their flight across the North Sea in parties of from thirty to several hundred. They soon covered the trees and hedges by thousands, singing and flapping their wings on alighting, and making a tremendous noise when startled into flight. The starling is an impetuous bird, rather quarrelsome, but exceedingly social. His hasty manner of

joining others when they are feeding on the grass is amusing. He comes with a rush, tilting half over in his haste; then he runs at his neighbour with open beak, and goes to work on the worms, squeaking and quarrelling most of the time. Still, he is the farmer's friend, passes his life in continual well-doing—except from the point of view of grubs, cockchafers, and sheep-ticks—and thoroughly deserves the warm eulogy of Charles Waterton, who said of him, "The starling shall always have a friend in me. I admire its fine shape and lovely plumage; I protect it for its wild and varied song, and I defend it for its innocence." Its social character was noticed above. It sits on the backs of sheep in England, and of buffaloes in Egypt, and it congregates habitually with rooks and jackdaws, and in Shetland nests with gulls—"the rooks of Shetland," as they are called. It is unnecessary to explain the motives of these habits and instincts, further than by saying that a clever bird like the starling is careful to select convenient nesting places, and that he resorts to situations, such as the backs of the animals referred to, where he finds a supply of favourite food. If any person wishes to cultivate the acquaintance of starlings, he may readily effect that object by fixing nesting-boxes to suitable walls, or if the walls are thick, Charles Waterton's plan of making holes in them may be adopted with success. H. E.

NEW OR NOTEWORTHY PLANTS.

MASDEVALLIA ROLFEANA, n. sp.*

A VERY remarkable new species, in the way of *M. velifera*, Rchb. f. The flowers have, with the tails, a length of 6 cm. (2½ inches), the tails themselves being about 4 cm. (1½ inch). The upper one is straight; the lower ones are curved backwards at the base, and upwards at the ends. The whole flower has a rich chocolate-brown colour, except at the basal parts of the tube, where it is honey-coloured. The thick and leathery leaf is about twice as long as the one-flowered flower-stalk; it is obovate-cuneate, 3-toothed at the apex, the middle tooth is much smaller than the lateral ones. The flower-stalk is very short, having scarcely the length of the pedicelled ovary, which is itself much longer than its sheath leaf.

The plant flowered in July last year, in the collection of Messrs. F. Sander & Co., at St. Albans; it was shown at one of the meetings of the Royal Horticultural Society. It seems to be a very good grower, as all the specimens seen by us showed a very luxuriant deep green colour in the leaves, and flowered profusely. With the approval of Mr. Sander, we dedicate this species to Mr. A. Rolfe, F.L.S., Asst. Roy. Herb., Kew. Dr. F. Kränzl, Berlin.

TRAGOPYRUM LANCEOLATUM, var. LATIFOLIUM.

The plant figured on plate 1344, *Gartenflora* for April, is an eminently beautiful shrub for the garden, and, being perfectly hardy in the latitude of St. Petersburg, deserves to be generally cultivated.

The plant grows to a height of 2 to 5 feet, the flowers, which are white on terminal spikes, appear in the month of May, on those shoots which do not terminate with a thorn. The flower-spike consists

* *Masdevallia Rolfeana*, n. sp.—Tubo subcompresso ante basin constrictio; sepalis dorsali triangulo extus carinato in caudam ipso ter longiorem porrectam elongato, lateralibus subobliquis oblongis sensim in caudas intermedia breviores (ipsis sesquilongiores) revolutas protractis; petalis minimis oblongis retusis (fere linearibus); labellis aequilongis antice obtusis, articulis, basi subcordatis; gynostemio aequilongis, androchimo postice denticulato. anthera minutissime-verucosa. Perigonium extus et intus basi sulfureum, ceterum castaneum, caudae basi viridi-luteae antice intense luteae, potula fere eodem colore quo sepalis, intensiora, labellum dilute purpureum maculis intensioribus. Folium 3 to 4 inches long (3 to 10 cm.); crassissimum tricuspidatum obovatum obtusum. Floruit mense Julio in caldariis, F. Sander v. ill.

of clusters of flowers, containing from two to five each, which spring from the axils of the upper leaves, but mostly from the side or terminal leafless buds. The flower-stalks are thread-like, several times longer than the flowers, and jointed near the base. Leaves long, lanceolate, with a short foot-stalk, surrounded by a skin-like sheath (ochrea); under the microscope, smooth, with a network of veins, the end pointed, and on both sides of a cheerful green. The whole of the blossoms possess five petals, which are white with a greenish base. Of these, the outermost are of a long oval shape, abruptly bent backwards; the three inner petals are not only longer but have a broad oval appearance, stand erect, and enclose later, the three-cornered, one-seeded nut. Anthers somewhat shorter than the inner petals, usually eight in number, rarely nine. The stigma is three-lobed, with a very short column.

Propagation is effected by means of seed. The plant succeeds in a well-drained, sandy, rich soil, in a sheltered position. Found on the Almatinka river, in the mountains near Werny, in the Semiretschensk territory of Turkestan.

There are numerous forms of the species, some being very dwarf.

SPRING GARDENING AT BELVOIR.

THE delightful spring garden at Belvoir, respecting which Mr. William Ingram discoursed so pleasantly at one of the meetings of the Royal Horticultural Society last year, has quite maintained its reputation this season, notwithstanding the severity of the weather. February proved a very dry month, and the spring subjects suffered somewhat from drought, and though further retarded by a fortnight's frost during that month, by the second week in March the flowers were singularly fresh and attractive. The large-leaved *Saxifraga ligulata* bloomed abundantly; and the pretty little *S. oppositifolia*, which Mr. Ingram largely employs at Belvoir, was also freely producing its bright little blossoms; *Primula denticulata* crowded with bloom; *Anemone blanda*, charmingly fertile of blossom; *Chionodoxa Lucillie*, a little later than usual, but remarkably attractive; and *Crocus Imperati*, all that could be desired, a spring flowering subject that should find a place in every garden. It is perhaps almost impossible to see *Aubretias* employed with better effect than at Belvoir, and the creeping *Forget-me-Not* (*Omphalodes verna*) to better advantage. One remarkable feature is the precocity and hardiness of many of the Wall-flowers. By always selecting as seed plants all the earliest-blooming types, and especially such as survive the severest frost, Mr. Ingram has secured a strain both early and hardy. Some of his selected hardy strains were in flower early in March; while a large number of plants were killed—a calamity which fell upon many parts of the country. This practice of selecting hardy types for seed-parents, supposing the quality to be all that is desired, is one that might be followed with advantage by many gardeners. Mr. Ingram applies the same principle to vegetables, and amongst his Broccolis, some can be seen green and healthy, while thousands were killed through the severity of the weather. The survivals will be selected for seed purposes, and in this way, it is reasonable to suppose, added hardiness is secured. R. D.

PERSIAN FRUITS.

IN an address recently delivered in Vienna upon "Persian Fruit Trees," Dr. Stapf, the newly appointed assistant in the herbarium at Kew, as reported in *Gartenflora*, said that Apples, Pears, and Cherries flourish in that country only at elevations of from 6000 to 7000 feet above the sea. Persian Cherries are small, with reddish or yellowish watery flesh, and an insipid, almost bitter taste. The Plums, too, are not very good; but, on the other hand, the Apricots are far superior to those grown in Europe.

The trees often grow to "gigantic dimensions," especially near Shiraz, at an elevation of from 5,500 to 7,500 feet, and the fruit is very large, and of an "exquisite sweetness." Two kinds of Peaches are grown, one of the ordinary downy sort, and the other a small smooth-coated, delicious variety. Pomegranates are universally seen, being of shrubby habit when wild, but of tree-like size in gardens. One species is devoid of seeds. Walnuts are very widely grown, and near Shiraz an enormous specimen may be seen at an elevation of 8000 feet; while further north, in the Kohrud Mountains, there are fine large plantations at an equal elevation. Even Fig trees flourish up to an elevation of 5650 feet, or higher still in the province of Farsistan, and the

the people. The former are especially chosen for avenues, where they are often trimmed so that they grow to an immense height, but develop a head of comparatively small size. The Cypresses are either columnar or spherical in shape, the form with horizontal branchlets never being grown. *Garden and Forest.*

FOURCROYA BEDINGHAUSII.

The plant of *Fourcroya Bedinghausii* (fig. 99), which bloomed here last year, reached 9 feet in height when in full flower. It was brought by me from Beaulieu, near Nice, in the spring of 1889. I bought it under the wrong name of *Beschorneria yuccoides*, and from

in shape, and creamy-white in colour, with bright orange-red stamens; but you need to be underneath the tall spike to see its full beauty, on account of the greenish back to the petals. A succession of blooms opened daily for at least a month, and none set seed, though some days were very fine and hot during that period; but the spike has now developed an immense number of young bulblets and leaves on every branch, so that there will be no difficulty in perpetuating it, if it dies after flowering—a thing I fully expect. As this plant has hitherto only bloomed in the Scilly Isles in this kingdom, it is interesting to know that though dwarfed by the colder climate of our north-east coast, it has sufficient vigour to flower out-of-doors in the North of England. That shows how well worth it is to experiment with plants whose capacity of resisting cold sea winds is unknown. *Edward H. Woodall, St. Nicholas House, Scarborough.*

[The plant named after a celebrated French chemist, Fourcroy, and variously spelt in the attempt to Latinise his name, is a native of Mexico, and is figured in the *Botanical Magazine* for the present month, t. 7170. It was described in Mr. Baker's monograph of *Fourcroya* in our columns May 24, 1879, Ed.]

SUGAR PRODUCTION.

The problem of the accumulation of cane-sugar in a plant is a somewhat obscure one. The purpose of this article is to draw attention to the slender information which we have about it. Cane-sugar is one of a large number of chemical substances which play a most important part in the life of plants. They are called carbo-hydrates, because they are composed of the three elements, carbon, hydrogen, and oxygen, the two latter elements being present in the same proportions as they exist in water.

Starch, from the botanical point of view, is the primitive carbo-hydrate. The whole series of substances found in the plant, which, in their ultimate constitution, are found to conform to the carbo-hydrate type, are undoubtedly derived from starch by virtue of chemical changes brought about, for the most part we know not how, within the plant organism.

Starch is manufactured in the leaves of plants from carbonic acid absorbed from the atmosphere and from water supplied by the plant. The superfluous oxygen is returned to the atmosphere. Hence we get a rough justification of the term carbo-hydrate; carbon may be regarded as welded together with the constituents of water, though this is not an altogether accurate description of the process by which starch is produced. Roughly, the passage of starch, and its more intractable analogue cellulose, into sugars of various composition may be regarded as a variation in the proportions with which the constituent carbon is combined with water.

Starch, as has been said, is formed in the leaves. It supplies materials from which all the solid parts of plants are built up. It must, therefore, in some form or other, be capable of transport from the part of the plant where it is being formed to the part of the plant where growth is taking place. Now starch is not a very soluble substance, and we know that the materials which sustain the growth of plants can only be distributed through their structures in the soluble form. Starch, having been once formed, is practically locked up as long as it remains starch. To be available for the purposes of plant-growth it is necessary, for the most part, that it should be converted into a soluble sugar.

One of the most striking changes of this description is that which takes place in the germination of starchy seeds. The process of malting is only an arrested germination. The seeds of Barley are allowed to germinate sufficiently to convert all their starch into starchy sugar, or maltose. The reason of this is, that maltose can be made to yield alcohol by fermentation, while starch cannot. Now, the conversion of starch into maltose is effected by one of a peculiar class of bodies, called ferments, whose very composition and mode of action is still imperfectly understood. In the case of starch, the



FIG. 99.—FOURCROYA BEDINGHAUSII: HEIGHT, 9 FEET; FLOWERS, CREAMY WHITE.

White Mulberry follows to almost the same height; while the Black Mulberry, of which several kinds are grown, lags 1500 feet below it. A singular fruit is supplied by the so-called Oil-Willow (*Elaeagnus angustifolia*), which, when cultivated, yields a berry resembling an olive in size and shape, but of a "honey-sweet taste." When gardens are not encircled by walls, Poplars and Willows are planted as wind-breaks—*Populus alba* and *P. pyramidalis*, *Salix persica* and *S. acmophylla* being chosen. Here and there in gardens immense Maples may be seen, and more seldom Elms, among the latter being a remarkable variety (*Ulmus campestris* var. *umbraculifera*), with a thick spherical head. Elms, and *Celtis* trees, and Ashes are planted in front of the mosques, but Planes and Cypresses are the trees best beloved by

its Yucca-like aspect, judging it would prove fairly hardy, I planted it out at once under a terrace wall, fully exposed to the south. Here it grew with great vigour in the summer, and passed the winter with little or no damage from frost, save once, when some wet snow fell, which froze to the glaucous and rather rough leaves, and somewhat spoilt their beauty. The winter of 1889-90 was so mild, that even in last March we had only a few degrees of frost, so that I can hardly say I consider this stately plant hardy, unless in sheltered and sea-side gardens, but for such situations it is very handsome. The flower-stem began to rise in June, when I was absent, and I was much surprised to see this tall stem with pendent branchlets rising daily higher and higher when I returned in July. The flowers are pendent, starchy

conversion into maltose is effected by a ferment called diastase.

But a ferment of the nature of diastase is, there is reason to believe, very widely distributed in plants, and is by no means confined to the seeds of Barley. Diastatic ferments have been found in leaves and shoots, and it seems probable "that a ferment of this kind is present in all living plant cells." Few things have been more carefully investigated than the chemistry of malting, and it might be supposed that the chemical results of the change by which starch is converted by means of a diastatic ferment into a soluble sugar would be thoroughly understood. This is, however, far from being the case.

There can be no doubt that in the case of germinating Barley, the resultant is maltose. This is not, however, apparently, much met with in plants. What is met with is a substance of simpler constitution, called variously glucose, dextrose, or grape-sugar. It is "widely distributed throughout the vegetable kingdom, being especially abundant in the juice of ripe sweet fruits—the name grape-sugar being derived from its occurrence in considerable quantity in ripe Grapes." If a chemist is asked as to the origin of glucose, he can give no satisfactory reply.

It appears that diastase has no further effect on starch-sugar after it has produced it from starch, but that dilute acids have; and as dilute acids abound in plants, we can easily understand that the starch in plants may yield starch-sugar, and that this in turn may be broken up as fast as formed. Here, however, the chemists fail us; they have not yet made up their mind as to what is the exact result of the action of dilute acids on starch-sugar.

"Although," remark Armstrong and Groves, "there can be little doubt that the final product of the action of acids on starch is not merely sucro-dextrose [glucose], as has been very generally supposed, it must be admitted that at present there is not sufficient evidence as to what is exactly the nature of the product."

Still though chemists can give no satisfactory theoretical account of the origin of glucose in the plant, it is a substance only second in importance to starch, of which there cannot be the smallest doubt, from the chemical point of view, that it is the direct derivative.

Leaving glucose for a moment, we may turn our attention to cane-sugar. While the former is a migratory product, destined to afford material for the building up of tissues, the latter, as Sachs correctly points out, is a "reserve-material" stored up for some future effort of growth on a large scale, such as the process of flowering; yet it is singular that it is twice as soluble as glucose. Nevertheless, glucose seems to be what may be called the sugar "currency" of the plant economy, and cane-sugar only the "bullion" or banking reserve. The botanist is quite clear as to what happens in a cane-sugar plant. This is Sachs' account:—"Starch is assimilated in the leaves of the Beet; in the petioles it is found again in the form of glucose. This glucose now enters the growing and swelling root, and is transformed into cane-sugar in its parenchyma." The parallel processes in the Sugar-cane seem to have been little studied. The following note is therefore reprinted from the *Proceedings of the Agricultural and Horticultural Society of India* for July, 1890:—

Mr. Cripier undertook some experiments, illustrating the gradual formation of sugar in the Sugar-cane at different periods of its growth. The cane was analysed in July, September, and November. The three joints at the bottom of the cane, and the three at the top, just below the commencement of the leaf were taken for analysis, the middle joints being left.

From this analysis it was shown:—

- 1st. That the top joints contain no cane-sugar in November when nearly ripe.
- 2nd. That glucose is invariably present, being highest in September in the top joints, and lowest in November in the bottom joints, i.e., when the cane is about ripe.

3rd. The top joints contain about 10 per cent. more water than the bottom ones, and this ratio does not appear to alter during ripening.

4th. The amount of water present is from 8 to 11 per cent. more in July than in November.

It appears probable that the plant organism effects the conversion of the glucose into cane-sugar by combination with the elements of water.

The foregoing shows how wasteful is the practice common in some parts of India, of reserving whole canes for seed purposes instead of utilising only the upper portions of the plants. The West Indian method, as pointed out by Mr. Goodridge (see the Society Proceedings, September, 1885), "The West Indian planter would consider it pure waste to use his mature cane for seed [planting] . . . the tops are carefully cut off, the stems and blades are used as fodder, and the cane tops, about a foot long, are carefully preserved in trash, till the time for sowing arrives." Mr. Goodridge remarked that besides saving the mature cane for the mill, the use of tops for planting had other considerable advantages which he pointed out.

In connexion with the subject, the following extract from a note by Mr. J. J. Willis in the *Gardeners' Chronicle* for July 12 is of interest:—"In experiments at Rothamsted with the sugar-yielding root crops, it was found that there was more sugar produced the larger the amount of nitrogen applied as a manure, although not in proportion to the amount supplied. Also that the efficiency of a given supply of nitrogen is greatly dependent on the available minerals of the soil. Taking the mean of many investigations in which potash formed an ingredient in the manurial supply, it was found that 1 lb. of nitrogen in manure yielded 20 lb. of sugar."

From the very remarkable research of Brown and Morris "on the germination of some of the Gramineæ," in the process of malting the conversion of starch into cane-sugar appears to be synopted, and the glucose stage to altogether disappear. It should be explained that in the seed of the Barley there is a large store of starch external to the embryo. The latter grows at the expense of this store, and of course to feed it the starch has to be converted into a sugar.

The authors state:—"We cannot avoid the conclusion that transformed starch is absorbed from the endosperm by the columnar epithelium of the embryo in the form of maltose, and that this maltose, by the more or less complicated metabolic processes of the living cells of the embryo, is rapidly converted into cane-sugar."

"We have been able to demonstrate in a very striking manner the ability of the growing tissue of the embryo to convert maltose into cane-sugar. This was done by cultivating the excised embryos of Barley upon a solution of maltose, and determining the cane-sugar in the plantlets after such cultivation. Although under these circumstances cane-sugar may be found within the embryo, not a trace can be discovered in the culture medium itself, which we should expect if the maltose were converted by the action of any secreted ferment."

"When, on the other hand, embryos are grown upon solutions of dextrose [glucose] instead of maltose, no cane-sugar is formed in their tissues."

Their researches further point to the conclusion which botanists are quite ready to accept, that cane-sugar is the diffusible carbo-hydrate which is most easily reconverted into starch and therefore cellulose. The object of the sugar-cane and of grasses generally in storing up a large quantity of cane-sugar in their tissues is to provide for the great demands of flowering and the subsequent maturation of the seed. That the sugar-cane has for the most part become sterile in cultivation does not affect the point; the physiological habit remains, though the ultimate purpose has been abandoned. Brown and Morris point out clearly the ultimate destination of the cane-sugar:—

"The intimate connection between cane-sugar and starch in plants has been clearly shown of late years by several chemists. In the case of the tuber of the Potato, the dependence of its reserve starch

upon the previous existence of cane-sugar in the juices of the plant has been very well shown by Aimé Gerard (*Compt. Rend.*, 103 (1889), 602). The same has been done for Maize, by H. Lepley (*Compt. Rend.*, 94 (1882), 1033), and for Wheat, by Balland (*Compt. Rend.*, 106 (1888), 1610).

"In a series of experiments which we conducted a few years ago upon the Barley plant, taken from the fields at various stages of its growth, we were able to satisfy ourselves that cane-sugar forms a large proportion of the sugars existing in the sap of the plant, and that this cane-sugar disappears *pari passu* with the formation and accumulation of starch in the seed."

"It is doubtless in the form of cane-sugar and its products of inversion that the transference of carbohydrates in the grasses mainly takes place."

One word may be added in conclusion. Cane-sugar in the sugar-cane, as in the Beet, is, as will be seen, the derivative of starch. This substance is the result of the putting together under the constraining action of solar activity of the materials of carbonic acid and water. In the field of Nature the process will be most effectively carried on, and the result for the same expenditure in cultivation must be largest where the supply of solar activity is most abundant. All things being equal, the formation of sugar as a product of solar activity ought, in the tropics, to be more easily and cheaply accomplished than in temperate countries. *New Bulletin.*

PLANT NOTES.

RHODODENDRON DAHURICUM.

It is rare to notice this early-flowering variety of *Rhododendron* in gardens, although it has a most enlivening effect in the latter part of February and in March. The bright rose-coloured blossoms are visible when the sun shines on them a long way, and especially if the plants are standing in a bed on turf. Up to the time of the storm of March 10, the plants in our garden presented a fine mass of colour, but the winds and driving snow of that day and night at once put an end to their beauty for this year. Anyone who has a partiality for hardy shrubs which flower early, should obtain this plant, and give it good peat and a moist yet sunny spot to grow in. It is an upright grower, and therefore well fitted for the centres of *Rhododendron* beds. X.

VIOLAS: BLUE BELL AND YELLOW BOY, &c.

The above sorts I can fully recommend as being very suitable for summer bedding; Blue Bell is exceptionally good for withstanding drought, and seldom dies off, as is the case with some. Planted on well-prepared beds, with decayed manure worked in, and if the soil be light, trodden firmly, it will keep up a fine show of bloom throughout the season. In short, I know of no variety which is more suitable for summer bedding. Yellow Boy forms a capital companion to the above, but its constitution does not seem to be so strong, although with deep digging of the ground, and plenty of rotten dung put into it, the plants keep up a good display the summer long. I always give Viola beds a dressing of fresh soot before putting out the plants, and find it keeps away millipedes and other troublesome creatures. Harbinger Primrose is a free and in every way a good white variety for spring bedding and pots. The flowers come on stout stalks, and are carried well above the leaves. I grow a number of it in pots for jardinières and vases, as well as for cutting. H. Markham.

POTATO EXPERIMENTS.

As the operation of Potato planting is now demanding attention, a short account of a series of Potato experiments, conducted last year at the Agricultural College Experimental Station of Missouri, United States, the results of which have just

been published in their thirteenth *Bulletin*, may prove of interest and practical value.

The soil upon which the experiments were carried on was of a clayey loam. The year 1889 at this station was warm throughout. The summer months, including the last half of the month of May, June, July, and the first half of August, were hot and dry, although the total rainfall for each of these months was not much below the average; but it was not evenly distributed throughout the month, and the extreme hot weather intervening evaporated the moisture rapidly, and checked the growth of vegetation, the effects of which were very plainly shown in the Potato experiments, especially with the late planting. The number of varieties planted were ninety-nine; the date of planting the first series was April 21, and that of the second series, May 26, similar sets being used in each case.

The following table gives a selection of twenty-five of the most prolific varieties, showing the yield per acre in bushels of large, small, and total Potatoes, both of the early and of the late planting in the season of 1890; and for comparison is given the total produce obtained with these same varieties in the previous year, 1889, and the average yield per acre with these sorts at this experimental station:—

Twenty-five Selected Varieties of Potatoes. Produce per Acre in Bushels.

No.	Name of Variety.	Planted, April 21.			Planted, May 26.			Total Yield in 1889.	Average Total Yield.
		Large.	Small.	Total Yield, 1890.	Large.	Small.	Total Yield, 1890.		
1	Angell's No. 27	193	68	261	81	33	114	188	189
2	Baker's Imperial	110	131	241	65	39	104	358	187½
3	Bonanza	239	75	314	166	89	255	271	274½
4	Brownell's No. 55	124	90	214	71	50	121	203	167½
5	Cambridge Prof. 6	151	69	220	141	76	217	271	214
6	Chicago Gem	209	39	248	112	37	149	230	199
7	Crown Jewel	267	86	353	124	17	141	164	248
8	Dandy	227	88	315	81	45	126	193	22½
9	Dictator	302	65	367	151	33	184	367	255½
10	Early Dawn	186	71	257	141	55	196	300	231½
11	El Paso	164	76	240	143	51	194	309	217
12	Empire State	206	103	309	141	71	212	145	260½
13	Nevada White	209	62	271	141	37	178	270	221½
14	Potentate	181	61	242	114	10	124	164	183
15	Prairie Farmer	214	91	305	168	68	236	232	285½
16	Queen of the Valley	154	59	213	101	45	146	261	175
17	Rhinebeck	176	66	242	93	46	144	261	193
18	Salt Lake Queen	187	76	263	141	76	217	290	215
19	Silver Skin	169	78	247	208	63	271	280	258
20	Storr's Seedling	149	79	228	141	45	186	193	202½
21	State of Maine	173	69	242	161	71	232	235	232½
22	Tunix	227	100	327	116	58	174	290	250½
23	Weld's No. 22	151	71	222	267	93	360	280	306
24	White Chief	181	73	254	262	35	297	...	275½
25	White Elephant	272	65	337	169	69	238	300	233
Average		196	74	270	140	52	192	261	231

It is thus seen that, taking the total yield of the earlier-planted Potatoes of all the varieties in 1890, the yield was 9 bushels per acre better than in 1889, and 39 bushels per acre more than the average product.

The results further show, that with five exceptions, the earlier-planted Potatoes yielded the better; the most notable exception being that of Weld's No. 22, the late-planted giving in this case 108 bushels per acre more than the early-planted.

Summary—Bushels per Acre.

	Large.	Small.	Total.
	Bushels.	Bushels.	Bushels.
Early planted	196	74	270
Late planted	141	52	192
Difference	56	22	78

Thus, we have a gain by early planting of 56 bushels of large or marketable Potatoes and 22 bushels of small, or a total of 78 bushels of tubers in favour of the more lengthened period of growth.

The following table gives the twelve most pro-

ductive varieties of Potatoes grown at this station in 1889, the twelve most productive varieties in 1890, and the twelve best-keeping varieties:—

Twelve most Productive varieties, 1889.	Twelve most Productive Varieties, 1890.	Twelve Best keeping Varieties.
Prince Edward Island	Rural Blush	Rubicand
Rose	Snow Queen	Salt Lake Queen
Rustow	Lark's Favourite	White Seedling
Beauty of Beauties	Thornburn	Newton's Seedling
Hamden Beauty	Beauty of Beauties	Eno's Seedling
Early Sunrise	Victory	Cheeseman's Seedling
Rochester Favourite	Early Sunrise	...
Early Pearl	Princess	Monroe Co. Prize
Thornburn	Early Standard	Silver Skin
White Flower	Dictator	White Star
Early Durham	Mayflower	Stenben Chief
Newton's Seedling	Prince Edward Island	Garfield, Lundreth's
Dictator	Rose	State of Maine

In 1889, Prince Edward Island Rose headed the list with 439 bushels of Potatoes per acre, the last variety quoted yielding 367 bushels per acre, the others giving intermediate quantities.

In 1890, Rural Blush headed the list with 564 bushels of tubers per acre; Prince Edward Island Rose this season producing the smallest quantity of the twelve best, namely, 373 bushels per acre, the others giving intermediate quantities.

light and sun can freely penetrate. Of all the trees which I have seen in my travels, the Gourd tree (*Crescentia*), seems to have a bark which is best adapted for the growth of Cattleyas and other epiphytal Orchids, and this is the reason that the species is very valuable for cultivation in countries where Orchids can be grown in the open air. There are in the South American States, hundreds of towns and villages, the population of which is employed in setting quantities of Orchids on Gourd trees. In the hottest parts of South America, almost every dwelling is surrounded with a little plantation of Plantain, Sugar-cane, Coffee, &c. Almost everywhere I found a few Gourd trees, spreading their fine clear green foliage among these plants; very often the branches are literally covered with Orchids of various genera and species. More than once, I have seen sturdy Schomburgkia mingling their long floral racemes with those of some beautiful Cattleya, magnificent specimens partly shaded by the upper branches of this strange tree, which are themselves splendidly decorated with Rodriguezia, Ionopsis, small Oncidium, and other less-luxuriant plants. The Gourd tree does not grow to a very great height (the highest I have seen was scarcely 23 feet high); therefore, it is admirably adapted for the culture of Orchids in the open air. The vigour and health of plants which grow on this tree are marvellous. Its bark certainly contains some substance exceedingly favourable to the nutrition of roots and plants which grow upon it, as upon no other tree is the same vigour of roots and shoots observable.

In Cattleyas, especially, I have always remarked the strength and size of the roots which the plants send out most abundantly in all directions, and which twine closely round the branches and trunk. I saw, some years ago, in the Botanic Garden at Demerara (British Guiana), a very fine collection of Orchids, many of which were cultivated on Gourd trees. Several long avenues of these elegant trees were devoted to the growth of epiphytal Orchids, and the plants seem to thrive well under this simple and inexpensive mode of treatment. The great secret of success in all systems of cultivation is, to follow Nature herself; I therefore recommend the pursuance of similar treatment in our European glass-houses. . . . The natural habit of the branches of Gourd trees allows the light to penetrate everywhere, and they can be selected of whatever size is desired. On the borders of this "Orchid garden" (at Demerara) are rocks, suitably arranged on which species which in tropical regions grow on rocks and in stony places can easily be cultivated. Cattleyas can be managed in two ways, as they grow upon the rocks as well as upon the trees. Many times have I seen splendid plants of Cattleya, in the mountainous regions of America, growing on enormous perpendicular rocks, where trees also grow, and where the specimens are accessible only to the most intrepid of the natives, whose only support when gathering them is a strong rope fastened to the summit of the precipice. When Cattleyas grow in forests, they are usually found in more shady places than those which grow upon rocks, consequently, the leaves and bulbs are almost always darker in colour and less firm in texture; while, on the other hand, exposure to the sun colours the leaves and bulbs of the others with clearer hues, and renders the substance of the foliage much firmer and stiffer.

Judging from what I have observed, an excess of shade is far more injurious to Cattleyas than excessive light. In a South American village, I saw hundreds of Cattleyas planted on the tops of walls of earth, exposed to the full sun, and flourishing splendidly. As regards size, I do not believe that any other Orchid attains to such enormous proportions as do Cattleyas when placed in a favourable situation, and at the same time have plenty of warmth and moisture. I have seen plants weighing more than 150 lb. each, and bearing more than 300 bulbs. It must have been many years before, even in their native land, plants could have grown to such a size, and in this case it was only under conditions the most favourable to their development.

ORCHID NOTES AND GLEANINGS.

SOUTH AMERICAN ORCHIDS AT HOME.

CATTELYAS, the most beautiful of all American Orchids, are found in the most varied positions, sometimes on the branches of giant trees in the virgin forests of the low ground, sometimes on the rocks and steep slopes of mountainous regions, at elevations ranging from 3250 to 4225 feet above sea-level. When they grow on trees, as is almost always the case in the low-wooded regions, it is usually on certain species of trees the bark of which seems to be particularly well suited to their requirements, and usually on the border of forests or in clearings, where day-

Cattleya eldorado grows only upon trees of medium size, with uneven and rough barks, on the borders of dense virgin forests, close to streams, and, usually, in districts which are flooded during some months of the year.

In the same forests, and under similar conditions, are found *C. superba* and its varieties, and *C. Holfordi* or *luteola*, the latter generally growing low down on the smallest and lowest trees. *C. Gaskelliana* grows in high and mountainous regions, usually on very tall trees of enormous breadth, in the thick forests on the sides of mountains. The different varieties of the *Mossii* group are found in high regions, on tall trees on the borders of forests.

C. Mendellii and its varieties are seen on small trees, and very often on rocks and the sunny slopes of precipices. *C. Percivaliana* always grows on high blocks of rock, or on the slopes of mountains, and sometimes on perpendicular rocks in the very high regions not far from the habitats of *Odontoglossum*. *C. Warocqueana* is only met with on trees of giant height in moderately high situations. *E. Bungeoth*, *Collecteur de L'Horticulture Internationale*, *Journal des Orchidées*, March 15, 1891.

MORMODES LAWRENCIANUM.

A new species, figured in the last number of the *Lindenia*, t. 273. The species was introduced by M. Linden from New Granada. The flower segments are lanceolate, acute, yellowish, with purple streaks, the lip ochre yellow with a few spots at the base. Mr. Rolfe, in describing it, adverts to the singular provisions for securing fertilisation by the agency of insects, which the flowers exhibit.

ONCIDIUM LEOPOLDIANUM, Rolfe.

This is a very beautiful species, the flower stems of which are said to produce as many as 300 flowers. The sepals and petals are oblong, white with a central blotch of purple; the lip, which is lanceolate and smaller than the segments, is violet coloured with a yellow blotch. According to the plate in the *Lindenia*, t. 274, this must be a very remarkable species, on whose introduction Messrs. Linden are to be congratulated.

ZYGOPETALUM LINDENIÆ.

A new species discovered in Venezuela by Bungeoth, and introduced by MM. Linden. Judging from the figure in the *Lindenia*, t. 275, this is a distinct species, with the flower segments of a pale rose colour, the broad cordate ovate lip being white with deep rose-coloured streaks.

CATTELEYA (HYBRIDA) PARTHENIA.

A secondary hybrid, raised by M. Bleu. Its grandparents were *C. amethystina* crossed with pollen of *C. Acklandiæ*. The offspring we are told resembles *amethystina*, and was crossed with *C. Mossiæ*, the result being the form known as *Parthenia*. The plants flower at different times. The flower segments are pure white, lightly tinted with rose. The lip is white, the basal portion tubular, the anterior portion fringed at the edge, light violet with darker lines and a yellow throat.

WRAY PARK.

Calanthes are very largely grown at Wray Park, Reigate, and a fine batch of *Calanthe Regnieri* was observed recently very effectively arranged among Ferns, dwarf Palms, and other foliage plants. There was a considerable amount of variation in the extent and depth of the reddish-crimson stripes on the flowers, as well as in the blotch on the base of the lip. *C. Turneri* and the pure white *C. nivalis*, were also well represented, including the supposed hybrid between *Regnieri* and *nivalis*. All were carrying fine racemes of flowers of great substance, and had finished up splendid pseudobulbs, many being but little short of 1 foot long, with girth to correspond. *Dendrobium Jenkinsii*, a dwarf plant from Northern India, was in fine condition, growing on a wooden block suspended close up to the glass, in which position its slender spikes of pale yellow flowers, margined with a deeper yellow colour, were seen to

great advantage. This, and other small growing species of *Dendrobies* never seem to do so well as when suspended close to the light. *Jenkinsii* is a neat species, for growing on a block in the cool or intermediate-house. A good batch of *D. crassinode*, with long pseudobulbs wreathed in flower, freely demonstrated the advantages of affording plenty of light and air to ensure thorough ripening of the growth, which may be said to be almost synonymous with profuseness of flowering. Amongst *Odontoglossums*, numerous varieties of *O. crispum* were in flower; also fine pieces of *O. odoratum*, *O. luteo-purpureum*, *O. triumphans*, and *O. nebulosum*. The pretty little *O. Cervantesii* is a special favourite here, and several varieties as well as the type are grown. The lax inflorescence—of white flowers with the reddish-brown bars of colour at the base of the sepals and petals, arranged concentric fashion—of the type is well known; but in the variety *O. C.-decorum* the marking is extended to the lip, which is richly bordered with spots and bars of the same shade of colour; moreover, the flowers are much larger—about 3 inches—than the type. A similar variety is *O. C.-Andersoni*, if, indeed, it differs; however, the pale peach blossom-coloured variety called *O. C.-morada* is quite distinct, but the flowers are rather smaller than in the type. A fine-flowered *Maxillaria Harrisonæ* was conspicuous in the intermediate-house. *F. R.*

NANODES MEDUSÆ.

Of this plant, figured in the *Bot. Mag.*, t. 5723, Hooker says, "Altogether, the flattened, stout culms, the pale glaucous colour of the foliage, and the extraordinary appearance and lurid purple of the flower, give it a most sinister appearance, and for an Orchid a most unusual one." The correctness of the above observations will be readily agreed to by any one who has inspected the flowers. Indeed, one feels inclined to place it with *Rafflesia*, *Welwitschia*, or *Stapelia gigantea*; but however much *Nanodes* may resemble these vegetable monsters, there is the very great difference of its being thoroughly amenable to greenhouse treatment, growing and flowering, as it readily does in a cool-house, provided its few simple requirements are attended to. It revels in moist air, dislikes heat, and enjoys a position where clear but subdued sunlight reaches it.

In the cool fernery at Pendell Court, hanging in baskets, close to the glass, over some *Todeas*, small shrivelled bits, imported about a year ago, have established themselves, with very little trouble on my part, and were recently in flower. As tending to show how easy the plant is to get established, it may be mentioned, that the shoots of some of the pieces, on coming over, had shrivelled so much as to die, leaving only a few fresh leaves at the points. These were cut in the manner of a cutting, and planted in the baskets. They were a long time before roots were emitted, but these bits are now established plants. The culms have the peculiar property of throwing out fresh shoots along their length, so that in a short space of time large specimens are produced from a very small plant. Fibrous peat, clean crocks, and sphagnum moss make the best compost for *Nanodes*. There is, perhaps, one other peculiarity about the treatment of *Nanodes Medusæ*, which is, that their roots cannot with safety be allowed to get dry periodically, as most other Orchids may do without injury. In this respect it is very similar to our native *Lycopodium clavatum*, the cultivation of which indoors is more of a puzzle than a success generally. *F. R.*

ORCHID FLOWERS AND THE LONG WINTER.

A noble six-branched spike of a very fine form of *Odontoglossum Andersonianum*, bearing in all thirty-seven flowers, comes from that enthusiastic amateur, Thos. L. Cater, Esq., Willow Bank, Clifton Park, Birkenhead, with the accompanying remarks which bear on the extraordinary power which the flower spikes of some Orchids have of tiding over protracted unless weather, during which it is impossible to expand their flowers. Mr. Cater says, "I have noticed that the dull and severe winter we have had

has had the effect of altering the character of bloom in some Orchids. This peculiarity I fancy may be owing to the fact of the spikes being so long in developing. The *Odontoglossum* I send you finished up its bulb in October, and the spike has been growing on ever since—about five months. *Lycaste Skinneri* now in bloom is many shades darker than last year, when the same plant bloomed two months earlier. But the most singular instance is that of *Lælia anceps Sanderiana*, which bloomed last year in December, this year in February, but the lip instead of being stained with colour came pure white. It would be interesting to know whether others have observed changes of colour in individual plants."

In the collection of John Flower Jackson, Esq., at Bourne Place, Bexley, lately we noted an extraordinary development of flower-spikes on *Phalænopsis Luddemanniana*. The spikes have been growing all the winter, and are now five or six feet in length, and trained round supports like a climbing plant. In the same collection also is a strong and healthy plant of *Oncidium sarcodes*, which, from the same old bulb, has three years in succession produced a fine inflorescence, without attempting to make bulb and leaf growth. Can it be that the eyes are destroyed, and that this is an effort of the plant to attempt to secure its perpetuation by seeds? Another extraordinary development of flower-spikes is on a specimen of *Oncidium macranthum*, in the collection of Mrs. Arbuthnot, at Bridgen Place, Bexley. The spike has been growing for over six months, and is now several yards in length, and furnished with twenty-five branches. It will make a fine sight when the now-swelling buds expand. *J. O'B.*

NOTICES OF BOOKS.

THE HONEY BEE: its Natural History, Anatomy, and Physiology. By T. W. Cowan, F.L.S. Houlston & Sons, Paternoster Square.

This is an excellent work, issued at a price which brings it within the reach of all, and supplies a want long felt amongst bee-keepers for a text-book, easy of reference, and of handy size, on the scientific, as an accompaniment and aid to the practical part of bee-keeping. It will be equally welcome to the student of entomology and to the microscopist. No time or pains seem to have been spared by the author in gathering a mass of information from every available source, and it is dealt with in the same clear and concise manner that distinguish his productions in connection with practical bee-keeping, so well known to most of those who follow the pursuit. The authorities consulted or referred to in the text are carefully tabulated in detail at the end of the book, where they may be easily found by a reference number attached, and care has been taken when treating of discoveries, to give the discoverer the full credit of his work. The illustrations are numerous, and of high order.

It is interesting to note, in the chapter on Gland Structure, that Dr. de Planta, by recent experiments, has confirmed the teaching of Dufour, which was demonstrated by Pastor Schönfield, and upon which there has been a diversity of opinion, that the food given to the larvæ up to the end of the third day, the time of weaning, is not a glandular secretion, or bee-milk, but food semi-digested, and produced in the chyle-stomach of the bee, and is, no doubt, identical with the so-called royal jelly, which, by being continued longer in the case of larvæ intended to produce queens, causes the full development of the ovaries, and this chyle food is probably the same that is fed to the queen bee when egg-laying, thus giving the workers perfect control over her production in this respect; and it is also the food upon which the drones are dependent for existence, accounting for the way in which they perish in the autumn, when it is probably withheld. When dealing with the queen organs, the fact is mentioned that by our modern system of stimulation, and working for large colonies without increase, queens

cease to be profitable to the bee-keeper after the second year of their existence, and that this is owing to the fact that the spermatozoa communicated by the drone at the time of mating, one of which is needful for fertilising each egg that is to produce a worker, are more quickly exhausted than when the bees are left to their own resources.

TONGUES IN TREES, AND SERMONS IN STONES.

By the Rev. W. Tuckwell. George Allen, 8, Bell Yard, Temple Bar.

Those of our readers (and they must have been the majority) who appreciated the author's articles with a similar title, which appeared last year in our columns, will be glad to know that they have been re-printed and considerably extended to form a veritable *libellus elegantissimus*. The author modestly asserts that he does but gather together what others have written, but he does so pleasantly and well. The besetting sin of such books is a want of accuracy, and the present author is not wholly void of offence in this matter; for instance, at p. 88, alluding to the very common malformation of the Foxglove, in

garden was under the charge of William Baxter, a man whose knowledge of plants was, it may safely be said, very much superior to that of the Professor under whom he served. Oxford Professors in those days were scholars perhaps, kindly gentlemen, possibly, but their attainments in science were hardly such as to render them fit successors to Sherard, Dillenius, and Sibthorp. Many old Oxonians of a past generation learned what they knew of botany from William Baxter, rather than from the Professor. As age crept on, and ill-health enfeebled his powers, William Baxter resigned his position, occupying himself to the last however, in the herbarium. Baxter's work in the garden was taken up by his son, a former assistant of Loudon's, who also held the post for many years, to the great advantage of the garden, till his time came to resign. He, too, is now gathered to his fathers. Changes have taken place in the old garden since then, changes which our author laments as sacrilegious, but which may possibly have been requisite. Of one thing we are sure, that, short of actual destruction of the whole establishment, nothing can permanently destroy the charm of this very loveable garden.



FIG. 100.—THE RECTORY GARDEN.

which, for some unexplained reason, several of the uppermost flowers have "run together," so as to form a cup at the end of the flower-stem, he mentions that the Canterbury Bell and the Foxglove have grown side by side. "The two have hybridised, and the Foxgloves terminate in companulate blooms." Before committing himself to such a truly monstrous statement as this, the writer should have consulted some botanical friend, who would have told him that such a cross is very far beyond the limits of probability.

The purport of the book, however, is not to teach botany, but to interest the reader in the romance and the history that every plant furnishes to those who know how to read aright. The charms of the garden come in for full recognition, and those delightful college gardens at Oxford, types of what an English garden should be, are lovingly described. The peaceful Botanic garden at Oxford, begirt with its still substantial but mouldering walls, washed on one side by the Cherwell, rich in interesting plants, and offering at every turn a charming picture of tower, or spire, or tree, or of all combined, comes in for special mention. This garden, which is full of historic memories, was reconstructed by the late Professor Daubeney, who resided in it for many years, and whose munificence enriched it greatly.

For many years, prior to Daubeney's reign, the

Of the "Hortus Inclusus" of the Thwaite, familiar to Ruskinites as the "Apple-perfumed Paradise," and which forms the subject of another notice, our readers must judge for themselves: we will not spoil their pleasure by doing more than allude to it; but, as we are privileged by the publisher to use the illustration of the Rectory garden, we must also add the rector's account of his Paradise:—

"I pass to the Rectory garden of our sketch, with its tall Sequoia, and the Ivy-mantled tower of its fourteenth century church, picturesquely prominent between its Chestnuts. These, with a fine Cedar and a noble Holly, were all that the Rector found when he came to his home, fourteen years ago. His two predecessors were bachelors; there had been no Ere to 'tend plant, herb, and flower.' Everywhere were hedges of clipped Laurel, horribly neat. The gardener's ideas ranged not beyond 'Calceas and Geraniums,' some 800 of which broke forth in pustulous eruptions over the lawn for four months in the year, for eight months leaving the beds so absolutely bare that no flower could be found for the children's May Day decoration. The frost of 1880 mercifully slew the Laurels; the lawn beds were restricted to a narrow edging line; herbaceous plants and shrubs were diligently amassed. To-day their name is legion. A mighty Rose-bed fronts the entrance; a Boule d'Or covers roof and wall, yielding at least a thousand blooms each year; shrubs, not of common kinds, back the mixed borders; the single Kerria, Hibiscus, Budleia, reach large dimensions in sheltered spots. Herbaceous plants crowd the beds, not merely the Polyanthus, bulbs, and Gillyflowers of spring, the Carnations and Dahlias of summer, the Chrysanthemums and Anemones of autumn, but the rare wild Præny from the Steep Holmes, white Sun-Cistus from Bream Down, annual Mercury from Thanet, Marsh Sow Thistle

from East Kent, Horned Poppy from the Bristol Channel, Golden Rod from the Lyan Valley, Dianthus cæsius from Cheddar, Bathynian Vetch from Exmouth, Wild Cabbage from the Shakespeare Cliff, Astrantia from its one English habitat in Shropshire, Wallflowers from Valle Crucis, Birthwort from the Godstow ruins, Pinks from Cowper's summer-house at Olney, Eryngo from the chalk hills of Amiens, Dahlia scapi-gera from Linneus' gardens at Upsala. There are bushes of Sweet Cicely, Elecampane, Marsh Mallow, Pyrenean Valerian, Acanthus, Deadly Nightshade, patches of Wood, Pheasant's Eye, Goldlocks, Autumn Colchicum; masses of Leopard's Bane beneath trees, of Winter Cherry in the warm greenhouse border, of Touch-me-not in damp shady strips. There is a well-stored rockery, with Saxifrage of many sorts, Bearberry, Maianthemum, Pennywort, Epimedium, Rose-root, Petticoat Narcissus, and Dogtooth Violet. The rector is a busy man, and his garden is his only recreation—a man ever on the move; his vasculum always goes out with him, and, like the sword of Saul, 'returns not empty.' Friends visit his garden from far and near. On the flat capital of a pillar, abstracted when the church was restored, and fixed upon the lawn, tea is spread on summer afternoons. The rector's wife—the 'Beloved, who makes all happiness her own'—delightfully and genially presides. The talk ranges, and the laughter rings, and all are made to feel the moral of the garden etymology—to think of it as a place guarded and insured against all but pleasant thoughts and cheerful looks, and cordial friendly converse. 'I understand now,' said a hard-worked London parson, after his well-earned country Sunday, 'I understand now what a garden means.' One dead fly lurks in the rector's fragrant ointment, the fear that when he has passed away, some un-ideal successor may neglect or undervalue, or uproot his treasures. Had he control over the future of his pastorate, he would hesitate to instal in the incumbency a Hooker or a Hammond, a George Herbert or a Leigh Richmond, unless, like Adam, he were a gardener, like Solomon, a botanist."

With this, we must take our leave of one of the pleasantest additions to our garden literature that we have ever had to chronicle. It is just the book to take into the pleached arbour, and with it to give one-self up for a time to the luxury of restful enjoyment.

THE ACHIMENES.

JUDGING by the examples observed at horticultural exhibitions, Achimenes have not the care always bestowed on them which was formerly the case. Although Achimenes when their growth is matured do not suffer from comparatively low temperatures, and may be used in the decoration of conservatories, yet when still young they are highly susceptible to injury by cold. The plant is chiefly found in Guatemala, a sea-girt country, enjoying a mean winter temperature of about 70°, whilst that of the summer is about 80°. The country is exposed to the north-east trade winds, and has a fairly large rainfall.

Instead, therefore, of a shaded very damp house with but little ventilation, the best place for the plants is ainery that is being forced. A mistake of long standing is made by potting them in a mixture of peat and leaf-mould, and often an excessive quantity of the last-named ingredient. The soil in which they best thrive, is one consisting of equal parts of light turfy loam and leaf-mould, with about one fifth-part of silver sand, and the pots or pans in which they are to grow should be well crocked. By starting the tubers in successional lots, flowering plants during summer and early autumn are obtained. The first tubers may be started in January, then in the three following months, and thus a continued display will be ensured.

The general practice is to place the tubers many together, in pots or pans, for starting them; and when the plants have grown about 2 inches in height, they must be carefully removed from the soil, with tubers and young roots attached, and placed in the pots in which they are to bloom, &c. The usual plan is to place about half-a-dozen in a 32-pot at equal distances apart, planting them rather deeply to induce the growth of roots up the stem. This is very good practice as regards the least-branching varieties, which makes a better display in groups than singly. Some garden varieties, however, form fine examples grown singly, especially Mauve Queen, Dazzle, Picta, coccinea, &c. Indeed, well-grown specimens in this form are of themselves capable of producing the best effects.

A common but erroneous practice connected with the culture of Achimenes is to stand the pots or pans on a bench covered with sand, or other material

which retains moisture, being a too general belief that the plant cannot well have too much moisture when growing. To this practice I attribute the lanky examples with but a few blooms, and these near the top of the shoots, often met with.

Well-grown *Achimenes* are not of this type, but they are branching in habit, and bloom quickly after they are potted, and often when they are about 3 inches in height. Indeed, if the chief desire of cultivators was to make these plants as attenuated as possible before blooming, they could do nothing better than follow the common practice.

Instead of placing these plants on moist sand-covered stages, if they were elevated each upon inverted pots, so as to be nearer to the glass, and surrounded by air in motion, they would do much better. In positions of this kind, frequent surface sprinklings may be indulged in, greatly benefiting the plants; nor should the pit or house be kept closed during the greater part of the day, because it is thought *Achimenes* like close atmosphere. If a warmth of 75° can be maintained, with air afforded, let them have it freely from the forenoon to shutting-up time, and let them have all the sun-light possible, with the usual syringing, whether it be in the month of March or May. After the latter date, plant-houses in south aspects will, during bright days, become somewhat hot, and then, if the plants have completed three-fourths of their growth, no better place can be found for them than a cool frame. Here, elevated upon inverted pots, so as to be near to the glass, they require air daily during fine weather, so as to keep the temperature down to a mean of 80°; frequent sprinkling of the ground should be done, and at 2.30 or 3 P.M. sprinkle the plants, and shut up the frame.

Notwithstanding the numerous beautiful garden hybrids, many of which were raised by our late friend Mr. Parsons, near Welwyn, who grew these plants so well, present cultivators still grow such old sorts as *Ambrose Verschaffelt*, *Carl Woolfarth*, &c., old sorts which should have been discarded for such gems as *Dazzle*, *Loveliness*, *Magnet*, *Rosea magnifica*, and *Pink with Scarlet Perfection*, *Mauve Queen*, &c. *William Early*.

THE WEEK'S WORK.

THE APIARY.

RELIEVING BEES.—It having been so cold up to the present, few opportunities have occurred when it has been warm enough to make a thorough overhaul of stock without incurring the risk of chilling brood. This should be done, and, where required, bees should be moved into fresh hives as soon as possible. Floor boards should be scraped and cleaned in every case, and nothing is better for this purpose, and for scraping tops of frames, than a triangular scraper, such as glaziers use. One of the many advantages of having all hives in the apiary of the same pattern, is now apparent, as with a spare floor-board to start with, it can simply be exchanged for one in use, which can be used in the same fashion after the necessary cleansing or painting has taken place. The best plan to perform this operation, is to spread the carboloid cloth on the ground on which stands the hive body till the new floor-board is placed ready to receive it, with the result that the bees will go to the top of same, and be out of danger if being crushed. It will save much time and trouble in the future, to make a note of the condition each hive is found to be in at the time of examination, and many beekeepers fasten a piece of slate in each hive roof for this purpose, and this also is a convenient place to keep a memorandum of the age of the queen, or anything else worth remembering.

MAKING SPACE FOR EGG LAYING.—It often happens in spring that through bees having too liberal a supply of stores, that the space at the disposal of the queen for egg-laying is restricted, and consequently the colony does not increase as rapidly as desirable. If this exists in any case, it should be remedied by placing an empty frame of comb or foundation on each side of the brood-nest.

NUMBER OF HIVES FOR THE PRESENT SEASON.—It is time now to formulate plans as to the number of hives to be worked for sections, for extracted honey or for increase, and to make arrangements accordingly, and have everything in readiness. It is best in the case of increase to devote to this purpose hives having the oldest queens, and to super those with young ones, as with plenty of room swarms are not so likely to emanate from the latter. In painting hives, a good colour to use is light slate, as it does not show the dirt, and looks presentable to the last. It is rumoured that owing to a dearth of bees, wax foundation is likely to see a higher price than usual this season, so that it is advisable to be on the safe side and get in a good supply at once. *Expert*.

FRUITS UNDER GLASS.

PINE-APPLES, FRUITING PLANTS.—In some houses in which the fruits are rapidly swelling, some amount of difficulty will have been experienced during the last week or two in maintaining humidity and high temperature, as with only fitful bursts of sunshine, the fires cannot be banked down, and unless there is much watchfulness on the part of the gardener, the plants suffer, and the fruits are not so good as they might be. It is advisable to have shadings in readiness—some light stuff not shading too much, to throw over the glass when the sun bursts forth, the leaves scorching very readily after the winter. Should seasonable weather set in, fuel should be economised early in the day, utilising sun heat as much as possible. It is better to shut off the top heat in the house when the sun is shining full on it, than to lower the temperature by opening the ventilators, which will often cause fruits to be mis-shapen. Afford ventilation early in the day, but only in small amounts; this will allow of some of the confined moist air to escape, and the house may be closed before the sun leaves it, the thermometer running up to 100°, if there is plenty of atmospheric moisture in every part. The night temperature may range from 70° to 75°.

SUCCESSION PLANTS.—Plants that are growing vigorously must not be allowed to get drawn by want of space, or the use of too much shading; and manure water in larger quantities than hitherto, and rather stronger may now be afforded, but keeping it out of the axils of the leaves. Maintain a bottom heat of 88°, and shade from strong sunshine, closing early with overhead damping in bright weather. It is an advantage to place liquid manure or guano water in the evaporating troughs once or twice a week.

SUCKERS.—These should also get attention, and if large, they should be potted into 32's, and the early-potted ones be shifted into larger pots. Restrict the number of suckers thrown out by reserved stoo's, especially Queens, which throw many suckers, selecting those only which grow on plants that have good stout leaves, and which produced the finest fruits.

PEACHES AND NECTARINES.—Trees have not progressed very much of late, but rapid growth may be expected with finer weather, and arrears will then be fetched up. Careful ventilation is very essential, as also the keeping of the trees clear of insects by daily syringings, and a genial moist atmospheric temperature must be maintained. That there be no reason to fear overcropping, lose no time in finally thinning the fruits, regulating the number of the fruits according to the vigour of the tree. Strong shoots should be stopped betimes, so as to avoid the loss of the weaker ones, and those near the bottom of the trees. Let the borders be abundantly watered with warm water, occasionally employing liquid manure, but give none unless the border stands in need of moisture. Any foliage that may be covering the fruit should be pushed aside, or reduced in size, or cut off, so as to secure high colour. With bright sunshine the fires should be checked early in the morning, this being a means of maintaining the foliage in health, a point of great value when the fruits are finishing.

SUCCESSION HOUSES.—The necessary dis-budding and fruit thinning must get attention, and in other particulars follow closely the directions given in previous calendars, ventilating freely, shutting up the house before the sun declines much, and leaving a slight amount of air in all houses that are small and close. A mulch of old cow-dung or Mushroom bed materials should be placed over the

surface, except in the case of young trees which may be growing too fast. *Geo. Wythes, Syon House, Brentford.*

THE ORCHID HOUSES.

VANDAS.—Where collections of these species of Orchids exist, few other plants will be found more attractive. *V. suavis* and *V. tricolor* and their varieties grow into large specimens, and produce a good number of flower-spikes of showy flowers, which endure a long time. I have kept the flowers of *V. suavis* and *V. tricolor* in perfection for six weeks, but it is not a practice I would generally recommend, as it leads to the plants shedding a number of their lower leaves. It is difficult to gauge how many spikes of flowers it will be proper to leave on a plant so as to prevent this shedding of leaves, but much will depend on the vigour of the plant, also the temperature and the degree of atmospheric moisture to which it has been subjected. I have seen these *Vandas* growing magnificently in a fruiting Pine-pit, and I have also seen them placed with *Odontoglossums* in a much cooler house. In the first instance, a spike of flowers was evidently a rarity; in the second, too many spikes showed for the size of plant, and the small growth that was made, showed in that case that a little more warmth afforded would have had beneficial results. Our plants are never given more warmth than 60° by fire-heat alone; and in the summer season, when the plants grow, the temperature may sometimes run up as high as 90° or 95° after the plants have been well syringed, and the house closed, which is about 3 P.M.; by 6 o'clock the moisture has condensed, and air is then given, and continued during the night, which not only gives added stamina to the plants, but assists in keeping insects in check. The *Vandas*, I find, that do well under these conditions are *V. suavis*, *tricolor*, *insigne*, *lamellata*, *Boxallii*, *Kimballiana*, *Ameisiana*, and *cœrulea*, the latter being placed in such a position that it gets the fullest amount of air. Those of the *Vandas* not mentioned above, and which require a warmer treatment, I will treat of in a future calendar. *A. G. Catt, Parkfield, Hallow, Worcester.*

PLANTS AND THEIR CULTURE.

THE GREENHOUSES.—Soft-wooded plants grown for summer and autumn decoration, as *Cape Pelargoniums*, of the type of *Rollisson's Unique*, *Fair Helen*, *quercifolium*, the sweet-scented foliage species, and zonals, may be shifted, stopped at the points, and tied-out. The Ivy-leaf species or its varieties should be shifted, and afforded a little more warmth than zonals. With these there should be no over-potting. *Lantanas*, *Heliotropes*, and *Plumbago capensis* should be shifted and trained either as bushes or standards.

AQUATICS.—This interesting class of plants is much admired, and should, I think, where accommodation can be made for them, be more generally grown than they are. Where a house can be devoted entirely to the plants, their cultivation is a very simple matter. But as it is only a few gardens which can boast of a house specially constructed for their cultivation, those of the plants which grow fairly well in more moderate warmth are such as should be selected. Small tanks of slates, wood, or brickwork set in cement, and coated inside and out with cement, do very well for these. The tanks may stand in stove, forcing, or intermediate-house, where the temperature does not fall below 55° at night, or rise higher than 80° by day, with sun-heat. In all cases let the tanks be so placed that they will get as much direct sunlight as possible. One very essential point in the successful cultivation of aquatics is that the water in the tanks should be kept fresh and sweet by having a fresh supply frequently; and, if possible, it would be best to have a constant supply, and the tank fitted with an overflow-pipe leading from the upper tank to the lower one, so that the water might be in motion constantly—but care is required to keep the temperature of the same up to 65° to 70° Fahr. *Valisneria spiralis*, *Nelumbium speciosum*, *Nymphæas pygmaea*, *gigantea*, and *cœrulea*, *Limnorchis Humboldtii*, *L. Plumieri*, and *Limnanthemum nymphaeoides* delight in good sound loam, in which they should be potted, the pots being immersed to the depth of 12 to 18 inches.

The smaller-growing varieties, such as *Pistia stratiotes*, *Pondetia crassipes*, and *P. lanceolata*, the latter name and variety being hardy in nearly all

districts, and also *Myriophyllum proserpinacoides*, which is one of the best of the floating aquatics. The house should be closed early in the afternoon, afterwards thoroughly syringing the walls, the plants, and damping the floors. These plants do not require shading of any description.

GREENHOUSE RHODODENDRONS.—The season is now at hand to repot any of this class of plants which require more pot room. The best material to grow them in is good turfy peat, not too close in texture, and sufficient sharp silver sand to keep it porous for a long time, as it must be borne in mind that they will not require to be repotted for several years. When potting, make the material quite firm with a potting stick, and put in good clean crocks and in quantity to make perfect drainage. The newer hybrids and varieties show a marked improvement in size of blooms and truss, as also in brilliancy of colour and form; and by making a good selection they may be had in flower during the greater part of the year. As their growth is rather slow whilst young, they do not require large pots, and when shifting any of them, even when in perfect health, they will not need pots that are more than two sizes larger than those they previously occupied.

After repotting, keep the plants closer than usual until such time as the roots have commenced to grow, and should any strong growths be taking an undue lead, bend these downwards, making them secure to a neat stake, which will cause them to break well. This is better for flowering plants than cutting back, as no flowers are thereby sacrificed. There is no objection to the use of the knife in a moderate degree on young plants when laying the foundation of the future head. *R. Milner, Penrice Castle, Swansea.*

THE FLOWER GARDEN.

PRELIMINARY WORK.—Although the weather is quite March-like at the time of writing this, instead of genial as we expect it to be after the middle of April, the flower gardener must be up and doing, as a change for the better will soon come, and it is necessary to push on operations with all speed now, in order to lessen the pressure of work when the bedding season arrives, which will be soon. The first preliminary is to get all the beds in order, by seeing to the edgings, and getting them relaid, made up, or repaired, as the case may be; and then trench, or deeply dig the ground—the latter a point of much importance in securing good growth and a continuance of bloom. *Pelargoniums* and such like subjects should not have manure, but many others are greatly benefited by a good dressing, if the ground they are to be turned out into is at all poor, among which may be mentioned *Calceolarias*, *Violas*, *Pansies*, *Verbenas*, and fine foliage plants generally; but in all cases it is advisable to keep it well below the surface, as it is not wanted during the earlier stages of the plant's growth, but is of great use just before and when they come into flower, as then it helps to feed and sustain and make them equal to the strain laid upon them.

PREPARING PLANTS.—Much labour may be saved in preparing the ordinary run of bedding plants by making up gentle hotbeds for the more tender, and utilising any spare frames for others more hardy, as by having a thin layer of light rich soil, hosts of freshly-struck cuttings and seedlings may then be pricked out, instead of being potted, and under such conditions they grow very fast, take up much less room, lift and go out into the beds far better, as they may be taken up with nice little balls full of roots, that lay hold of the soil, and start off at once. Among those that lend themselves best to this mode of treatment may be mentioned *Coleus*, *Iresine*, *Alternanthera*, *Lobelia*, *Ageratum*, *Asters*, *Stocks*, and *Zinnia*, and it is a good time to sow the three last-named now, as it is quite soon enough, for when raised earlier they often get a check, become stunted, and never do well afterwards. It is the same with *Maize* and *Ricinus*, and other quick-growing subjects like them; but *Cannas* take many weeks to get into useful size, and seedlings of these should be pushed on in heat, and old plants divided, where increase is desired, and started, so as to forward them for planting out and producing an early effect in the beds.

HARDENING PLANTS.—The hardening-off of bedding-plants is one of the most important matters connected with the flower garden, as without gradual preparation before planting-out, the sudden change

is too much for many of them, and the check so great that they are a long time in recovering. Even the hardening, without due care, may be carried too far, and instead of full exposure, the glass should be kept over the plants, and plenty of air given till the leaves become firm, and will bear fuller exposure, when the lights may be drawn off for a few hours during the warmest part of the day. *Pelargoniums* and similar plants brought from under Vines and Peach trees often take much harm when they are put into cold frames, as the full sunlight that they get burns the foliage. To prevent this injury, they should be thinly shaded for a time and kept rather close, and then treated in the same manner as the others mentioned above.

HARDY PLANTS.—These are now on the move, and it is a good time to divide and transplant any that are not too advanced, as when just starting and making fresh shoots and growth, the wounded parts heal readily, and new roots quickly form. Not only is this so, but many of the perennials are all the better for being dug up and moved, as they exhaust the ground near; and they grow more strongly when transferred to fresh positions; and if they have to go in the same places again, it is an easy matter to dig the ground deeply, and work in a good lot of rotten manure. Any that are not lifted will be much benefited by having a top-dressing laid immediately around them, or just forked into the surface; and borders that have got low should have a few inches of fresh soil added, which will greatly assist the plants.

EVERGREEN SHRUBS.—These are very backward this season, and planting may still be carried out in perfect safety, for till the leaf-buds burst, they will take no harm, provided they are not kept out of the ground for any length of time, and not allowed to flag more than can be helped. To prevent this, a sprinkling of water afforded overhead is a great help to them, and also damping the roots and covering them with wet mats until planted. Others that have been transplanted will require to have their tops sprinkled daily if dry winds prevail, as during such a time there is much loss of sap by leaf evaporation, and if the bark shrinks owing to this the plants suffer greatly.

PRUNING AND THINNING EVERGREENS.—These operations are very necessary if evergreen shrubs are to be kept in good order, and especially so in the case of any that are planted as screens, which soon get bare below if the heads are not lightened and air let in, which should be done annually by removing or cutting out any branches that cross or are in any way crowded, as then the plants will soon break again and become furnished below. *J. Sheppard, Woolverstone Park, Ipswich.*

THE KITCHEN GARDEN.

GLOBE ARTICHOKE.—The protection around these plants should now be removed, and any of it that is sufficiently decayed may remain to be forked in about the plants, if they failed to crop well last year. If the stools are very weak, take out a space round each to a width of 18 inches, and down to the roots, and fill it with rotten horse-dung. And to have very strong plants, some of the suckers should be removed entirely, only three or four of the stronger ones being kept on each stool. If required for new plantations, these suckers may be potted in smallish pots, and grown in a gentle warmth, to be finally planted out. Artichoke suckers should always be taken off with a heel, and, if possible, some roots also. Well-enriched trenched ground should be chosen for planting, and the plants put out in rows 3 feet apart, the plants being arranged in clumps of three at 3 feet apart clump from clump.

BEDS OF HERBS.—Re-arrange and replant any of the beds which may stand in need of this. Perennial kinds may be propagated by division, but *Lavender*, *Rue*, and *Sage* are best increased by layers or cuttings under a hand-glass placed in a shady place out of doors. Herbs usually treated as annuals may be sown broadcast separately in beds of light rich soil in a warm situation, covering the seed very lightly with fine soil. These kinds include *knotted Marjoram*, *Borage*, *Caraway*, *Chervil*, and *Coriander*; the two last-named soon run to seed, and small sowings should be made once a month throughout the summer. Sweet Basil is better at this time of year sown in heat and planted out in June. *Tarragon* and *Spear Mint* (sufficient of these two kinds) should be planted in large pots or large boxes, to

meet the winter demands, to be stood outside, and attended to during the year.

Sorrel is in many establishments much in request as a vegetable and a salad. There are two varieties, but that which has broad leaves is the better one. If old roots exist, these should be dug up and divided into small rooted portions, and planted in lines as edgings to walks, or in lines in beds, at 18 inches apart. In order to secure a constant supply of succulent leaves, the flower-stalks should be cut off as they come up.

Of *Spear Mint*, plantations may now be made on a cool moist soil, young shoots about 2 inches long, with roots attached, being carefully lifted and planted in rows 6 inches apart, the beds being well watered afterwards.

SEED SOWING.—Onions for pickling should now be sown on a piece of poor dry ground, made fine on the surface, and the seed sown thickly, but evenly broadcast, covered lightly, and the land rolled or trodden. The crop should not be thinned, and all weeds must be hand-pulled. The best picklers are *Queen* and *Paris Silver Skinned*. Dwarf *Kidney Beans* may be sown on a warm border, in rows 15 inches apart, and the seed dropped in twos and threes at 1 foot apart in the rows; or they may be raised in gentle heat, and planted out when ready. Boxes or pots may be used. *Snowball*, *Early Malin*, and *Early Silver Ball Turnips* may be sown on rich well-prepared soil in very shallow drills 12 inches apart, and a sprinkling of guano or superphosphate sown in the drills with the seed. Sow thinly, and close the drills with the feet. Do not sow large breadths of Turnips, as these early sowings sometimes run to seed quickly without making bulbs. The spent fermenting materials on *Seakale* and *Rhubarb* beds must be removed, so that the ground may be manured and forked-up. *C. J. Waite, Glenhurst, Esher.*

THE HARDY FRUIT GARDEN.

STRAWBERRY PLANTS.—Plants layered in July last in small pots, and subsequently planted out on a warm border for furnishing an early supply of fruit, will be throwing up their flower trusses, and if they are sheltered on nights when frost threatens, these will set freely, and the ripe fruit will be fit to gather fully a fortnight earlier than from plants in the more open quarters. I, knowing how valuable early outdoor fruits are, cannot help remarking how much of our snug borders are very generally planted with less important plants than Strawberries. *Vicomtesse Héricart du Thury*, *La Grosse Sucrée*, and *Noble* are capital early sorts; and notwithstanding that the latter is somewhat wanting in flavour, the fruit is large and bright-coloured—and earliness and size are important points. See that the usual littering down of the beds is done sufficiently early to prevent the fruits getting spoiled.

RASPBERRIES.—Canes late-planted may now be cut down to within a few inches of the ground, and should many suckers spring up, they should be reduced to half-a-dozen. Make the soil about them firm by treading, and mulch it with some suitable kind of manure; more especially should mulching be done if the soil is of a light kind.

In old Raspberry quarters, suckers will spring up in all directions, and if these are not required for increase, all excepting five to seven round a stool should be pulled up.

CUTTINGS OF GOOSEBERRIES AND CURRANTS.—Where these were put into the soil early in the winter, or before the hard frosts, the soil will have become loose, and stand in need of a good trampling, or the cuttings will be liable to dry up. When the land gets dry again, run the Dutch hoe between the lines of cuttings, so as to leave a surface that will not crack in dry weather. Late cuttings of these fruits should not be allowed to suffer from want of water during the prevalence of hard winds. *H. Markham, Mereworth Castle, Maidstone.*

THE DAFFODIL.—The favourite flower of Mohammed was the *Narcissus*, probably the yellow Daffodil, which grows abundantly all through western Asia, and he gave his followers the following counsel:—"Whoever has two loaves of bread, let him trade one for a blossom of *Narcissus*; for bread is nourishment for the body, but the *Narcissus* is food for the soul." *Garden and Forest.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, and sent as early in the week as possible.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, APRIL 21 { Royal Horticultural Society: Committee, and Lecture on Cape Bulbs, at Westminster.

SHOWS.

TUESDAY, APRIL 21 { National Primula and Auricula Society, at James' Street, Westminster.

WEDNESDAY, APRIL 22 { Royal Botanic Society, at Regent's Park.

THURSDAY, APRIL 23 { York, Ancient Society of Florists.

SALES.

TUESDAY, APRIL 21 { Collection of Established Orchids, formed by R. H. Marks, Esq., of Beckenham, at Protheroe & Morris' Rooms.

WEDNESDAY, APRIL 22 { Stove and Greenhouse Plants, Shrubs, and Conifers, Border Plants, Bulbs, &c., at Stevens' Rooms.

THURSDAY, APRIL 23 { Palm Seeds, Japanese Lilies, &c., at Protheroe & Morris' Rooms.

FRIDAY, APRIL 24 { Orchids in Flower and Bud, Brazilian Orchids, &c., at Stevens' Rooms.

SATURDAY, APRIL 25 { Imported Orchids at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—49°·2.

Greenhouse Palms.

TIME was when gardeners and others who took an interest in gardening matters in this country, had little regard for elegance and beauty of form in the plants they grew. So much so, that plants which did not produce showy flowers were not much thought of, and received little attention. A few of the commoner kinds of Ferns were usually to be met with in the plant-houses where gardening to any considerable extent was carried out; but as for Palms, the most elegant of all plants that will submit to pot culture, we can well recollect the time when it would have been a difficult matter to have found half-a-dozen in any county, excepting perhaps the few that existed in the limited number of botanic gardens. Little was attempted beyond the cultivation of flowering subjects, and in the arrangement of these in greenhouses and conservatories, one rarely met with any attempt at effective grouping, beyond filling the formal sloping stage that used to do duty in most plant structures, with plants of equal height, which presented an even unbroken slope, as formal as the roof of the house that enclosed them. There was not much done in the way of decorating dwellings with plants, and that which was attempted was usually of a common-place character.

Now all this is changed. In plant-houses there are generally several kinds that are grown for the effective character of their foliage, or the elegant contour of the plant as a whole. Amongst these, Palms play a conspicuous part. As a matter of course, the cool sorts, such as will thrive in a greenhouse, are the most useful, inasmuch as they can be used at all seasons in cool quarters, without suffering in the way that the more tender heat-requiring species do if kept in the winter for any

length of time out of warmth. Of the greenhouse kind, the Kentias hold the first place. In a small state they are pretty and effective; but it is when the plants get from 4 to 8 or 10 feet high, and begin to show something of their true character, that their elegant habit becomes apparent. There is less difference in the appearance of the four or five kinds most usually met with than there is in that of most things which have got a distinctive name; a difference in the size and length of the leaves, and in the length and curve of the individual pinnules, being the only difference existent. *K. Belmoreana* and *K. Fosteriana* are the forms mostly grown, and are enough for ordinary purposes.

One of the best properties these Kentias possess is their easy cultivation, and the absence of injury by being kept for any reasonable length of time in a living-room; in fact, if stood continuously near a moderate-sized window, where they will get a fair amount of light, they thrive and maintain themselves in a condition, little, if at all, inferior to that which results when they are kept in a plant-house; only, as might be supposed, their progress is slower. We know of plants that have been kept for four or five years in a room, and which, when first introduced, were not more than 3 feet high, whilst now they are from 6 to 7 feet, and are perfect in the development and colour of the leaves.

In the cultivation of these plants, one of the first essentials is to draw the line between cramping the roots too much and over-potting. Of the two evils, the last-named is the worse, either when they are grown in a plant-house or a living room; for if there is too much soil about the roots, and any deficiency occurs in the drainage, or too much water be given, especially in the winter when the growth is moving slowly, the roots are apt to suffer, and when larger pots than necessary are used for plants that are kept in a house where there is anything more than a greenhouse temperature, it hastens the time when they get too large for the purpose they are required, a condition which is the reverse of desirable. A 12-inch pot is large enough for a specimen 6 or 7 feet high, for with the aid of a little concentrated manure, such as Clay's or Standen's, applied to the surface of the soil three or four times during the summer, or manure-water given at intervals, the requisite vigour can be maintained.

As to soil, like most Palms, they are not particular. They will thrive in anything from peat of a moderately light fibrous nature to a mixture of half loam and pulverised clay; but some growers prefer yellow loam, such as can be had in Kent and some of the other southern counties, with enough sand added to it to enable the water to pass off. The drainage requires to be efficient, and in potting, enough fibrous matter should be placed over the crocks to prevent the soil getting washed down amongst them.

In respect to water, Kentias require ordinary treatment. The soil must never be allowed to get so dry that the roots cannot absorb as much moisture from it as will compensate for that which is given off from the leaves; at the same time, the plants should not be watered, even in the summer, before the soil is approaching a moderately dry condition. From the time the plants are in 5 or 6-inch pots to their approaching an effective size, where they are required to be got up to this without delay, they do well in a vinery where sufficient space is allowed by not standing them close together. Under the shade of the Vines the leaf stalks get a little drawn up, and the whole plants assume more of an erect character, in which condition they have a more elegant appearance, as height, rather than the lateral spread of the leaves, is what in most cases is wanted.

When grown in a dwelling, the plants should be occasionally taken out and well syringed and sponged to free them from dust; this is alike necessary for their appearance as it is for maintaining a healthy condition.

Kentias are now fast taking the place of *Seafortia elegans*, another beautiful-habited Palm that a few years back was very much used for room and

hall furnishing, but which will not submit to anything like the wear and tear of frequent removal in the way that the harder texture of the leaves of the Kentia enables them to. Another drawback to the use of the *Seafortia* is that, if kept for any time in a hall or room where there is less light than it likes, the leaves assume a sickly yellow colour, whereas the Kentias are indifferent to this, retaining their bright green hue under conditions that would be fatal to the appearance of many plants.

SUPPLEMENT ILLUSTRATION.—The Daffodils shown in our Supplement of this week were taken from plants grown by Mr. COWAN, Valley Field, Pennycuik, Edinburgh, and photographed by Mr. W. COOKE, of Edinburgh. The varieties seen in the picture, as reduced to one-half of their real size, are Sir Watkin, Empress, Duchess of Westminster, Grandis, Michael Foster, Emperor, and J. B. Camm, all of them showy trumpet Daffodils of good constitution and generally robust habit of growth. Some of our readers will doubtless find fault with the arrangement of the flowers, with no foils to set off their charms. All we can say to them in extenuation is, that perhaps the necessities of the art of photography demanded that no greenery should be visible. In any case, Daffodils are amongst the best of cut flowers, if we only cut them just before they expand, and put them in water in a warm room until expansion takes place. We are glad to offer our congratulations to Mr. COWAN, on his success on Tuesday last.

THE WEST INDIES.—Under the auspices of the Royal Colonial Institute, a meeting, with Sir H. BARKLY in the chair, was held in the Whitehall Room, Hôtel Métropole, Northumberland Avenue, on Tuesday, April 14, when Mr. MORRIS, Assistant-Director of Kew, gave a Lecture on the Leeward Islands belonging to Great Britain, touching slightly on those under the French. The paper was of considerable length, occupying two hours in delivery, and was excellently illustrated by a series of magic lantern-slides, some of them of much beauty. The speaker described in some detail the physical features of the islands, their salubrious climate so well adapted for the delicate and infirm, the towns, harbours, roadsteads, plantations of Coffee, Limes, Cocoa-nut Palms, Sugar-cane, and others. He pointed out how in Antigua, a variety of products are now being grown in place of the once-universal Sugar-cane, the cultivation of which, owing to the competition it incurs from the Sugar-Beet, is in partial decadence. The great value of Kew, and its allied colonial botanical gardens, as sources of information on all matters of colonial importance where plants having commercial value are tested and reported, was dwelt upon, several striking instances of this being given. The lecturer concluded by saying that the islands had suffered from want of capital, from want of good internal communication by roads and railways, and from want of a rapid and suitable steam communication with the markets of the outer world. All these were in course of being supplied, and there was also a likelihood that good hotels would be built, and visitors encouraged to make their winter homes in these beautiful islands.

IRIS FOSTERI, a flower of which was shown at the Royal Horticultural Society on Tuesday last, is a gem. The flower is about the size of that of *I. reticulata*, the sepals and standards are primrose-yellow, erect, bent over at the top with a reflected deep yellow limb, from whose centre projects a narrow keel. The petals or falls are about half the size of the sepals, each has a long, narrow channelled stalk bent downwards, and an oblong, spoon-shaped, deep violet limb; the petal-like styles are also primrose-yellow. The combination of the pale yellow and the violet is very lovely.

LECTURE ON LACHENALIAS.—On the occasion of the meeting of the Royal Horticultural Society at the Drill Hall, Westminster, on Tuesday last, a paper on "Lachenalias" was read by Mr. MOORE, of



GROUP OF DAFFODILS.

Glaznevin Botanic Gardens. The paper, which was listened to throughout with great attention, despite its length, treated very fully of the popular species of *Lachenalia*, and also of those of merely botanical interest. The general form of the plants, their flower, leaves, roots, &c., were described individually, and in most instances dried specimens of them were shown on sheets of paper alongside correctly-coloured truthful delineations of the same. The cultivation and the history of each gave additional interest to the paper. Mr. MOORE had evidently spared no pains in working up his subject.

OUR PUBLISHING ARRANGEMENTS.—In consequence of the death of Mr. W. RICHARDS, Mr. A. G. MARTIN has been appointed as Publisher; while Mr. LEONARD BARRON, heretofore of the Editorial Staff, will undertake the duties of Advertisement Manager. All communications relating to the business of the paper should be addressed "Publisher."

BARTRAM'S GARDEN.—The city of Philadelphia has, owing mainly to the exertions of Mr. MEEHAN, succeeded in obtaining possession of almost the first botanic garden founded in the colonies. It was planted in 1720 by JOHN BARTRAM, then only nineteen years of age, who was a most enthusiastic botanist and student. His son WILLIAM, who was born at the garden in 1739, was as greatly interested in all that related to plants as was his father; in addition to the work of the farm which they owned both found time to collect such plants as made the gardens famous and unrivalled. The elder BARTRAM died in 1777, aged seventy-seven, but the work was energetically continued by his son WILLIAM. The latter, amongst other accomplishments, had a considerable love and talent for drawing. He travelled constantly, and published accounts of his wanderings. He died, unmarried, in 1823, in the eighty-fifth year of his age, having retained his faculties to the end. A few minutes only before his decease he had penned a description of some favourite plant.

THE AURICULA.—The annual exhibition of the National Auricula Society, Southern Section, will be held in connection with the bi-monthly meeting of the Royal Horticultural Society, at the Drill Hall, Westminster, on Tuesday next, and there is reason to believe the display, owing to the very late cold and dull season, will be smaller than usual. Even those who grow their plants under the most favourable circumstances, are experiencing considerable difficulty in getting them sufficiently advanced in bloom. The selfs, which are generally earlier, and which expand their pips much more quickly than the edged varieties, will be pretty well represented. The stately green-edged sorts open very slowly, and some growers despair of getting the pips of their choicest varieties open by the 21st. We have seen a few fine grey edges, but with some growers they appear to be somewhat unsatisfactory. We have recently made an inspection of the Reading collections, and think the growers will be able to give a good account of themselves on the 21st, though the fixing of date a week later would have suited them better. The alpine varieties are opening freely, and we think they will be seen in good condition on Tuesday, though scarcely so numerous as usual. The Primroses and Polyanthus are unusually late; but under the influence of warm sunny weather, they will come on very fast. Such weather is badly needed to ensure a full display on Tuesday next. The alpine species of Primroses should be seen at their best; generally some of them are past their prime by the third week in April. The dull cold weather has operated to keep back these, and the early-flowering Himalayan species. But despite these drawbacks, we may hope that the Auricula will put in as good an appearance, and in almost as large numbers as in former years.

A NEW INDUSTRY FOR WOMEN.—An association of women is about to start in business to undertake by contract the care of London conservatories, window-boxes, balconies, and small gardens by the year, season, or month. The members of the associa-

tion will themselves attend to all orders, employing men for the digging and rough work only. Plants will be received and tended at the premises of the association during the absence of the owner from town. The title of this new business is the Women's London Gardening Association.

THE BIRMINGHAM GARDENERS' ASSOCIATION.—At the closing meeting of the winter session, on April 6, Mr. H. E. MILNER, F.L.S., read a paper on "The Influence of Art in Practical Landscape Gardening," and both by his well-prepared paper, and in his replies to some questions from various members, imparted much valuable information. A vote of thanks was passed to him, the proposer alluding to the high position his late father attained as a landscape gardener, and that Highbury, the residence of the Right Hon. JOSEPH CHAMBERLAIN, M.P., was one of the examples of his work in Birmingham.

CHARD.—A correspondent informs us that a Chrysanthemum and Fruit Show will be held at Chard, Somersetshire, in November next, when more than £50 will be offered in prizes. This will be the first Chrysanthemum Show held in that town.

"POTATO CULTURE FOR THE MILLION," is the title of a pamphlet written by our old correspondent Mr. H. W. WARD, of Longford Castle Gardens.

THE FIRST SWALLOW.—This summer visitor was seen about Chard, on April 1, but it has since disappeared to warmer parts, the weather having recently been very cold in that part of the country.

THE SURVEYORS' INSTITUTION.—The next meeting will be held on Monday, April 20, when a paper will be read by Mr. ARTHUR VERNON (Fellow), entitled "Estate Fencing." The chair will be taken at 8 o'clock.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The quarterly meeting of this Society was held on Monday evening last at the Caledonian Hotel, Mr. Nathan Cole in the chair. Six new members were elected, making a total of twenty-five in the three months. Two members have died during the quarter—Mr. J. W. VINE, of Oak Park, Tralee; and Mr. R. H. BARD, of Forest Hill. The amounts standing to the credit of the members deceased were paid to the respective widows at the March meeting, and the committee has also granted a donation of £5 from the Benevolent Fund, to Mrs. VINE, she having been left with four young children. A general meeting took place at the conclusion of the committee meeting for the purpose of altering Rule 20, respecting the date of the annual meeting. The rule will now read, "second Monday in March," instead of "second Monday in February."

TOMATOS.—Relating to experiments with various sorts of Tomatos, Mr. L. R. TAFT, writing in the *Bulletin* of the Michigan Agricultural College, says:—"This year's test of new varieties shows that some of the seedsmen are practising what would be considered in larger matters a state prison offence. A large portion of the new varieties are only old ones re-named, and as they are brought out with extravagant representations, and at a price from two to four times as great as is charged for the same thing under its proper name, it looks as if a clear case of obtaining money under false pretences could be made out of it. The wide-awake enterprising market gardener is eager to obtain the new and valuable varieties, but if the present practice of some of the seedsmen is persisted in, it will certainly lead to the injury of all, as rather than trust to the chances of obtaining a valuable novelty, the gardeners will depend on such kinds as have been well-tested, and are known to be valuable." Further on, the same writer, when speaking of the working of the college, explains that: "The greater portion of the work of planting, cultivating, and growing the crops treated of, has been done by the members of the junior class of the college, who are assigned to this department for three hours each day throughout the college year, for practical instruction

in horticulture. They have thus become familiar with the methods of vegetable culture, and have also had an excellent opportunity of studying the characteristics, and learning the merits of the different varieties. In this work they have been under the direct charge of my assistants, thus securing accuracy, and rendering the work far more instructive."

A NARCOTIC GRASS.—*Stipa viridula* of Trinius, var. *robusta*, is a variety common in New Mexico, and which has a most injurious effect upon horses and sheep who are so unfortunate as to feed upon it. Cattle who have once tasted it, never again do so; but upon strange animals who do not avoid it, it acts as a strong narcotic or sedative. It is as poison to them, especially in the spring, when the blades first appear, causing a "profound sleep or stupor, lasting twenty-four to forty-eight hours, when the animals rally and give no evidence of bad effect." It is widely known, and avoided, by the natives as "Sleepy Grass." We read (also in *Garden and Forest*) that the species *Stipa viridula* is much esteemed as a pasture or hay-grass, and that it possesses none of the injurious qualities of the variety *robusta*.

POTATO EXPERIMENTS.—A recent *Bulletin* from the State Agricultural College of Michigan, contains the result of many experiments made with the "more important vegetables, together with brief notes, and a summary of the results obtained." Speaking of Potatos, the writer, Mr. L. R. TAFT, says:—"The wild Mexican variety has been grown for a number of years, and has greatly increased in size and yield. The eyes are rather deep, and it is too coarse to be a valuable variety. The *Solanum Jamesii* has shown itself much less susceptible to improvement, and we have been able to detect no increase in the size, which is about three-fourths of an inch in diameter."

ODONTOGLOSSUM ROSSI MAJUS VAR.—From THOS. EVANS, Esq., of Liverpool, come flowers of an extraordinary form of this plant. It is the darkest and richest in colour of any we have seen. The sepals are almost entirely filled up with blotches of rich chestnut brown, only a slight veining of white showing between the blotches; the white petals with faint rose lines have a number of reddish-brown blotches merging into one cloudy patch, extending over about half-an-inch at the base of each petal. The lip is narrower, and more trowel-shaped than the ordinary form; the blade coloured like the tips of the petals, i.e., white with rose lines; the callus at the base is yellow, with fine purple lines on its superior surface. Mr. EVANS might well call it his variety, although the species is so variable that it is difficult to indicate a well-defined character which will not appear in other forms.

BRITISH FLORA AT SOUTH KENSINGTON.—The Herbarium of British plants at the Natural History Museum at South Kensington has recently been completed by the addition of a collection of British mosses. These, as well as other specimens, are intended for educational purposes, and are specially arranged for convenience in examination, being so placed, that even when covered with glass they can be seen under a lens. There are in the hall devoted to them four large pillars, and around each pillar twenty-four movable frames, so arranged that the glazed pages contained in them, to which the specimens are fixed, can be turned over, almost as if they were the pages of a huge upright book. Illustrations of each plant, and coloured diagrams of its parts, are appended, and the whole Herbarium is now, not only of the greatest use to all students who have access to it, but in its arrangements is a worthy model for colonial or provincial museums.

MR. CUTLER'S SUCCESSOR.—We learn that, out of over 300 applicants, Mr. GEORGE J. INGRAM, Secretary "of the Homes for Working Boys in London," Buckingham Street, Strand, has been appointed Secretary to the Gardeners' Royal Benevolent Institution, in the place of the late Mr. R. E. CUTLER.

HIBBERD MEMORIAL FUND.—The Committee beg leave to announce that this fund, instituted for the purpose of securing a portrait of the late Mr. HIBBERD, to be placed in the Lindley Library, and with the object of securing a fund for the benefit of Mr. HIBBERD's orphan daughter, will be closed on April 30, 1891, and they particularly request that all subscriptions may be paid to the Treasurer on or before that day. The amount received or promised up to this date, is about £240, a sum which it is hoped may be considerably augmented before the closure of the fund, especially by the receipt of numerous small sums from the many who hold Mr. HIBBERD's name in respect. Subscriptions should be sent to the Treasurer of the Fund, Dr. MASTERS, at the Royal Horticultural Society, 117, Victoria Street, Westminster.

TREES AND SHRUBS.

DOUGLAS' SPRUCE.

This is unquestionably not only a noble tree, but one of the most valuable Conifers ever introduced, as it grows with great rapidity in the most diverse soils, and is full of resin, the wood being very solid and heavy, and fit for most purposes for which timber is used. During the last thirty years it has been largely planted here, and the progress of the trees has been more rapid than that of the Larch, as many of them make leading shoots from 3 to 5 feet long. All of the trees look in luxuriant health. It is, however, not a tree that is adapted for exposed situations, but needs shelter such as is afforded by planting it among other trees,—at least, that is my experience, as I find those which stand apart from the shelter of others its needles get brown, and are otherwise injured, the tree rarely doing well. As to there being inferior varieties of *Abies Douglasii*, as stated by Mr. C. Leach in a previous issue, I can only say that I have never noticed the slightest difference in many that we have, except that one has a pendulous habit, and it is likely that any deviation in characteristics is due to soil and situation, and the state of health of the tree. With regard to Lindley, and the remarks Mr. Leach made about him, he surely could not have known the kindly Professor, who was too much of a friend of gardeners to designate one as mad, and advise his instant dismissal for an act like that of planting a tree where, if the water could get freely away, as is often the case in marshy places, it would be sure to do well, as a moist root-run is essential; or, if not essential, most certainly helpful, to most of the Conifers. *J. Sheppard, Woolverstone Park, Ipswich.*

CEPHALOTAXUS FORTUNEI.

This grand tree is rather tender, and unless planted in sheltered situations and on warm soils, it is difficult to maintain it in a healthy state. It should also not be planted under or very close to taller trees, as the drip from them is sure to affect it injuriously. It was introduced by R. Fortune, from North China in 1849. *H.*

[We would supplement our correspondent's remarks with some needful directions about propagation, which is by means of cuttings and imported seeds. The plants raised from seeds are preferable to those from cuttings, which take considerable time to root, and seldom have an erect leader unless the following directions be adhered to. The leader of a seedling plant some years old should be taken, using it as a cutting, a proceeding which has its advantages, for the shoots which break from the beheaded plant have—many of them—a great tendency to grow perpendicularly, and may in their turn be used for propagation. This fact is true of *Torreya*, *Arancaria*, *Taxus*, *Podocarpus*, and many of the genus *Pinus* from Mexico. Seeds may be sown in autumn in sandy loam, placing the pots in a cool house. The best periods to take cuttings are when vegetation begins to move, and when it ceases and the current year's shoots are approaching maturity. If the tree stands in a glasshouse, cuttings

may be taken from September to February and March. Cut the shoots smooth at the base, remove the needles as far up as the cutting will stand in the soil, and insert the latter singly in sandy peat, with plenty of drainage, putting the pots under bell-glasses in a propagating-pit with a temperature of 45° to 55°. The one pot, one cutting is best, the roots being very brittle, and, therefore, liable to break if disturbed. The time required by a cutting to form roots is about two months, but in that time the peat will have begun to decay through warmth, close air, and moisture, and as a consequence the callus will soon become black, rendering the formation of roots very difficult. To avoid this evil, the cuttings should be carefully turned out, and immediately repotted in fresh soil that has been well warmed. Usually roots follow this operation very quickly. When rooted, gradually inure to the outside air. *Ed.*]

VEGETABLES.

CELERY "STANDARD BEARER."

This variety has again proved here its good qualities as a late-keeping variety. The remains of the crop I have just had lifted, and laid in a dry place, the hearts being quite sound, and showing no tendency of running to seed, whereas Clarke's, and Sulham Prize, planted at the same time, began to run early in January. The soil here is a cold retentive one. *W. H. Stephens.*

—Standard Bearer has this season again stood the winter's inclemency better than any other Celery that we grew, and it is now being used. It is crisp, and sweet as a Nut, and now, April 13, we still have a good number fit for consumption. The plants came from a sowing made in the open air at the end of the month of May. *W. A. Cook, Compton Bassett.*

ASPARAGUS KALE.

This is one of the kinds of green vegetables which has withstood hard frost this past winter without injury, the others are Scotch Kale and Brussels Sprouts, and for tenderness and good flavour, it is by many persons preferred to those. The plants afford an immense quantity of sprouts during the months of March, April, and May. So well has the plant withstood frost this year, that in future I shall plant it largely, putting out fewer of the more tender kinds.

SPINACH VEITCH'S VICTORIA.

I grew this variety of Spinach for the first time last spring, when it was sown side by side with Monstruse de Viroflay, and was surprised by finding that it did not run to seed so soon as that one. The Viroflay variety is a fine Spinach, and I have depended on it for some years past in summer and winter. Last autumn I sowed the Victoria alongside of it, and find that it is equally hardy. Those gardeners who remain faithful to the old Round and Winter Prickly would dispense with them if once the Victoria and Viroflay were given a trial, the leaves being large and fine. *H. Markham.*

HARDY GREEN COLEWORT.

The above strain of "Greens," when sown and planted in succession, affords a long supply of toothsome little Cabbages, which have, in my case, come into use this year when everything else almost failed utterly. These Coleworts have a tendency to run to seed as soon as warm weather sets in, and to counteract this, we plant a late-sown lot of plants on a border facing north, thus prolonging the supply to a late date. The Rosette variety, I grow for autumn, and the hardy variety above named for later use, and obtain a good supply till Cabbages turn in, in May and June. This year I fear that the early Cabbages will not be plentiful, and Kales will have to be relied upon very generally. Some care is necessary in choosing a good strain of "Collards," as there are strains in the market that do not form good hearts until late in the season. The plants not growing large, may be planted close together, which

admits of large numbers being planted on a small piece of land, and being short in the leg, the leaves cover the ground entirely, and the plant is usually well protected by snow during our hardest frosts. *G. Wythes, Syon House.*

HOME CORRESPONDENCE.

IRIS RETICULATA.—This lovely early-blooming Iris claims a foremost place with all lovers of spring flowers. Few open-air blooming bulbous plants possess so many good qualities as does this Iris in early spring. Amongst its good qualities is its enduring nature when cut, the blooms being quite fresh ten days after being taken from the plants. The fragrance of the blooms is very grateful, not too powerful. It is not very particular as to soil. At Didlington Hall, Brandon, Norfolk, I have seen clumps of this Iris with from fifty to seventy bloom-spikes on them. *Prove.*

THE TOPIARIAN ART.—I note that Mr. John Pope, in a recent issue, in an interesting contention in favour of this quaint art of ornamental gardening, appears to labour under the impression that the ordinary training and pruning of fruit and other trees and shrubs for the purpose of keeping them under control, forms a section of topiary work. Mr. Pope, however, is evidently cognisant of the real signification of the term—if I may judge by his enthusiastic reference to the many evidences still in existence of the interesting, and happily not yet extinct, style of ornamental gardening in vogue about 300 years ago, being at that time prominently brought into notice, by the celebrated horticultural writer, John Evelyn; consequently, the exception in question may be considered as a mere inadvertence on the part of Mr. Pope, yet sufficiently open to correction. In addition to Mr. Pope's interesting notes, it may be further interesting to some of your readers were I to draw attention to one or two notable examples of old topiarian work, always of great renown in this country, and rendered still more so by the lapse of time since their formation—that at Hatfield House, the seat of the Marquis of Salisbury, being one of the most extensive and imposing, composed, as it is too, of Junipers, as well as Yews, but with comparatively few fanciful forms, the bolder work representing the walls, corridors, aisles, &c., of a castle. Excellent illustrations of one contained in the *Gardeners' Chronicle*, 1874, p. 502, with the addition of a most interesting history of the Gardens altogether. The "Topiarium" at Levens Hall, in Westmoreland, is of a yet more fanciful character, and the greater representation of figures of animals, birds, &c., including the British lion, Queen Elizabeth and ladies, the Judge's wig, a number of Yews planted in a half-circle, so as to form an arbour by training the branches over the top in a hood or wig-like fashion. This work was formed early in the eighteenth century. A more modern, but a less fantastic design of topiary work is that at Elvas-ton Castle, near Derby, the seat of the Earl of Harrington, a large proportion of which consists of ornamental hedges of the common Yew, and of single specimens, both of the common Yew and its golden variety, cut into conical pyramids of uniform size and height, and which there are many hundreds; the more prominent work represents features of a Norman castle similar to that at Hatfield. Of an entirely different and much more modern character, and perhaps also more pleasing and rational, is the comparatively small though fine example at Trentham Hall, the seat of the Duke of Sutherland. It is a composition of letters in dwarf Box, comprising the baptismal and surnames of the late duke's married daughters, and was formed nearly half a century ago. Regarding the introduction of the association of the Yew with gardening in England, it appears to have begun early in the sixteenth century, and was brought into prominent notice towards the end of the century as a topiarian subject by the celebrated horticultural historian Evelyn, when afterwards it became general during the next century. The topiary art is further immortalised by the poet, as instanced by Butler in his elegy—

"The weakness and misery of man."

"No topiary hedges of quickset was e'er so neatly cut or thickest."

Also, in Tennyson's *Enoch Arden*,

"The climbing street, the hill, the leafy lane."

The peacock Yew tree, and the lovely Hall." *Topiarius*, April 6, 1891.

STRAWBERRIES.—A well-known fruit cultivator, writing to me a few days since in reference to Strawberries, said, "Advise all your friends to make a fresh plantation of Strawberries once in three years, and never to trouble about plants more than three years old." All successful cultivators appear to concur in this opinion, and yet in many old-fashioned gardens can be found beds of Strawberries considerably older, but which have done their work, and some of the plants have gone blind. The advice that these should be rooted up and destroyed will, perhaps, be thought superfluous by some; but, be it remembered, gardens exist in which old beds remain. I was in one not long since where such a plantation exists, and on my remarking to the gardener that so old a bed must of necessity produce an unsatisfactory yield, he said, it gave quite enough for the family purposes. There may be exceptional cases, of course, but, as a general rule, a bed of Strawberries goes back after the third year's fruiting; hence the advantage, where it can be done, of making a fresh plantation every year. It is a questionable practice to take runners from exhausted plants. The method now usually adopted of growing plants expressly for runners, and not allowing them to carry fruit is a good one. Whether for forcing or planting out in the open, such plants are decidedly to be preferred. Fresh plantations should be made on ground that has not, for a time, carried Strawberries previously, if it can be managed. The soil of Strawberry beds cannot be dug without danger of doing injury to the plants, they can only be forked over as needed; and when the bed is destroyed, the ground needs thorough, and, if good soil admits, deep trenching and manuring for a crop of something else. I have known fine crops of fruit produced from the smaller and later-produced runners on beds, two years old, by planting them out in nursery beds at the end of the summer, and allowing them to remain a year before being placed in fruiting beds. Then, the soil being deep and rich, with good mulching in autumn, a copious watering when the late spring weather proves dry, excellent crops of fine fruit may be anticipated. R. D.

LETHORIAN VAPOUR CONE.—It is now some eighteen months ago since I first gave this new fumigator a trial; I had been sadly troubled with black thrips on *Eucharis*. Smoking with tobacco-paper only seemed to stupefy the insects for a few hours, after which they were as active as ever. I must say I was sceptical as to the result of this new remedy, for I had tried several of the new, highly recommended preparations, but all more or less proved wanting. The lighting of the cones is easily done, and the vapour arising from them is so thin, it seemed scarcely powerful enough to deal destruction to insect-life. Next day a careful search on the plants revealed no thrips. In about a week's time another fumigation was given to make sure. Now I find that by using the cones once in two or three months, black thrips can be completely kept under. Our next trial was with a house of *Orchids* affected with the yellow variety of thrips, which, as every grower knows, is very troublesome, and the Lethorian cleared the plants of this pest also. The cones are now used regularly for green-fly, black-fly, &c., and I am thoroughly satisfied with them. There is another recommendation for the Lethorian cones: they may be safely made use of in a house where the plants are in full bloom, or the plants have tender foliage. Recently, I had cause to use them for green-fly and yellow thrips in a house where there was a number of *Cattleyas* in full bloom suspended from the roof, and not a single flower was in the least injured, and most of the blooms are as perfect to-day, as when they first opened. I was at the Crystal Palace show on March 21, and having seen an advertisement in the *Gardeners' Chronicle* that a public trial of the cones was to be made, I was curious to see what plants and insects were to be experimented upon. Mr. Head, the superintendent of the gardens had got together a varied collection of plants infested with different species of insects. Among the plants were *Adiantums*, full of young fronds; *Cattleyas*, in bloom; Chinese *Primulas*, &c. The Maidenhair Ferns were laid on a shelf directly under the ridge and over the cones, and two No. 3 cones and one No. 2 cone, were made use of for a house containing about 2600 cubic feet, exactly as recommended by the inventors. On the following Monday at 12 noon, the plants were examined by a powerful lens, with the following result:—green-fly, thrips, and white scale, all killed; brown scale many dead, but where sheltered by foliage several were still alive, and of mealy-bug a large number were killed. It is said that if double

the quantity of cones be made use of, mealy-bug may be quite destroyed. For this I cannot vouch, but will make a trial later. Success in the use of the cones depends much on the sort of house, which should be as air-tight as possible, as the vapour being thin readily escapes. In conclusion, it may be said that gardeners who have not used the Lethorian cones should give them a trial, as I am certain they will not be disappointed. J. Anderson, *The Gardens, Streatham Green, Norwood, S.E.*

THE FRUIT CROP PROSPECTS.—Although most of us have been inveighing against the weather, a peculiarity with most Englishmen, there can be no two opinions among gardeners and pomologists but that it has been greatly in favour of the fruit crop, as the cold and general absence of sun has been the means of keeping the blossom-buds back, and so retarded their opening to a much later period than usual, which makes it almost a certainty now that their flowers will escape frost and have a good set. If so, we shall have great reason to congratulate ourselves on the return of such an old-fashioned winter, which for three months right off kept every tree and shrub ice-bound, and though part of February was mild, March began, continued, and ended with cold, and the same conditions have prevailed till the time of writing, and the only blooms which have ventured to open are those of the *Apricots*. These *Apricot* trees are still quite a picture, and yet, dull and cold as the weather is, the flowers are setting well, but then they have a double fish-net strained from the glass coping along in front of them, and at night a thick *Forlar* blind is drawn over that, and with these provisions I think we may safely look for a crop. *Pears* are very full of bud, especially pyramids on the *Quince* stock; some sorts have a superabundance, and would be all the better for a good thinning, and we generally do a little of this at the pruning season, but this year work was too pressing. *Apples* are equally promising, and if the old notion holds good [? Ed.], that sharp and continuous frosts are fatal to insect life, we ought not to be troubled with caterpillars this spring and summer, and if not there must, from present appearances, be a plethora of fruit. Judging from the look of *Plums*, there is every prospect of them being as plentiful as they were some years ago, when markets were glutted, but that will not be good for growers, at least under the same system of distribution in force then, but it is to be hoped that means will be found out to bring them more in touch with the consumers, and then a fair profit may be expected on sales by the producer. *Cherries* are also crowded with plump buds, which, however, do not seem to be inclined to open yet. *Peaches* and *Nectarines*, on the contrary, are showing colour, and a few warm sunny days will cause the great show of bloom to expand. The blossoms on bush fruits are showing in great abundance; and Strawberries are not in the least injured by the severe weather, as they were under a deep covering of snow all the time, and the enforced rest seems to have been good for them. J. Sheppard, *Woolverstone Park*.

—As far as one is able to judge at the present time, the prospect for a good crop of hardy fruit is very encouraging in this district. All kinds of fruit trees, with scarcely an exception, are literally covered with fruit buds. There was frost on March 9, and four succeeding nights, which killed many of the early-expanded blooms of *Peaches*, *Nectarines*, and *Apricots*; but given a favourable time from now onwards, there is every prospect of them setting a full crop. The fine weather which we experienced all through February, led us to fear a very early development and expansion of fruit buds, but all through March, and in fact up to the present time, April 13, the weather has been unusually cold, which has effectually retarded the expansion of the buds, and prevented what would really have been a most unfortunate affair for this year's fruit crop. R. Milner, *Penrice Castle, Swansea*.

VIOLETS.—It was to me a surprise to find Mr. H. Markham, in last week's issue, recommending bottom-heat for cuttings of *Violets*. My experience is, that *Violets* do not need heat at any time. It used to be considered that bottom-heat was required by the plants put into frames for winter-flowering; in fact, the practice is advocated by some persons in the horticultural press at the present time; but I maintain that it is a mistake, if abundance of bloom is to be taken for six months. Bottom-heat excites the growth far too much, terminating, as it does, in a crop of leaves, and when these are bearing freely, no flowers appear. By dividing frame-grown plants

any time this month, and planting them in light soil on a warm border, a full crop of flowers may be had in July or early in August at the latest, generally the former period. S. [A very mild warmth, such as would be afforded cuttings of *Pinks*, will hasten the rooting of *Violets*; but is not wanted for established plants, and Mr. Markham did not say that it was—our correspondent has, we think, misread the note in question. Ed.]

SMUT IN OATS.—Mr. Robert Brown, of Donaghmore, Tyrone, writes that he has found the treatment of heating the seed Oats a perfect cure for the smut. He tried it upon some seed Oats used by a neighbour of his last year, and found the result perfect; not a smutted head was to be seen in the whole crop. Charles B. Plowright, *M.D.*

GOLD LACE POLYANTHUS.—I am looking with considerable interest to see what sort of a representation of the somewhat over-praised gold-laced *Polyanthus* will be found at the *Auricula* show next week. It would seem, judging by what is represented to us in illustrations and in writings, that we are, in the production of really first-class exhibition flowers of these delicate *Polyanthuses*, a long way behind the florists of half-a-century since. If there are any really perfect and, to the florist's mind, beautiful forms of these, they somehow rarely come to London. Now and then we see a few pips of *Cheshire Favourite* or *Exile*, perhaps as good as they can be; but it is ever but a few pips, and invariably these two. All other sorts seem relatively poor, whilst seedling varieties are not infrequently wretched. Last year the late Mr. James, who used to do these *Polyanthuses* very well at *Isleworth* a generation since, showed some excellent pips of seedlings, some of considerable promise; but so far nothing more is known of them. The unfortunate feature of the gold-laced section is, that they seem to have exhausted their productive powers, so far as the development of quality as good as that of the parents, much less in the production of superior varieties. Probably we shall never get beyond the quality found in the sorts named above, whilst others held to be even superior to these seem to have almost died out. Are sections of plants, even though presumably hardy, much worth growing when they fail to produce their best qualities from seed? If the present year's show of gold-laced *Polyanthuses* is no better than those seen last year, they will be bad enough; and if they continue to be so poor, obviously the money spent in giving prizes to such poor things is merely wasted. If the section is a played-out one, then the prizes would be more usefully employed in striving to encourage the development of other varieties. A. D.

THE RELATIVE HARDINESS OF DARK AND LIGHT-COLOURED GREENS OR CURLED KALE.—It is rather difficult in the face of experience this spring to endorse the dictum of the jurors at the Vegetable conference at Chiswick, 1889, respecting the relative hardness of the two types of curled greens which is recorded on page 71 of the Report. There it is stated that preference is given to the dark-coloured variety "because it is assumed to be harder than the light-coloured, the extra fine curling of the latter being apparently regarded as an indication that it would not withstand cold weather so well as the former, which is more robust-looking and coarser in texture. Few living gardeners have seen green crops more severely tested in bygone years than they have been during the winter just past. About Edinburgh and in most other parts of Scotland little remains at the present time in marketable condition except curled greens, either light or dark, and *McEwan Cabbage*, the latter very much crippled by the severe frost and cold winds ushered in by March suddenly after the genial spring-like weather of February. *Broccolis* there are still alive, but they have been so severely injured that they are of meagre size, and the colour of the curl spoiled. Nothing has withstood the weather better than the various *Greens*, and the dwarf curled variety has been found to be equally hardy, if not more so, than the dark-coloured kind. I have noted the light-coloured variety during the winter in the extremely exposed trial ground of Mr. Hugh Hanan, 16, Bank Street, Edinburgh, which lies within a few yards of high-water mark at the seaside by *Musselburgh*, and have been entirely pleased with the way in which it has passed through the severe ordeal. Nothing more completely exposed and shelterless could be imagined than the ground named, but it suits Mr. Hanan's purpose, which is to test the hardness

as well as the quality of the choice stocks of vegetables of which he makes a specialty. I have requested him to send you a sample of the Greens for your inspection, which, as regards quality, will, I am sure, please you. S. [The Green Curled Kale sent was quite uninjured. It is a moss-like kind of leaf, very pretty in appearance. Ed.]

TEA AND COFFEE SUBSTITUTES.—In connection with Mr. P. MacOwan's notes on "Tea Substitutes at the Cape," in the *Gardeners' Chronicle* for April 4 last, p. 436, I should like to say that my authority for the statement that *Cassia mimosoides* was used at the Cape as a substitute for China Tea, was the paragraph in the Cape of Good Hope Catalogue of the Colonial and Indian Exhibition of 1886, which runs thus:—"Hottentot Tea, used as a substitute for China Tea." The sample itself formed one of the set in which Mr. Hettasch's collection was included, but I do not find in the same catalogue any reference to the use of *C. tomentosa*, Lam., which Mr. MacOwan says is the only *Cassia* he knows that is used as a medicinal Tea, though Mr. Hettasch's collection, or at least a portion of it, is enumerated in the catalogue. I may perhaps say that *Cyclopia genistoides* and *Helichrysum nudifolium*, to which Mr. MacOwan draws attention, were described by me in my early papers on Tea substitutes. John R. Jackson, Museum, Royal Gardens, Kew.

CALOCHORTUS CULTURE AND MILLA BIFLORA.—In last week's *Gardeners' Chronicle*, p. 469, mention is made by "A. P." of the loveliness of these flowers, and also various modes of growing the plants. I have grown them in the open border with a fair amount of success. The border has a south aspect, and the bulbs when commencing to grow were protected by means of thatched hurdles, which were leaned against the wall behind, thus quite covering them at night. Plenty of sand was used about the bulbs at the time of planting them. *C. luteus*, *C. splendens*, and *C. venustus* are species worth growing. *Milla biflora* is another plant which may be grown under similar treatment to the *Calochortus*; the bulbs, which are small, should be planted about the end of the month of March in sandy soil, and in a position fully exposed to the sun, and where the land is naturally moist. If a mulching of cocoa-nut fibre is put on the ground where these plants are grown, it keeps slugs and snails away, and the soil in a moist state. The bulbs should be taken up and stored in sand when ripe. W. A. Cook, Compton Bassett.

LATE-FRUITING MELONS—Is it necessary or desirable, I would ask, to have Melons as late as December? There is no very great difficulty about having them, but, in my opinion, they are regarded at that season more for their novelty, than liked for their good eating qualities—the leading point in any kind of fruit. At the Liverpool Chrysanthemum show, a few years since, which was usually held at the end of the month of November, one exhibitor in the fruit classes was always noted for the Melon which he showed in his collection of fruit; but I do not think that the judges ever attached much importance to the fact in making their award. The variety was, if I remember rightly, Conqueror of Europe. To have Melons in good condition, they require a large amount of sun-heat, and their flavour is always poor if they have it not. S.

— Mr. Allen [p. 438] does not read my letter aright, for I said that any good variety may be grown late, and any variety as he states in his note. He also forgets that others besides himself have grown Monarch, for it was sent out early in 1890, so that his offer of fruit next autumn is rather late, seeing that gardeners have been already able to test its quality, and although it is undoubtedly a good Melon, I cannot admit that it is better than many others which are grown for late consumption. I am acquainted with many others equally good at that season. If Mr. Allen had made me a present of a Melon on February 18, I may have had a better opinion, but I am still sceptical of keeping ripe Melons in excellent condition in all respects from the first week of November until February 18. I still contend that Melons cut early in November are but of indifferent quality on February 18, even with the dry border and a close house; and although Mr. Allen exhibited Melons early in November, that was no test as to their flavour in the third week of February. A Melon Grower.

CULTURAL NOTES.

SOLOMON'S SEAL.

For affording a choice bit of greenery for mixing with cut flowers, or flowering plants in the greenhouse, I know of nothing more telling than Solomon's Seal, the delicate pale hue of whose leaves and the habit of growth being admirable for these purposes. We have been using it for church decoration, together with *Deutsche Perle* and other white-flowered Azaleas, *Deutzia gracilis*, &c. We lay the plants down on their side between the pots of other plants. Solomon's Seal is excellent for growing in front of shrubberies and in the wild garden, as it spreads freely and is quite hardy, and is not readily crowded out by other plants. When numbers are wanted for forcing, it is advisable to plant the roots in a piece of well-prepared ground in an open spot. Treated in this manner the plants rapidly increase, and the crowns are strong and fine for potting-up in the autumn or winter. In taking them up, the basal parts of the rhizomes should be reserved for planting for stock. As Solomon's Seal in the open ground is just starting, it is a good time to lift and divide them, if increase is sought for. After planting the roots, a mulch of rotten manure will greatly assist growth. Plants intended for forcing are best taken up soon after the tops ripen, potted, and stood away in a cold pit or frame, and covered with half-rotten leaves, cocoa-nut fibre, or anything of that kind till put into gentle heat. J. Sheppard.

FLORISTS' FLOWERS.

A BLUE CHRYSANTHEMUM.

MR. JOHN THORPE, formerly of Stratford-on-Avon, and now of Massachusetts, U.S.A., recently delivered a lecture on the Chrysanthemum before the Massachusetts Horticultural Society, and at the close of it, in reply to a question as to the possibility of producing a blue Chrysanthemum, said that a blue Chrysanthemum was exhibited at Philadelphia, but it was made of paper. However, he fully believed we should live to see a genuine blue Chrysanthemum. The old botanists declared that we could not have blue, yellow, and red in the same species of plant, but we have blue, red, and yellow Hyacinths, and he saw no good reason why we should not get the same colours in the Chrysanthemum. The original colours of the Chrysanthemum were very limited. There were a pale yellow, white, and a very weak lilac shade, and from these have been raised all the colours and shades now seen in this flower. This has been accomplished by very slow and persistent selection and cross-fertilisation, and from sports. It is worthy of notice how intensified the yellows have become, and how many shades of this colour there now are. The lilac has become pink, of pure shading; then, as to red, Cullingford often presents us with nearly a pure tone of red. The most pronounced purple we have to-day is from the lightly-tipped, incurved Princess of Wales, being a sport named Violet Tomlin. It is really purple. Now we cannot get purple without blue, and to those who are at work in this field of development, a blue Chrysanthemum would not be such a great surprise. Raisers of seedlings frequently see signs of a new departure four or five years before it actually takes place. The blue Chrysanthemum may come at first as a sport. R. D.

FOREIGN CORRESPONDENCE.

BRUSSELS.

In the Botanic Garden there is now in bloom a specimen of *Scuticaria Hadweni*. This Brazilian Orchid, imported in 1851 by Isaac Hadwen, is remarkable for its cylindrical, pendent, furrowed leaves, and its flowers, the segments of which are

clear green, speckled with chocolate spots; the large lip is white, tinged with yellow, and prettily sprinkled with long purplish-pink marks. Unusually beautiful are three seedling *Cliveas* obtained by M. L. Lubbers. *Henfrea scandens*, of semi-climbing habit, and firm and vigorous foliage, bears pretty corymbs of numerous and large white flowers flushed with pink; this temperate-house plant deserves to be more often cultivated—that is to say, it could be made useful for commercial purposes, whereas now it is rarely seen, except in botanic gardens.

THE HORTICULTURAL ESTABLISHMENT OF A. A. PEETERS.

Remarkable and unique in this country is the cultivation of 200 fine specimens of *Odontoglossum vexillarium*, of exceptional health and vigour. We measured shoots which had grown to a length of 15 inches. It is most interesting to notice the great increase in vigour of these shoots, year by year; the length of the bulbs is doubled trebled, and even still more increased—certainly an indubitable proof of careful and thoughtful cultivation. All the specimens are healthy and green, the foliage clean, and bearing no trace of insects; also, which is surely a rare thing, no black tips to the leaves. Twelve of the specimens are of great size; there are some which measure 25 inches across. We were also much interested in another successful experiment; this was the cultivation of many species of *Vanda* in a temperate-house. Three species lent themselves admirably to this mode of culture; they were *V. coerulea*, *V. Amesiana*, and *V. Kimballiana*, of which we saw most healthy specimens. There are now there also more than 3000 *Odontoglossums* covered with buds. Splendid, and certainly unparalleled, is a specimen of *Epidendrum Wallisi*, with five stems, bearing eighty fine blooms. We should also mention a quantity of *Cymbidium Lowianum*, one plant of which bore twelve flower-stems.

We saw also an *Odontoglossum Oerstedii majus* in full bloom; the species is rarely seen in this country. A specialty of the Firm is forcing Lilac, which is here found in great abundance from November to May. The bunches are remarkable for the vigour of the blooms, and for the length of time which they last. When these shrubs are forced, the result is not always so satisfactory.

ANTWERP.

The preparations for the exhibition of microscopy, organised to be held on the occasion of the three hundredth anniversary of the invention of the microscope by Janssen, of Middelbourg (Holland), seem to be progressing well. Numerous exhibits have already reached the organisers, notably those of Messrs. Watson & Sons, of London; Messrs. Powell & Lealand, London; A. Pringell, Bexley Heath; Rud. Siebert, Vienna; J. Montalbo, of Turin; Nacet & Wiesnegg, of Paris; Thum, of Leipzig; Thevoz et Cie., of Geneva; Zeiss, of Jena; Hartnack, of Potsdam, &c. The important service rendered by the microscope, especially to students of plant-science, make us wish all success to this interesting exhibition. Ch. De B.

CŒLOGYNE CRISTATA.

In most places where I lived in England, plants of *Cœlogyne cristata* flowered all at one time, but here, whether it is owing to the climate or what I do not know, the flowers come in batches. We have a lot of plants of about 1 yard across, and from these we have cut three lots of flower, and shall cut one more. The bulbs are all equal, and are grown under the same treatment. At p. 333 of the *Gardeners' Chronicle*, "W. H. W." writes that he saw at Clarendon Park a second crop of flower coming from some plants of *Cœlogyne* there, but they cannot come from the same bulbs as the first. In large baskets the flowers come sooner round the edges than in the middle, can the heat affect the side pseudobulbs more than the centre of the plant? J. F. Morgan, Dongino, Smolensk Government, Russia.

CYPRIPEDIUM CONCOLOR.

Our illustration (fig. 101) represents a familiar example of that neat-growing section of *Cypripedium* which includes *C. niveum*, *C. Godefroya*, and *C. bellatulum*, and a word in season as to their culture will not be out of place, as these plants are often badly grown by being kept too warm in the winter and too airy and dry in summer. This class of *Cypripedium* requires to be kept warm (65° to 70° Fahr.), moist, and shady from the beginning of April throughout the summer, and gradually brought into a lower temperature as the winter approaches, and wintered at 55° to 60°; at both seasons a lower night temperature of 5° being strictly observed. During the winter, we have had repeated complaints of these plants, and *Aërides*, *Vandas*, &c.; getting into an unhealthy condition, and there is little doubt that in most cases the reason has been that the plants have been kept in too high a temperature during the protracted dull weather.

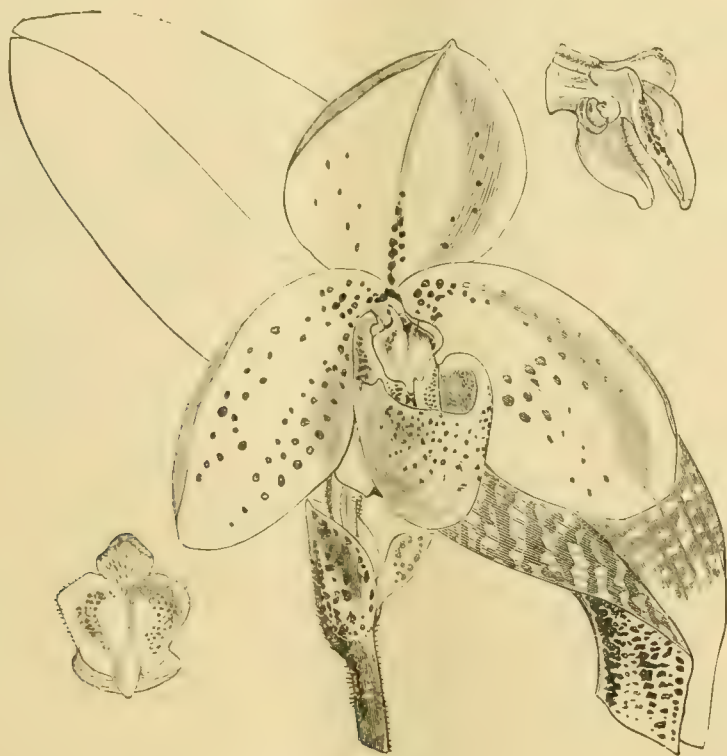


FIG. 101.—CYPRIPEDIUM CONCOLOR.

SCOTLAND.

PRINCE'S STREET GARDENS, EDINBURGH.

The inhabitants of the northern metropolis are up in arms at the threatened invasion of one of the choicest spots in what Burns called—

"Edina Scotia's darling seat,
Sweet as the dewy milk-white Thorn."

The necessities of our commercial enterprise, and the junction of that famed city with the various places of beauty and interest, which the great "wizard," in his tales and poems, has immortalised, demand railway extension. The consequence is, the North British Railway, which bores through the hollow, with the old castle crags frowning upon it on the one side, and the beautiful promenade of Prince's Street on the other, have gone to Parliament with a Bill for encroaching upon the Gardens to some extent along their whole length, and swallowing up, at the very base of the famed Scott Monument,

ground which our forefathers would have safe-guarded with Puritan care, as Scott puts into the mouth of Marmion in his fourth canto:—

"Where is the coward that wouldn't dare
To fight for such a land."

Had it been the mere matter of a couple of lines towards the west of the gardens, there might not have been so much noise; but not contented with that, the scheme embraces the tunnelling of the whole of Waverley Market, and coming under the grassy slopes of the parterre that lies snugly under the great slope, at the foot of the monument itself. This is unquestionably the most objectionable portion of the scheme, and demands that it should be fought out to the bitter end. A series of underground arches are scheduled, and the tops of these arches are to be filled in with earth and planted with whatever will grow upon the remodelled ground. This appears to me—a Scotchman, and a lord of the land of my nativity—to be only justifiable, if no alternative extension scheme could be devised. In a site such as this, remarkable for its bold undulations,

its traditional buildings that have bound together "present and perished ages," it is only a semblance of the great variety of interesting trees and shrubs and plants that are dotted over its surface. The Oriental Plane still does beautifully here, and so do the common and the Wych Elms, and the Thorns; the latter, in many cases, typical trees. Then, the Weeping Ash is very beautiful, as also the Camperdown Elm. More, undoubtedly, could have been made of the ground, for its surface is a delightful one, not to fill up or cut down, but to take such advantage of its undulations as the late Robert Marnock, for instance, could have so well done. Then the green groundwork of Ivy—the Irish Ivy, particularly, receding down the slopes for 30 or 40 feet, and extending half-a-mile in length, make a grand shading of deep-sea greenery to the emerald grass. Rhododendrons, and Aucubas, and Hollies are effective, planted within the looped-up portions of the Ivy on the sloping terraces. The whole place, with its classic surroundings, is such that, in the interests of the horticultural world at large, who are conservators of the beautiful everywhere but more particularly in a spot of which Caledonia's sons are always proud to boast, I beg you to serve us thus far by giving space in your columns to the wail of a Caledonian.

PROFESSOR JAMES W. H. TRAIL, OF ABERDEEN
UNIVERSITY, ON BOTANICAL PLANTS.

In connection with the Spring Show of the Royal Horticultural Society of Aberdeen, on Friday and Saturday, 10th and 11th inst., Professor Trail delivered, on each of the days, a lecture on "Botanical Plants." At the outset he referred in terms of commendation to the Society's rule concerning the encouragement of a scientific study of horticulture.

Professor Trail was cordially thanked at the close of his lectures, and Mrs. Trail was presented by the Society with a magnificent bouquet.

EDINBURGH BOTANICAL SOCIETY.

At the last meeting of this Society at 5, St. Andrew Square, Mr. Lindsay, President, in the chair, Dr. Cleghorn exhibited a number of photographs illustrating the gathering of the fruit of the Date Palm at Port Said, and made observations on the species and varieties of Phoenix, their distribution, and their economic uses.

The following plants were exhibited from the Royal Botanic Garden:—*Saxifraga retusa*, *S. oppositifolia* var., *Corbularia tenuifolia*, *Soldanella Clusii*, *Epigaea repens*, *Rhododendron ciliatum* × *Edgeworthii*, *Phyllocladus rhomboidalis* (♂ flowers), *Phyllocladus trichomanoides* (♀ flowers). Mr. Paxton exhibited Mistletoe flowers of both sexes.

The following communications were read:—

1. "Development of the Macrosporangium of *Myosurus minimus*, Linn.," part II., by Gustav Mann.
2. "An Account of Pressler's Growth-borer," by William Somerville, (Ec.D., B.Sc., F.R.S.E. The author exhibited the instrument, and gave practical demonstration of its use.
3. "On Temperature and Vegetation at the Royal Botanic Garden," by R. Lindsay, Curator.

March has been the most severe and trying of any month this winter. The thermometer was at or below the freezing point on twenty occasions. The total amount of frost for the month was 130°, as against 49° for the corresponding month last year. The lowest readings occurred on the 9th, 15°; 10th, 15°; 12th, 19°; 13th, 20°; 14th, 19°. The lowest day temperature was 38° on the 10th, and the highest, 57°, on the 1st. Rain fell on nine days during the month, and hail or snow on ten days. Vegetation generally has made very little progress. Deciduous trees and shrubs are scarcely any further advanced than they were at the close of last month. The flower-buds of *Rhododendron Nobleanum* and *præcox* were completely destroyed by frost on the 9th of the month. A good many plants have

most landscape gardeners, I should imagine, would hesitate to utilize them as a contractor does a railway, filling up the hollows with what is scooped out of the eminences. Surely no such vandalism will be hearkened to by the Commons' Committee when the matter is properly placed before them.

Both railways have cast their eyes on the Waverley market—a place suited as no other place is for exhibitions of all kinds, international and horticultural—and to get over the difficulty, and throw a sop to the people of Edinburgh, the promoters of the Bill practically say, "You can have your market; we will go under you." But this necessitates an outlet to the gardens of some 60 yards in width, and the artificial covering of earth and shrubs, objectionable as it may appear now to those who can look a little before them, will be ten times worse when put into shape.

The gardens comprise both the east and the west divisions, and beautiful as they are, looking down from Prince's Street in the new town, or from the opposite side, which still retains, in some measure,

suffered severe injury. Stocks and Wallflowers have been nearly all killed. Several species of *Cistus*, *Ceanothus*, *Eucalyptus*, *Olearia*, and shrubby *Veronica* are among the worse injured; but the full extent of the injuries will be better known next month. Of the forty spring-flowering plants whose dates of flowering are annually recorded, the following eleven came into flower:—*Rhododendron Nobleanum*, March 1; *Scilla bifolia*, 3rd; *S. b. taurica*, 5th; *Iris reticulata*, 6th; *Mandragora vernalis*, 14th; *Scilla bifolia alba*, 14th; *Narcissus pumilus*, 19th; *Sisyrinchium grandiflorum*, 23rd; *S. g. album*, 28th; *Orobis vernus*, 29th; *Ribes sanguineum*, 31st.

On the rock garden, forty species and varieties came into bloom as against seventy-three for the corresponding month last year. The most interesting were:—*Chionodoxa Lucillia*, *C. sardensis*, *Corydalis angustifolia*, *Daphne Phillipiana*, *Dentaria enneaphylla*, *Doronicum caucasicum*, *Draba Mawei*, *Polygala chamæbuxus purpurea*, *Saxifraga Barseriana* *Boydii*, *Saxifraga crassifolia*, *S. juniperina*, *S. lutea purpurea*, *S. oppositifolia*, *S. sancta*, *Soldanella montana*.

4. "On Temperature, Vegetation, &c., in the Botanic Garden, Glasgow."

March was the most wintry month experienced in this part of the country. Frost was registered fifteen times, the lowest readings (on a shaded thermometer at 3 feet from the ground), was 19°, or 13° of frost during the night of the 9th. Total readings 80°. Stormy weather prevailed almost throughout, consequently vegetation generally is in a more backward state than usual, especially considering the comparatively favourable winter. To all appearance there will be an abundant bloom on deciduous trees and shrubs.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN SPRING SHOW.

A fine exhibition of flowers was held at Aberdeen on Friday and Saturday, 10th and 11th inst. Thirty years have elapsed since the society last held a spring show; but, judging from the excellence of Friday and Saturday's display, the society have been fully justified in reviving the exhibition. While on the whole the display was a wonderful one, the backward state of the weather had a prejudicial effect, in that the number of Hyacinths, Auriculas, Polyanthuses, Narcissus, and other spring flowers was comparatively limited. One-half of the show was made up of collections of plants forwarded by local nurserymen for the purpose of exhibition only, while the other portion was devoted to specimens of flowers and vegetables sent by the members of the Society for competition. In the latter section the entries were not numerous, but the specimens forward were of a very meritorious description. In the section for professional gardeners, Mr. Grigor, gr. to Mr. A. O. Gill, Fairfield, was the most successful competitor, taking 1st place for the best table of stove and greenhouse plants, 1st and 2nd prizes for stove and greenhouse flowering and foliage plants, and carrying everything before him in Orchids. For the two Orchids he showed, he was awarded the silver medal presented by the proprietors of the *Gardeners' Magazine* for excellence of culture. Mr. Grigor also came to the front with two handsome Palms. The Cinerarias, as a class, were extremely good. Mr. Fraser, Dalhobby, came in first here, on the ground that, while the plants themselves might have been better, the quality of the flowers was superior. There was pretty good competition in *Spiræas*, and the premier place was gained by Mr. Strachan, Beechgrove. Mr. Fraser, Dalhobby, came in first with four very fine varieties of *Primulas*; Mr. Strachan, Beechgrove, being 2nd prizeman. In general, the competition among amateurs and working-men was superior to that among the professional gardeners. For the best table of plants, Mr. Arthur, Broomhill, was awarded the first position; and a really good collection belonging to Mr. Gillespie, Aberdeen, took the 2nd prize.

The cut flower department was small, but of superior excellence. Mr. Grigor, Fairfield, was suc-

cessful with a box containing twenty-four kinds; and in collections of twelve kinds, Mr. Strachan, Beechgrove, was 1st.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 14.—The meeting held last Tuesday in the Drill Hall, was a very pleasant one; there were numerous exhibits of interest, and an especially good lot of hard-wooded plants and Orchids. Visitors, too, were more numerous than we have been accustomed to see, and in the afternoon Mr. F. W. Moore had an appreciative audience for his lecture on *Lachenalias*.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. H. Herbst, R. Dean, G. Nicholson, C. T. Druery, H. B. May, W. C. Leach, R. B. Lowe, C. E. Pearson, T. Baines, C. Noble, W. Furze, G. Gordon, T. W. Girdlestone, B. Wynne, J. Fraser, H. Turner, Rev. H. H. D'Ombain, E. Mawley, and F. Ross.

Messrs. H. Low & Co., Upper Clapton, showed another of those interesting groups of hard-wooded plants which have lately attracted so much notice; the plants were all well-flowered small specimens, the principal constituents of the group being as follows:—*Erica Spenceri*, *E. melanthera*, *E. ventricosa coccinea minor*, finely flowered; of *Epacris*, there were *E. odorata alba*, *E. grandiflora*, and the richly-coloured *E. miniata splendens*. Several *Cytisus* were included, and perhaps gave too much yellow colour to the whole; there were *C. racemosus*, and the deeper-hued, smaller-leaved *C. Everestianus*, and *C. Attleanus*, more slender still; giving relief to these were well-flowered *Azalea indica*, and the rich carmine *Boronia heterophylla* and *elatio*. Other plants were *Polygala Dalmatiana*, *Pimelea Nieppergiana*, *Anopterus glandulosa*, *Darwinia tulipifera*, *Eriostemon linearifolius*, and *Grevillea* in variety.

Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway, N., contributed a group of similar nature to the foregoing, but not so large. *Erica Cavendishii* was well represented here, and so also was *E. ventricosa coccinea minor*, with *Boronia heterophylla* and *Spiræa astilboides*, a few *Amaryllis*, which were included, gave colour to the collection.

Messrs. W. Cutbush & Son, Highgate Nurseries, N., were also exhibitors of this class of plants, showing an equally well-grown lot of a similar nature, which need not be particularised. A showy group, composed of half-a-dozen plants of *Spiræa confusa*, profusely flowered, and sent by Mr. G. Wythes, Syon House Gardens, Brentford, was a conspicuous feature, and well showed the value of the plant for indoor decoration at this time, and earlier in the season.

From the Royal Gardens, Kew, Surrey, there was sent a basket of interesting alpine, chiefly *Primulas*, of which the bright *P. Clusiana* was the most conspicuous; the species *calycina* and *nivalis* were also noticeable; but the most remarkable plant was *Shortia galacifolia*, an alpine of great rarity, which was referred to in our issue for March 30, 1889, p. 397, with illustrations. *Podophyllum peltatum* and *Narcissus pallidus præcox* were also sent from the same source.

Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, contributed a beautiful variety of *Anthurium Scherzerianum* var. *latifolium*, with deeply-coloured and wide spathes. *Begonia Triomphe de Nancy*, from the same exhibitor, was a very pretty plant, and would probably be useful for basket-work, the inflorescence being much branched, and bearing reddish-green, leafy-scales in profusion, and a few small red flowers. Daffodils were represented by a very extensive collection of varieties of all sections in a group from Messrs. Barr & Son, Covent Garden. Among smaller exhibits there were *Valeriana Phu* var. *aurea*, from Mr. R. Dean, a pretty golden form of this well-known plant. Miss Jekyll, Munstead, Godalming, contributed a basket of bedding *Primrose*, Early White, a free and large flowering variety. Messrs. Paul & Son, Cheshunt, sent a few *Amaryllis* in flower. Tubercles trained on a balloon, from Mr. W. Whiteley, Hillingdon, were not very elegant, as the plant does not lend itself well to that method of training. A flower of *Iris Fosteriana*, to which reference has been made in these columns, came from Professor Foster Cambridge. C. E. Smith, Esq., Silverdale, Cobham

Surrey, sent several trusses of the *Gueuldres Rose*; and a few hardy plants, as *Anemone fulgens* var., *Fritillarias*, *Primulas*, &c., were sent by Mr. J. T. Gilbert, Ammon Nurseries, Dyke, Bourne, Lincs.; while Messrs. Barr and Son, Covent Garden, had a pretty lot of spring flowers, *Chionodoxas*, *Scilla*, *Hepaticas*, and *Anemones*.

Messrs. Pitcher and Manda, Hextable, Swanley, sent a white and sweetly-scented *Border Carnation* named *Lizzie McGowan*. Messrs. W. Paul & Son, Waltham Cross, Herts, sent a new *Camellia* of a very pretty shade of soft rich pink with the general form of *Beauty of Waltham*, of which it is indeed a more deeply-coloured variety. It is called *The Duchess*, and is quite distinct. Blooms of *Roses*, *Coriuna*, *Duchess of Albany*, and *White Lady*, all three good distinct varieties were also shown. A new blue *Primrose*, James Nimmo, a true dark blue, came from G. F. Wilson, Esq., Heatherbank, Weybridge. Mr. Cummins, gardener to G. H. Snee, Esq., Carshalton, sent a pale seedling, *Clivia*, with good flowers; and Mr. Noble, Bagshot, sent flowering shoots of *Andromeda floribunda*.

Orchid Committee.

Present: Dr. M. T. Masters, in the chair; and Messrs. J. O'Brien, H. M. Pollett, A. Ballantine, H. Low, E. Hill, H. Williams, J. Douglas, L. Castle, F. Moore, S. Courtauld, and F. Sander.

From the gardens of Baron Schroder, The Dell, Egham, Mr. Ballantine sent a large lot of beautiful and well-grown Orchids, many being rarities, and others very fine specimens. One of the most noticeable was *Cattleya Digbyana-Mossia*, the beautiful hybrid which was illustrated by us last year, when it was first shown. In the present instance the plant bore two flowers, which differ from what was first seen in more nearly resembling the *Brassavola*. *Cypripedium Morganæ* was represented by a large piece carrying as many as twenty-two flowers. *Odontoglossum* × *Dellense* had flowers which recalled those of *O. excellens*, differing in the lip, they were yellow, marked with brown spots. Of *Cattleya Lawrenceana* there was one piece, finely flowered; *C. L.* var. *concolor*, pale lilac; and *C. L.* var. *Vinckii*, blue-lilac, were also included. *Dendrobium macrophyllum Dearei* had a fine spike of pure white flowers, and another plant of interest was *Epidendrum Dellense* × (*Xanthinum* × *rhizophorum*), a fairly tall growing plant, carrying a dense head of flowers of rich orange-red, each flower about three-quarters of an inch across either way, and the three lobes of the lip about equal in length, and lacinate at the apex. *Cymbidium eburneum-Lowianum* and *C. devonianum*, the dull violet lip of which is well set off by the dingy brown-green colour of the rest of the flowers; it is a very noticeable flower. *Lelia Jonghiana* and *Odontoglossum crispum Stevensi*, a finely-spotted variety, and *O. c. Veitchii* were also included, each carrying over twenty flowers.

The collection of plants exhibited by Messrs. F. Sander & Co., of St. Albans, was rich in fine species, and more so in varieties of well-known and valued ones. The richly-coloured *Odontoglossum mulus splendens*, *O. Coradinei hemileucum pictum*, a flower with a yellow ground colour, marked with brown; *Selenipedium hybridum Coppinianum* ×, parents *Cypripedium Sedeni* and *S. conchiferum*, is a flower intermediate in most of its features with the two different species from which it sprang. The colour is dull crimson—on the petals and dorsal sepal very pale, and lip deep-coloured. It has a continuous flowering habit. *Maxillaria Sanderiana*, with sepals and petals of the palest pink suffusion on white to two thirds of their length, base of same and anterior parts of the flower, of the deepest shade of crimson. *Selenipedium hybridum* ×, from *S. caudatum roseum* and *S. conchiferum*, has long-tailed petals of fawn with green stripes from the base downwards to half their length; lip, fawn coloured generally; sepals greenish-yellow. The handsome *Warscewiczella violaceum*, *Oncidium sarcodes*, several *Masdevallias*, *Scuticaria Hadweni*, *Spathoglottis aurea* and *Maxillaria Amesiana* (provisionally so named), a white flower with a few pink coloured stripes at the base of the petals and sepals, and an orange-coloured lip, were observed; the last-named is quite novel. *Dendrobium Venus* ×, obtained by crossing *D. nobile* and *D. Falconeri*, is intermediate between those two, and is an acquisition of considerable merit. The noble blood appears mostly in the colours of petals and sepals, but both are increased in size, and *Falconeri* shows itself in the fine velvety dark blotch of the lip. It is a

seedling of Mr. Cookson's raising. *Cattleya hybrida* x, from *C. intermedia* and *C. superba Behnsiana*, is a good thing. A fine variety of *Odontoglossum Rossi*, named *Leeanum*, with intensely dark markings at the base of petals, while the rest of the substance is of the palest flesh colour, was a remarkable plant. Other fine things were *Phalaenopsis Schilleiana*, *Maxillaria Mooreana*, *Maced's petola*, and *Angraecum Sanderianum*, with some well-developed sprays of bloom.

From N. S. Cook, Esq., Kingston Hill, S.W. (gr., Mr. Cullimore), came a number of nicely-grown plants, including *Chysis bractescens*, *Cattleya intermedia*, and *C. Trianae* vars., *Vanda suavis*, *Dendrobium nobile*, *Odontoglossum Cervantesi*, a fine form of *O. Rossi majus*, *Oncidium sarcodes*, and *Dendrobium crepidatum*.

Masdevallias in grand examples came from Sir T. Lawrence, Bart. (gr., Mr. White), the following being among the best, but all were large finely-flowered and well-grown generally: *Lindeni splendens*, *Harryana acanthifolia*, *ignea Massangeana*, *Shuttleworthii*, *Arminii*, *Fraseri*, and *triangulatis*, and formed a remarkably showy group.

Messrs. J. Veitch & Sons, Chelsea, sent a plant of the hybrid *Miltonia Bleuiana splendens*, raised by M. Bleu, out of *M. Roezli* and *M. vexillaria*, the latter being the seed-bearer; the flower is fairly intermediate in form, pure white, of large size, and the lip has a central spot of red-brown.

Mr. Wythes sent a specimen plant of *Cymbidium Lowianum* with six finely-developed spikes of bloom. A strong-growing form of *Cypripedium bellatulum* with several flowers was sent by W. Bryant, Esq., Stoke Park, Slough. Messrs. Pitcher & Manda sent a plant of *Cypripedium Rowallianum* (*villosum* x *venustum*), with richly-coloured petals, and lip of Indian-yellow, the lip being varbled with brown, the dorsal sepal being narrow and greenish; and from Mr. Whiteley's Nurseries at Hillingdon came a fairly extensive collection of well-flowered decorative Orchids, as *Dendrobium nobile*, *D. Wardianum*, *Cattleya Trianae* vars., *Odontoglossum crispum*, &c., arranged tastefully with foliage.

F. A. Broom, Esq., Ladgrove, New Barnet (gr., Mr. Phillips), staged a collection of fine pieces of *Dendrobium thyrsiflorum*, very well flowered; an *Aërides Fieldingii*, *Catasetum bidentatum*, &c.

Fruit Committee.

Present: P. Crowley, Esq., in the chair; and Messrs. J. Lee, R. Hogg, R. D. Blackmore, H. Weir, T. F. Rivers, G. Cliffe, G. W. Cummins, J. Cheal, W. Warren, J. Wright, G. Bunyard, A. Dean, W. Denning, G. Wythes, J. Hudson, H. Balderson, G. Reynolds, C. Penney, F. Q. Lane, J. Willard, W. Bates, and J. Smith.

Mr. Cummins sent for inspection a collection of about two dozen different kinds of Apples, and a few of Pears, all of which were remarkably good examples; and Messrs. H. Lane & Son, Great Berkhamsted, sent samples of Apple Lane's Prince Albert, bright and fresh-looking, as if only just gathered.

From Mr. Miller, gr. to Lord Fowley, Ruxley Lodge, Essex, were some fine Mushrooms and several well-kept fruits of Blenheim Orange Apples; and from Mr. R. H. Vertegans, Birmingham, came samples of the Melon Pear, *Solanum guatemalense*. Handsome-looking fruits of a Strawberry under the name of John Ruskin came from Mr. R. Gilbert, Burghley Gardens, Stamford.

Competitive Classes.

There were on this occasion prizes offered to amateurs for collections of Daffodils. The chief offer made was that of a Silver Challenge Cup, which was for a collection of Daffodils grown in the open (Tazettas excluded), the place of honour was accorded to C. M. Cowan, Esq., of Valleyfield, Pennyquick, near Edinburgh, who staged about a hundred varieties on a bed of moss, which added greatly to their beauty. They were of fine quality, especially Sir Watkin, and the large trumpet flowers generally. The same exhibitor was also 1st in the class for nine varieties, and here his flowers looked better still, as only the very finest varieties were employed, and all large-flowered.

For six varieties, the prize was awarded to the Rev. W. Wilks, Shirley Vicarage, Croydon, for a pretty lot of popular varieties.

Messrs. Barr & Son, King Street, Covent Garden, W.C., offered prizes in medals for a collection (no

number specified); only the 2d prize (a small silver medal) was given, and that went to Miss Berta F. M. Doyne, Seafield House, Gorey, Ireland, who had her flowers prettily arranged with foliage.

Awards were made as follows:—

By the Floral Committee.

Awards of Merit.

Primrose James Nimmo, from G. F. Wilson, Esq.
Begonia Triumphant de Nancy, from Sir Trevor Lawrence.

Camellia The Duchess, from Messrs. W. Paul & Son.

By the Orchid Committee.

First-class Certificates.

To *Dendrobium Verus* x from N. C. Cookson, Esq.
To *Epidendrum Dellenae*, from Baron Schroder.
To *Odontoglossum hybridum Dellenae*, from Baron Schroder.

Award of Merit.

To *Lycaste Mastersiana*, from Messrs. F. Sander & Co.

Medals.

Gold.—To Baron Schroder, for a group of Orchids.
Silver Gilt *Banksian*.—To Messrs. H. Low & Co., for a group of Plants.

Silver *Flora*.—To Messrs. Barr & Son, for a group of hardy spring flowers; to Sir T. Lawrence, for a group of *Masdevallias*; to Mr. W. Whiteley, for a group of Orchids.

Silver *Banksian*.—To F. C. Jacomb, Esq., for a group of Orchids; to Messrs. F. Sander & Co., for a group of Orchids; to Messrs. Cutbush and Son, for a group of flowering plants; to Messrs. B. S. Williams & Son, for a group of plants; to Mr. Cummins, for a collection of Apples and Pears.

Bronze *Banksian*.—To F. A. Bevan, Esq., for Orchids; to M. S. Cooke, Esq., for Orchids.

LINNEAN.

At a meeting held on April 2, Professor Stewart, President, in the chair, the Rev. Professor Henslow exhibited specimens of *Oxalis cernua*, Thunberg, a native of the Cape of Good Hope, and gave an interesting account of its introduction into the countries bordering the Mediterranean, and the Canaries and Madeira, tracing its present northern distribution, so far as he had been able to ascertain it. A discussion followed, in which Messrs. A. W. Bennett, C. B. Clarke, W. Bateson, and B. D. Jackson, took part. Mr. A. B. Rendle having examined the specimen of "Monchona" exhibited by Mr. Christy at a previous meeting, expressed the opinion that this trade product was the preserved fruit of a Palm belonging to a species apparently undescribed. It was stated, somewhat vaguely, by the importer, to have come from the South Pacific. Mr. Rendle also exhibited another specimen of an Orange within an Orange, which differed from that shown at a former meeting, in that the inner Orange possessed a rind, and was not entirely enveloped by the outer one.

Mr. W. Bateson then gave the substance of a paper by himself and Miss A. Bateson, on "Variations in Floral Symmetry of certain Plants with irregular corollas." He described the variations in number of parts, and of symmetry occurring in the flowers of *Gladiolus*, *Veronica*, *Linaria*, and *Streptocarpus*, and showed that although in these varieties there is considerable departure from the normal form, yet the resulting variety is often as definite as the normal form and not less perfect in symmetry. It was suggested that the variations by which specific forms of symmetry are produced, may also be thus distinct, and not of necessity involving transitional forms, and for example that the process by which the four-petalled symmetry of *Veronica* arose from that of a five-petalled ancestor, was perhaps similar in kind to that by which the three-petalled variety of *Veronica* is formed from the type, transitional forms being in such cases rare, or even absent.

An interesting discussion followed, in which the President, Prof. Henslow, Messrs. C. B. Clarke, and A. W. Bennett took part. The Secretary then read a paper by Mr. H. N. Ridley, of Singapore, on "Two New Genera of Orchids from the East Indies."

The next meeting will take place on April 19, 1891, at 8 P.M., when the following papers will be read:—1, "Lichens from Victoria," by Rev. F. R. M. Wilson; 2, "Two new species of *Puccinia*," by Surgeon-Major A. Barclay, F.L.S.

THE NATIONAL CARNATION AND PICOTEE.

The following is the Report for the year 1890:—During the past season the interest excited in the cultivation of the Carnation and Picotee has probably been greater than was ever known within the knowledge of the oldest cultivator. The annual exhibition and a conference on the Carnation and Picotee were held in the garden of the Royal Horticultural Society at Chiswick. The weather was fine on both days, and altogether the exhibition was one of the best that has been held by the Society. The old supporters of the Society were there in goodly numbers, and numerous new members were present. The premier Carnation was Robert Houlgrave (Barlow). The premier Picotee was Liddington's Favourite. The yellow-ground Picotees, the selfs, and fancy varieties, were numerous represented, and added greatly to the interest and attractiveness of the exhibition. The Society is much indebted to the members of the Horticultural Club for kind permission given to hold the annual meeting and committee meetings in their rooms at the Hotel Windsor.

The Society has suffered by the death of James McIntosh, of Duneevan, Oatlands Park, an almost irreparable loss during the past year. He was a most liberal patron, and was a member of the Society from the first. Another genial supporter of the Society, Shirley Hibberd, died during the past year, whose ever-ready help, in any way conducive to the best interests of the Society, could always be depended upon.

At a committee meeting of the Society held at the Hotel Windsor on January 13, Rev. H. H. D'Ombrian in the chair, the following resolution was passed:—

"That this meeting of the National Carnation and Picotee Society places on record its sense of the great loss sustained by the Society through the death of Mr. James McIntosh and Mr. Shirley Hibberd, and expresses its deep condolence and sympathies with the representatives of their families."

The committee, anxious to supply a long-felt want, invited the leading growers of the Carnation and Picotee to send in lists of the best varieties in their respective classes, and these lists have been arranged in order of merit. The fifteenth annual exhibition will be held in the Drill Hall, James Street, Westminster, under the auspices of the Royal Horticultural Society, on July 21, and the Council kindly subscribe £10 to the funds of the Society.

THE BIRMINGHAM SPRING FLOWER SHOW.

APRIL 8 AND 9.—The eighth annual exhibition was the finest yet held, and the hall and committee-room were crowded with exhibits. Orchids were the greatest feature, and the two lots of six Orchids, and the threes, and single specimens were very fine. In the class for six, Mr. Burberry, the Orchid grower at Highbury, the residence of the Right Hon. Joseph Chamberlain, M.P., was 1st, with six superb specimens, consisting of *Dendrobium Wardianum*, *nobile*, and a very fine *fimbriatum*, *D. thyrsiflorum*, *Cattleya Lawrenceana*, and a very fine *Odontoglossum Pescatorei*. The 2nd prize was well won by Mr. J. Palmer, gr. to Wm. Bown, Esq., with a fine *Dendrobium nobile*, *Phaius grandiflora*, *Cymbidium Lowii*, *Oncidium splendens*, and two very large *Cypripedium villosum* and *Boxalli*.

In the class for three Orchids, Highbury again took the 1st prize, with a grand mass of *Dendrobium Wardianum*, a very fine variety; and *Dendrobium Freemanni* and *D. nobile* var. *pulcherrima*.

In the single specimen Orchid competition, Mr. W. Bown was 1st, with a fine *Dendrobium Paxtonii* in fine condition, with sixteen racemes of flowers; Mr. Finch, gr. to Mr. Alderman Marriott, Coventry, 3rd, with a specimen *Cypripedium villosum*, with fully seventy blooms; 3rd prize to Mr. Burberry.

In addition to these classes, large prizes were offered for groups of Orchids arranged with Ferns and foliage plants, and two collections were staged. The Right Hon. Joseph Chamberlain's 1st prize lot was a superb mass of colour and richness, and quite one hundred plants of Orchids must have been used in it, some of the procumbent varieties being raised or suspended. Both groups were staged on the floor of the hall, and there can be no question as to the effectiveness of this style of exhibiting Orchids. The 2nd prize was awarded to Mr. Powell, gr. to G. H. Kenrick, Esq., Edgbaston—an admirable lot, for Mr. Powell is an excellent cultivator; but his

employer objected to a lot of his grand Dendrobiums and other plants being brought out in such cold weather. Taking the Orchid display as a whole, it was superb.

There were various classes for stove and greenhouse plants, Azaleas, &c., and in both of these classes Mr. Brasiere, gr. to Sir Thomas Martineau, took 1st honours for six and three stove and greenhouse plants in flower, and for six excellent Azaleas. *Hydrangea* Thomas Hogg—two superb specimens grown by this exhibitor, were much admired.

Mr. E. Cooper, gr. to the Right Hon. J. Chamberlain, M.P., had six very fine Azaleas, but not sufficiently in flower, which took the 2nd prize; and he was 1st for superb Cyclamens, and Lily of the Valley, and Roses in pots.

Spiræas, *Deutzias*, *Genistas*, and other plants, were well represented, especially *Dielytras* and *Cinerarias*.

Of Hyacinths and Tulips there was a great display; and the Tulips were remarkably good throughout. Amongst ornamental plants, a very fine *Dracæna Lindenii*, in Mr. Chamberlain's 1st prize lot, was conspicuous.

Bouquets are invariably of first-class quality here. Messrs. Pope & Sons, nurserymen, were 1st in the open class, with a beautiful arrangement. In the gentlemen gardeners' class, Mr. Finch, gr. to Mr. Alderman Marriott, Coventry, was 1st respectively for ball and bridal bouquets, showing exquisite artistic work in their arrangement.

Mr. Finch was also 1st for a grand stand of twelve varieties of cut stove and greenhouse flowers.

The honorary exhibits were numerous, and an exhibition in themselves. Mr. Thos. Ware sent an extensive collection of cut Narcissi, &c.; Messrs. Ryder & Sons, Sale, forty varieties of *Primula Sieboldii*, including several new and charming varieties; Messrs. Rd. Smith & Co., Worcester, a collection of ornamental and winter-blooming plants; Messrs. Cutbush & Son, Highgate Nurseries, hard-wooded plants, new *Cliveas*, and their very fine new Mignonette "Snowdrift"; Messrs. Thomson, Sparkhill Nurseries, a very beautifully-arranged group of plants, and a display of floral decorations; Messrs. Pope & Sons, King's Norton Nurseries, a group of plants, including several of the very useful winter-blooming double zonal *Pelargonium Le Bruant*, the golden *Latania borbonica*, and fine specimen *Clematis*; Messrs. Hewitt & Co., Solihull Nurseries, a nice group, and a beautiful box of well-bloomed *Auriculas*, also choice early blooming alpine and other plants; and Messrs. Vertegans & Co., a nice lot of Himalayan *Primulas*, and some fruits of the Melon Pear (*Solanum guatemalense*), which the judges (Messrs. Owen Thomas of Chatsworth, and Bennet, Rangemore), recommended for a Certificate as a useful addition to our winter fruits, of pleasant flavour, and of easy culture. A Cultural Certificate was awarded to Mr. W. Jinks, gr. to J. E. Wilson, Esq., Wyddrington, for a fine *Phalænopsis Stuartiana*.

FORESTRY.

TREE CULTURE ON PEAT BOG, OR MOSS.

Peat bog, or moss, is so widely different in its origin, chemical composition, and physical properties, from that of any other class of soil, that it requires exceptional treatment in order to render it capable of supporting a crop of timber trees. Ordinary soils are composed principally of sands, clays, gravels, calcareous matter, and the disintegrated particles of rocks; while peat bog consists of dead aquatic plants in an imperfect state of decomposition. Water is present in excess of all the needs of land plants, and air is thus incapable of entering the mass, and decomposition thereby arrested, until such time as the water is drained off. It therefore follows that the thorough draining of a bog should take precedence of all other operations, the number and size of the drains being always regulated on the spot, and in accordance with the special features of the land. The cheapest mode of establishing a crop of trees on bogs of this class, after the drainage is done, is by sowing the seeds of some few species of hardy native trees as a first crop, and by the time they have matured their growth, the bog will be in a better condition to supply food to a greater variety of trees, exotic and indigenous. The trees which I have found very suitable as a first crop upon peat bog are the Scots Fir and common Birch, the seeds of these trees

being sown broadcast over the surface in the month of April, and allowed to take their chance, further than by keeping down rabbits, hares, &c., and protecting the land against sheep and cattle.

In preparing the ground for the reception of the seed, the stuff excavated from the drains should be spread in a regular and uniform manner over the surface, and left in a rather rough lumpy state, as the rough clods are beneficial in two ways. In the first place, a rough uneven surface prevents the seed in a great measure from being carried off by the wind, as they are apt to lodge in the chinks of the clods and lie there until such time as they vegetate; and in the next place, these lumps afford a cosy shelter for the plants when they appear above ground. This may appear to be a matter of small importance, but I have found it otherwise, as the difference in the growth of plants raised on exposed ground under such conditions and those which grew on a bare sur-

face of the ground by the superior growth of trees along the sides of drains where the ground has been rendered dry and firm, and the air taken the place of stagnant water which was formerly locked up in the interstices of the soil. This is the cheapest way of establishing a forest of hardy trees upon barren ground that cannot be easily turned to account for other purposes. In cases where it is advisable to plant trees on a peat bog, the best results are always attained by mixing a little clay or soil with the staple at the spots where the trees are to be inserted. This, however, increases the cost of the formation very much at the outset, and in Ireland, where labour is cheap, and where I used a light portable railway for bringing the soil to the bog, the cost, taking everything into account, was about £8 per acre. This applies, however, to rank peat bog, perhaps some 20 or 30 feet in depth. In cases where the peat is only a



FIG. 102.—THE MORRELL, *MORCHELLA ESCULENTA*.

face in their immediate vicinity, was very marked indeed for the first few years of their growth. During my career as a planter, I have come in contact with gentlemen who have travelled a great deal on the Continent and elsewhere, and I have been told that in some parts they scarify or rib the surface of the ground with a plough, and then sow tree seeds, and sometimes the cones of coniferous trees, and allow the heat of the sun to open them by degrees. This answers the same end as my method, to spread out the stuff excavated from the drains on the surface to form a seed bed. When the surface of the ground is broken, it admits air, heat, rainwater, and frost more readily, and thus increases the fertility of the soil to a large extent; but, of course, in preparing peat bog this is unnecessary. Fine examples may be seen of the beneficial effects of breaking up the surface

few feet in depth, and where clay may be dug up from the bottom of the drains on the spot, this should be utilised when planting the trees, thus reducing the expense. By mixing a little clay or soil with the peat, we establish a better balance between the organic and inorganic constituents of the soil, rendering the soil a better nutritive agent than formerly was the case; moreover, the addition of clay aids decomposition, and gives firmness to the surface, all of which promote the healthy development of the trees.

The best time to plant peat bog is the month of April; if planted in autumn or during winter, the antiseptic properties of the peat is apt to kill the roots before they take to the soil, which explains the utility of planting this class of ground when the plants will at once start to grow after the operation. *J. B. Webster.*

Obituary.

SAMUEL COOPER.—We regret to record the death of the well-known nurseryman and seedsman, Mr. S. Cooper, of Hadleigh, Suffolk, who died on Friday, April 3, at the age of sixty-nine. The deceased was born at Humberston, Leicestershire, and early in life he held several responsible positions in nurseries and gardens in England. Removing to Scotland, he was for some time in the gardens of Dalkeith Palace, the residence of the Duke of Buccleugh. After this, he established for himself a very successful business at Wellingborough; and finally, some twenty-five years since, removed to Hadleigh, where he extended the nurseries, and, with the aid of his son (who will in future carry on the business) worked up a very good connection.

H. G. BARD.—The death has recently taken place of Mr. H. G. Bard, whose name some twenty years ago, whilst in the service of E. G. Henderson & Son, of the Wellington Road Nurseries, was well known in connection with the new varieties of Bouvardias, Fuchsias, then being introduced. He afterwards entered the service of Messrs. James Carter & Co., with whom he will be best remembered as having been engaged for a series of years in the fertilisation and raising of their crossbred Wheats.

JOHN DYKES.—Nurseryman, Kilmarnock, N.B., on April 10, aged 80 years. The business will be carried on by Mr. J. C. Dykes, the remaining partner.

WILLIAM BARRON.—William Barron, of Elvaston, has for long years past been a well-known name in Horticulture. By nature keen and shrewd, long experience had made him a first-rate gardener, and one whose knowledge of trees and their ways was unique. Of his early history we propose to speak on another occasion; it must suffice now to mention that he was gardener for some years at Elvaston Castle, on leaving which he entered into business as a nurseryman and landscape gardener at Borrowash, near Derby, within sight of the garden he had done so much to make famous. Here he accumulated a large and varied collection of hardy trees and shrubs, especially Conifers, with which he had a special acquaintance. He had large experience in the moving of large trees, undertaking, with confidence, tasks in this direction from which others would have and did shrink. One of his feats in this way was his removal of an old Yew in the churchyard at Buckland, near Dover. In common with others who were consulted, we at the time expressed an adverse opinion as to the propriety of the proceeding, but we had to confess, and we may repeat it now, that the operation was performed without material damage to the tree, which was in good condition when we saw it last a year or two ago. Illustrations of this remarkable tree, and of the process of its removal, were given in our columns at the time.

Next week we hope to be able to publish a portrait of this remarkable man, together with some further details as to his career. Mr. Barron, who had retired from business a year or two ago, died on the 8th inst., in the eighty-sixth year of his age.

MARKETS.

COVENT GARDEN, April 9.

BUSINESS continues brisk, and with supplies lighter prices have improved. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Lettuces, per dozen ... 3 0-...
Beans, French, lb. ... 1 6-2 0	Mushrooms, punnet 2 0-...
Beet, red, per dozen 2 0-3 0	Mustard and Cress, punnet ... 0 4-...
Brussels Sprouts, lb. 0 6-...	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 2 0-2 6
Cauliflowers, each 0 6-...	Shallots, per lb. ... 0 6-...
Celery, per bundle ... 2 6-3 6	Spinach, per bushel ... 7 0-...
Cucumbers, each 0 6-0 9	Tomatoes, per lb. ... 1 0-1 6
Endive, per dozen ... 4 0-...	Turnips, per bunch 0 6-...
Herbs, per bunch ... 0 4-...	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Ficus elastica, each 1 6-7 0
Aspidistra, doz. ... 18 0-42 0	Foliage plants, various, each ... 2 0-10 0
— spec. plants, each 7 6-10 8	Genista, per dozen ... 8 0-12 0
Azalea, per dozen ... 24 0-42 0	Hyacinths, per doz. 6 0-9 0
Bedding plants, variety, per doz. ... 1 0-2 0	Lily of the Valley, per dozen pots ... 9 0-18 0
Bouvardias, p. doz. 9 0-18 0	Marguerites, doz. ... 6 0-12 0
Cineraria, per dozen 8 0-10 0	Mignonette, per doz. 8 0-9 0
Cyclamens, dozen ... 9 0-18 0	Myrtle, per doz. pots 6 0-12 0
Cyperus, per dozen ... 4 0-12 0	Palms in variety, each ... 2 6-21 0
Dielytra, per dozen 8 0 12 0	Pelargoniums, doz. 12 0 18 0
Dracena terminalis, per dozen ... 30 0-60 0	— scarlet p. doz. 5 0-9 0
— viridis, per doz. 12 0 24 0	Primula sinensis, doz. 4 0-6 0
Eunymus, in var., per dozen ... 6 0-18 0	Roots for bedding, in boxes, each, from 1 0-3 0
Ericas, various, doz. 8 0-18 0	Spiraea, per dozen ... 9 0-12 0
Evergreens, in var., per dozen ... 6 0-24 0	Solanums, per doz. ... 9 0-15 0
Ferns, in var., doz. 4 0-18 0	Tulips, per doz. pots 6 0-9 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 4-sieve ... 3 6-6 0	Lemons, per case ... 15 0 25 0
— Nova Scotia, brl. 15 0-25 0	Pine-apples, St. Michael, each ... 2 0 8 0
Cobs, Kent, 100 lb. ... 45 0-50 0	Strawberries, p. lb. ... 3 6-8 0
Grapes, new ... 5 0 9 0	

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Anemone (Fr.), 12 bun. 2 0-4 0	Narcissus (paper white), 12 sprays 0 9-1 6
Azalea, 12 sprays ... 0 6-0 8	— French, 12 bun. 2 0-6 0
Bouvardias, per bun. 1 0-1 6	Narcissus (yellow), 12 bun. ... 2 0-4 0
Callaethiopica, 12 bl. 3 0-6 0	— Poeticus (Pheasant Eye) 12 bun 4 0-6 0
Camellias, white, 12 blooms ... 2 0-4 0	Pelargoniums, scarlet, 12 spr. ... 0 6-0 9
— cold, 12 blms. 0 9-1 6	Poinsettias, 12 blms. ... 0 8-1 6
Carnations, 12 blms. 1 0-2 0	Primroses 12 bun. ... 0 8-1 6
Cyclamens, per doz 0 3-0 6	Primulas, double, 12 sprays ... 0 6-1 0
Daffodils, various, 12 blooms ... 0 3-0 9	— single, 12 sprays 0 4-0 6
— (Foreign), 12 bun. 2 0-6 0	Ranunculus (Fr.), 12 bun. ... 1 0-2 0
Eucharis, per dozen 4 0-6 0	Roses, Tea, per doz. 1 0-3 0
Gardenias, per doz. 2 0-4 0	— coloured, dozen 2 0-4 0
Heliotropes, 12 spr. 0 6-1 0	— yellow (Maréchal), per doz. ... 3 0-6 0
Hyacinths, Rom., 12 bunches ... 1 0-2 0	— red, per dozen ... 3 0-6 0
Hyacinth, various, 12 spikes ... 3 0-6 0	— do., French, doz. 1 0-3 0
Lilium Harrisii, doz. 3 0-4 0	Snowdrops doz. bun. 1 0-3 0
Lily of the Valley, 12 sprays ... 0 6-1 0	Tuberose, 12 blms. ... 0 9-1 6
Maiden Hair Fern, 12 bunches ... 4 0-9 0	Tulips, various, 12 bl. 0 9-1 6
Marguerites, 12 bun. 3 0-6 0	Violets, 12 bun. ... 0 9-1 6
Mignonette, Fr., bu. 1 6-2 6	— Parma, Fr., bun. 3 0-3 6
Mimosa (French) 12 bun. ... 15 0-18 0	— dark, Fr., bun. 2 6-...
— (French) basket 4 0-6 0	Wallflower (Fr.), 12 bun. ... 1 0-2 0
Myosotis, 12 bun. ... 4 0-...	

ORCHID-BLOOM in variety.

OLD POTATOS.—A further rise of 10s. per ton for all kinds has taken place since last report with upward tendency.

NEW POTATOS.—The demand has been somewhat brisk, with a gradual rise in values. Arrivals light. *J. B. Thomas.*

SEEDS.

LONDON: April 15.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., report a quiet, steady demand for Clover and other seeds at last Monday's prices. From the moderate stocks held, the sowing wants of the vast majority of English farmers have yet to be satisfied. The present season is proving to be a most remarkably backward one. In Rape seed the late advance is well sustained. Mustard shows no alteration. The tendency in Canary and Hemp seed is upward. Peas and Haricots have further risen in value, and the supplies of both articles seem nearly exhausted.

FRUIT AND VEGETABLES.

STRATFORD: April 14.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 3s. to 5s. per tally; Savoys, 5s. to 8s. do.; Greens, 1s. 6d. to 2s. 6d. per sieve; do., 2s. to 5s. per dozen bunches; Cauliflowers, 2s. to 3s. 6d. per dozen; do. 9s. to 15s. per tally; Turnips, 30s. to 40s. per ton; Carrots, household, 100s. to 120s. do.; do., cattle feeding, 36s. to 40s. do.; Parsnips, 1s. to 2s. 6d. per score; Mangels, 24s. to 26s. per ton; Onions, English, 110s. to 130s.; do., Dutch, 3s. to 5s. 3d. per bag; Apples, English, 3s. to 7s. per bushel; Watercress, 7d. per dozen; Cress, hot and cold, 1s. 9d. to 2s. per dozen bunches; Radishes, 9d. to 1s. per dozen bunches; spring Onions, 5s. to 7s. do.

POTATOS.

BOROUGH AND SPITALFIELDS: April 14.—Quotations:—Hebrons, 120s. to 130s.; Imperators, 120s. to 140s.; Champions, 110s.; Regents, 120s.; Magnums, 110s. to 140s. per ton.

SPITALFIELDS: April 15.—Quotations:—Magnums, 110s. to 140s.; Hebrons, 110s. to 130s.; Regents, 110s. to 120s.; Imperators, 120s. to 140s.; Champions, 110s.; Early Rose, 110s. per ton.

STRATFORD: April 14.—Quotations:—Imperators, 110s. to 130s.; Magnums, 110s. to 140s.; Hebrons, 110s. to 130s.; Elephants, 110s. to 130s.; Scotch Magnums, 120s. to 140s. per ton.

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.
	Above (+) or below (—) the Mean for the Week ending April 11.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.				
1	2	15	31	+ 35 + 32	6	66	14.8	35
2	3	9	23	— 19 + 45	2	40	5.3	23
3	4	3	20	— 29 + 71	2	47	4.5	16
4	2	13	19	— 32 + 112	1	48	4.2	11
5	3	14	21	— 28 + 92	0	41	4.6	15
6	3	24	11	— 63 + 140	3	42	5.9	16
7	2	12	23	+ 5 + 16	4	49	9.4	23
8	2	12	11	+ 8 + 21	3	38	4.8	16
9	2	24	9	— 37 + 103	5	40	7.0	24
10	3	24	15	+ 6 + 16	4	51	5.6	23
11	2	33	15	+ 16 + 26	4	44	5.7	36
12	1	27	0	— 21 + 41	5	45	6.1	33

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.

11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 11, is furnished from the Meteorological Office:—

"The weather was showery and changeable, with thunder and lightning in places during the first two days of the period, but afterwards became dry, with generally overcast skies.

"The temperature rose considerably during the earlier part of the time, and means varying between 56° and 59° were recorded in most of the English districts, and between 52° and 56° over Ireland and Scotland. During the latter part of the week, however, the maxima were generally below 50°. The lowest of the minima were registered on the 8th, when the thermometer fell to 21° in 'Scotland, N.,' 25° in 'Scotland, E.,' and over Ireland, to between 27° and 32° in most other districts, and to 36° in the 'Channel Islands.' The average values for the week have been in most cases from 2° to 4° below the mean for the time of year.

"The rainfall has been more than the mean in 'England, N.E.,' and about equal to it in the 'Midland Counties.' In all other districts a deficit is shown.

"The bright sunshine has been less prevalent over the Kingdom as a whole than for some time past, the percentage of the possible duration having ranged from 11 to 24 over England, from 23 to 35 in Scotland, and from 23 to 36 in Ireland."

NOTICES TO CORRESPONDENTS.

ALPINE AND OTHER STRAWBERRIES: *W. C. C.* Where the runners are not to be obtained, and even as a matter of ordinary practice, it is well to raise the Alpine Strawberry from seed, by sowing in pans in February and March, or even at the present time. It should be sown thinly in loam and leaf-mould, about 1-inch layer of fine sifted soil, laying on 2 inches of loamy lumps, of the size of hazel nuts; these again over-laying a few crocks. The lumps afford root-hold, and most of the seedlings will lift with one or more attached to the roots. The earliest sowings should be raised in heat of 60° to 70°, and the pans should be put close to

the roof to prevent drawing. Prick off when a few leaves have been made, and grow in an intermediate temperature for a fortnight, and then in a cool one. Later sowings treat cool throughout. When large enough to be safe, plant out on sunny border. Other Strawberries may be raised in the same manner. There is a runnerless variety of Alpine, that admits of increase in no other way. Tiles have been employed to cover the land under Strawberries. The method is a clean one for the fruits, but we question if it really induces greater warmth in the soil, than bareness would do. Of course, a mulch keeps the soil cool, and that is a disadvantage in most of our summers. Perhaps the wateriness of our fruits, now, and their acidity, too, may be traced to the common use of mulchings, but the fruit must be kept clean somehow, and litter offers the readiest means of doing it. It will be found that the earliest and best-flavoured fruits come from two or three-year old beds that are not dug, and may not have been even hoed. But the fruits are small, and the crop is a poor one; still there are those who put up with these disadvantages if they can get earliness and flavour. Do not keep your bed longer than the third year; and this will involve your planting one-third of the area under Strawberries each year.

CARNATION SOUVENIR DE LA MALMAISON: *F. N.* There is nothing in which the cultivation of the forms of this Carnation differs from that which is found suitable for other winter flowering varieties; strike cuttings in a mild hotbed, or on mild bottom-heat, under handlight or large bell-glass; guard against damping at this stage by airing daily for fifteen minutes, and wiping the glass on the inside. When rooted, pot off in sandy loam, with a small portion of well-decayed manure or leaf-mould, and replace in warmth, but not shut down close. In ten days the plants may be placed on a shelf in the greenhouse, or better in a frame, where they may be gradually inured to cold air. In the middle of the month of May, place the plants on or in a bed of sifted coal-ashes in a sheltered, warm, and sunny place; or grow them on stages in cool pits close to the glass, giving air abundantly at night, and removing the lights entirely in fine weather. Shift the plants once or twice before September, and pot firmly at all times. The final shifting should be into a not over-rich compost.

LOBELIAS: *C. B.* The Lobelias should be taken out of the boxes and put out a few inches apart in light soil over a slight hotbed, to there remain with increasing ventilation, and finally full exposure, until they are put into the beds. Failing the hot-bed, pot them singly in small 60's, or box them. Those which you require to flower in pots should be shifted into pots at once, and grown on in slight warmth till the middle of May. Do not let them bloom till they have become a fair size, that is, cut them over occasionally.

MANY-FLOWERED TULIPS: *H. J. R.* Uncommon, but not unprecedented. Many thanks.

MORELS: *A. B.* The specimen sent is the true Morel, which varies considerably in form in different cases (see fig. 102, p. 505). All the Morels are wholesome.

NAME OF FRUIT: *J. S.* Apple Calville Malingre—a good long-keeping kitchen fruit.

NAMES OF PLANTS: *J. Hills.* 1, *Funckia ovata variegata*; 2, *Choisya ternata*.—*Quince.* 1, *Maréchal Niel*; 2, not known in bud state; 3, *Rhodotyphus Kerrioides*; 4, *Saxifraga Wallichii* probably.—*G. B.* *Anthericum Liliago*.—*C. K. G.* 1, apparently *Pinus cembra*; 2, *Ribes sanguineum*; 3, *Saxifraga cordifolia*; 4, *Doronicum Pardalianches*.—*J. A. W.* 1, *Orange Phoenix*, also Eggs and Bacon *Narcissus*, *Incomparabilis plenus aurantius*; common double *Daffodil*, *Narcissus Telamonius plenus*.—*W. W. S.* 1, *Begonia semperflorens*; 2, *Begonia*, not identified without flowers; 3, *B. floribunda alba*; 4, *B. Dregei*; 5, *B. Ingrami*; 6, *B. hydrocotylifolia*; 7, *Begonia*, hybrid between *Rex* and some species—scrap too small to determine; 8, *Mesembryanthemum aurantiacum*; 9, *Erythronium Dens canis*; 10, *Scilla bifolia alba*; 11, *Aloe variegata*; 12, *Oxalis acetosella*; 13, *Begonia subpeltata*. The tuber is probably *Geenera tubiflora*. Send when in flower.—*G. H.* *Bifrenaria Harrisonae*.—*Anthurium.* 1, *Æschynanthus Lobbianus*; 2, *Hoffmannia refulgens*. There is no recognised garden classification of *Anthuriums*.—*T. H. W.* *Odontoglossum Coradinei*.

PEACHES AND NECTARINES: *T. W.* The fumigation of the house whilst the blooms were open may have injured the delicate organs of the flowers, or the bees, which you say came into the house in great numbers, may have carried off the pollen, and injured the stigmas. The management of the trees seems to have been correct.

SQUARE-STEMMED BAMBOO: *G.* This was figured in our columns, 1st vol. for 1876, p. 147, from the *Revue Horticole*, and we have since seen the plant growing in the garden of Canon Ellacombe.

TOMATOS AND APHIS: *C. B.* Fumigate with tobacco or some of its preparations. The plants with burnt foliage will outgrow the injury. Grow them as you would a Vine, giving them rather more ventilation. Give no manure-water before a good number of fruits have set, and be not too liberal in the use of the syringe.

VINES: *W. Goodlife.* The vinery has evidently been ill-ventilated, and too abundantly supplied with air-moisture. More we cannot say from the one leaf and piece of root 4 inches long which you sent.—*R. MacC.* There are no signs of the *Phylloxera*—but the roots are much gnawed—probably by the numerous woodlice which you state are harbouring in the border.

VINES NOT FLOWERING: *Yattenden.* Send some shoots and roots for inspection. The *Abutilons* could not have caused the damage you complain of, unless their roots have possessed themselves of the Vine border. Your supposition about their having robbed the Vines of nitrogen, &c., is moonshine.

VIOLETS DESTROYED OR MUCH DISFIGURED BY FROST: *D. McE.* Were you not living in the West of Ireland, we should suppose that the common enemy of Violets—red spider had infested the leaves during the summer and autumn, weakening them greatly, and making them liable to be entirely destroyed by frost. A good place for Violets, and one in which they are kept cool in summer, and somewhat protected in winter, is the Gooseberry or Currant quarter. Here they may be planted in single or double lines between the rows of bushes. Strong manure is not good for them, and should not be brought into contact with the roots; leaf mould or spent Mushroom bed stuff is much better. You might afford the plants some amount of protection in winter by means of thatched hurdles placed at the sides of the rows or beds.

WHITE CAMELLIA SPORT: *R. M.* Quite worthy of being propagated.

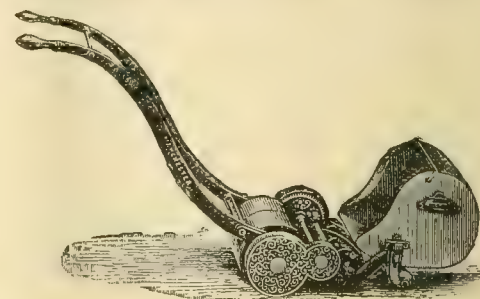
CATALOGUES RECEIVED.

W. P. LAIRD & SINCLAIR, 73, Nethergate, Dundee—Farm Seeds.
CHARLES FRAZER'S EXORS., Palace Plain Works, Norwich—Conservatories, Pits, &c.
CHARLES TURNER, Royal Nurseries, Slough—Spring List of Soft-wooded and Stove Plants.
J. SALLIER, JR., 9, Rue Delaizement, Neuilly-sur-Seine—General Plant List.
COOPER, TABER, & CO. (Limited), 90, Southwark Street, London, S.E.—
FRED. W. KELSEY, 145, Broadway, N.Y.—Nursery Stock.
V. LEMOINE & SON, Rue de Moutet, Nancy—Plant List No. 118.
VILMORIN-ANDRIEUX & CO., 4, Quai de la Mégisserie, Paris—Seeds of Hardy, and other Trees and Shrubs, and Plants.
GEO. ELSOM, 31, New Road, Spalding—Farm Seeds, Ropes, Nets, &c.
TIMOTHY HOPKINS, Sherwood Hall Nurseries, Mento Park, California—Florists' Flowers, &c.
H. CANNELL & SONS, Swanley, Kent—New Chrysanthemums.
W. CLIBRAN & SON, Oldfield Nursery, Altrincham—General Plant List.
WILLIAM GRIFFIN, Luda Works, Louth, Linco.—Weed Killers and Sundries.
GEO. HUMPHRIES, Kingston Langley, Chippenham—Dahlia, Bedding Plants.
T. SMITH, Daisy Hill Nursery, Newry—Alpine and Hardy Herbaceous Plants, &c.
MERRYWEATHER & SONS, 63, Long Acre, London, W.C.—Hoses and Fittings.

COMMUNICATIONS RECEIVED.—*H. A. G.*—Barr & Son.—*H.*—*J. A. B.*—*J. Curry*.—*R. A. R.*—*H. R. W.*—*B. Borrowash*.—*Dr. F. Kranzlin*.—*E. J.*—*W. D.*—*R. D.*—*W. S.*—*W. Swan*.—*E. M.*—*W. H. D.*—*W. N.*—*A. P.*—*W. A. C.*—*H. G.*—*J. B. W.*—*J. H. A.*—*Dr. Kranzlin*, Berlin.—*H. V.*, Biarritz.—*W. S.*—*G. L.*, Nova Scotia.—*W. C.*—*A. B.*, Adare—*J. O'B.*

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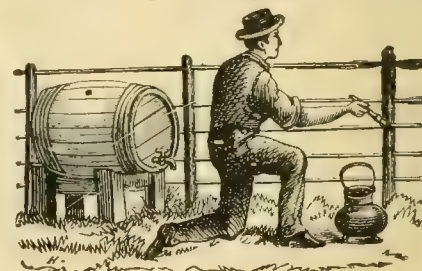
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See large Advertisement in *Gard. Chron.* for March 28.

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Maintains its Superiority over all Rivals
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Drives, Ash Tennis Courts, Stonework grown green, etc.
Saves many times its cost in labour, and will keep
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SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

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Street, Glasgow, is the very thing that has long been wanted.
This is at once simple, cheap, and effective, and requires
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of the road weeds, and, therefore, plays an important part
in the keeping of the roads."

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Mr. J. HUDSON, Gunnersbury House Gardens, writes:—"I
am glad to say that the Weed Destroyer has given us every
satisfaction; it proved most effectual, and is a great saving of
time and labour."

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3 Gallon Drums, 5s. 6d.	12 Gallon Casks, 19s. 0d.
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NATIVE GUANO for ROSES, TOMATOS, &c.—W. G.
BAILEY, Nurseries, Bexley, used it for Roses, Tomatoes, and
Cucumbers, and says:—"I find it a good and cheap article."

A. F. BARRON, Royal Horticultural Society, says:—"With-
out doubt a very valuable Manure, and easy of application."

Orders to the NATIVE GUANO CO., Limited, 29, New
Bridge Street, Blackfriars, London, E.C., where Pamphlets of
Testimonials, &c., may be obtained. Agents wanted.

BEESON'S MANURE.—The Best and
Cheapest Fertiliser for all purposes. Write for Circular
containing the Leading Gardeners' and Market Growers'
Reports. Sold in Tins, 1s., 2s., 6d., 5s. 6d., and 10s. 6d. each,
or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to
W. H. BEESON, Carbrook Bone Mills, Sheffield.

THOMSON'S IMPROVED VINE and PLANT
MANURE.—This valuable Manure is made only by us.
Every bag and tin has our name on it. To be had of all Nurseries
and Seedsmen, and direct from us. 1 cwt. and over carriage
paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

RELIABLE ARTICLES

OF

SUPERIOR MERIT.

The INFALLIBLE

Weed Killer

'CUPROLENE,'

Regd. Trade Mark.

The DEMON

Insecticide

and CLEANSER.

Regd. Trade Mark.

Numerous Testimonials
and every particular re-
specting these, and our
other manufactures, sent
post-free.

IT WILL PAY YOU

to apply for them before
placing your orders else-
where.

Sole Proprietors—

DEIGHTON & CO.,

Operative Chemists,
BRIDGNORTH.

BEST KENT PEAT.

PREPARED ORCHID PEAT, handpicked, 10s. per sack;
5 for 47s. 6d.

SELECTED ORCHID PEAT, in Blocks, free from waste,
8s. per sack; 5 for 37s. 6d.

BEST BROWN FIBROUS PEAT FOR ORCHIDS, 5s. per
sack; 5 for 22s. 6d.

BROWN FIBROUS PEAT FOR AZALEAS, RHODODEN-
DRONS, &c., 4s. per sack; 5 for 18s.

GOOD BROWN FIBROUS PEAT, for FERNS, &c., 3s. per
sack; 5 for 12s. 6d.

PEAT MOULD, LEAF MOULD, and FIBROUS LOAM, each
2s. 6d. per sack; 5 for 10s.

PREPARED COMPOST, for Potting all kinds of Plants, 4s.
per sack; 5 for 18s.

MOSS for PACKING, 3s. per sack; 5 for 12s. 6d.

All Sacks included. Send Postal Order for SAMPLE SACK.

GARDEN STICKS of all descriptions.

For PRICE LIST and Special Quotations for Larger Quantities
apply to THE FORESTER, Joyden Wood, near Bexley, Kent.

FINEST In TRUCKS, CASKS, or SACKS, from
RINGWOOD or LONDON.
HAMPSHIRE PEAT!

LOAM, SAND, LEAF SOIL, SPHAGNUM MOSS, CHAR-
COAL; every kind of ARTIFICIAL MANURE.

NEW FUMIGATING MATERIALS.

GARDEN SUNDRIES of every description.

G. H. RICHARDS, Horticultural Sundriesman, &c.

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PEAT GROUNDS, RINGWOOD, HANTS.

EPPS'S Selected **PEAT,**

For ORCHIDS, STOVE PLANTS,

Hardwood do. Ferns, and Rhododendrons, by sack, yard, ton,
or truckload. SPECIAL ORCHID PEAT, in sack only.

Rich fibrous LOAM, superior LEAF-MOULD, Coarse, Crystal,
and Fine SILVER SAND, CHARCOAL, C.N. FIBRE REFUSE,

fresh SPHAGNUM, Patent MANURES, FERTILISERS, INSEC-
TICIDES, and all other Garden Requisites. Peat Moss Litter.

The Original Peat Depot, RINGWOOD, HANTS.



TRADE

MARK.

FOR PLANTS.

QUICK. LASTING. ECONOMICAL.

LOWER EDMONTON, MIDDLESEX, November 18, 1890.

Dear Sir,—We have used your "INVIGORATOR"
on all kinds of plants, and have much pleasure in
telling you it has answered in every way to our
great satisfaction. We look upon your "INVIGORA-
TOR" as the highest class manure now being sent
out to the public.—We remain, yours truly,

To Mr. S. C. Clay.

J. & J. HAYES, F.R.H.S.

Sold by Seedsmen, Florists, and Nurserymen, or direct from the
Works, in 6d. and 1s. Packets, and SEALED BAGS:—

7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2s. 6d.	4s. 6d.	7s. 6d.	12s. 6d.	20s.

The above Trade Mark is printed on every Packet and Bag,
and also impressed on the Lead Seal attached to the mouth
of each Bag.

A SAMPLE PACKET will be sent post-free on receipt of
ONE SHILLING by the MANUFACTURER—

S. C. CLAY,

Marsh Island, Stratford New Town, London, E.

NO CONNECTION WITH ANY OTHER FIRM.

PATENT SILICATE MANURE Co.

To Grape and Tomato Growers.

COLOUR YOUR GRAPES and TOMATOS

WITH THE PATENT

SILICATE MANURE.

It has been abundantly proved that our
Manure promotes rich colouring and early
ripening, and is highly valuable in cloudy
weather and lack of sunshine.

Specifically distinct from all other Manures

The Gardens, Buckhurst Park.—The Grapes where I used
your manure certainly colour better and shank less; in fact,
the Vines look better altogether. I think it very good for
Vines, and also Tomatoes.—Signed, JOHN F. HEWITT, Gar-
dener to the Right Hon. the Earl de la Warr.

The Gardens, Bifrons Park.—Your Silicate on the Vines
when I used it has greatly improved the colouring of the
Grapes, and with less shanking.—Signed, JAMES HOSSACK,
Gardener to the Marquis Conyngham.

The Gardens, Rushton Hall, Kettering, Nov. 10, 1890.—
Dear Sirs,—I regret I had not an opportunity of testing your
Silicate on early vineries. I used it on two late vineries with
excellent results. It is certainly the best artificial manure I
have tried. Gros Colmar, which have lacked colour in
previous years, are as black as Sloes; other varieties equally
benefited.—I remain, yours respectfully, JOHN CRUICK-
SHANK, Gardener to E. C. C. Thornhill, Esq.

Prices in Sacks, Free on Rail:—

10s. per cwt.; £2 per $\frac{1}{4}$ ton;
£3 15s. per $\frac{1}{2}$ ton; £7 per ton.

Chemical Works,
Hemel Hempsted, Herts.

100,000 yards to select from.

EXTRA STOUT strong-tanned NET, 2 yards
wide, 14d. yard; 4 yards wide, 3d. yard; or 2 yards wide,
10s. per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE
NETTING, 1 yard wide, 2d. yard; 2 yards wide, 4d. yard;
4 yards wide, 8d. yard; 12 yards wide, 2s. yard. COTTON NET,
nine meshes to square inch, 1 1/2 yards wide, 7d. yard run.
W. CULLINGFORD, 127, Field Road, Forest Gate, London, E.

COCOA-NUT FIBRE REFUSE, newly made, the same as supplied to the Royal Horticultural Society, 2 tons loose free on to rails—G. W. G. N., S. W., L. and N. W., Midland, 20s.; other lines, 25s.; in bags, 20, 15s.; 40, 25s. Cash with order.—J. STEVENS AND CO., Cocoa-nut Fibre Merchants, 153, High Street, Battersea, S. W.

PROTECT YOUR BUDS from the ravages of the birds.—**TANNED NETTING**, 35 square yards for 1s., is oiled and dressed, will not rot if kept out in all weathers. I do not require payment until you have received and approved of the Netting. Can be sent any width. Commoner Netting, 50 square yards for 1s. Hundreds of testimonials.

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ARE YOU PREPARED?

INSECT PESTS

Will be with us in millions the first break of warm weather.

BE PREPARED

WITH THE "STOTT" SPECIALTIES:
PATENT DISTRIBUTOR,
PATENT SPRAYER,
PATENT SYRINGE,
INSECTICIDE KILLMRIGHT.

The "STOTT" Fertiliser and Insecticide Co., Ltd., Manchester.

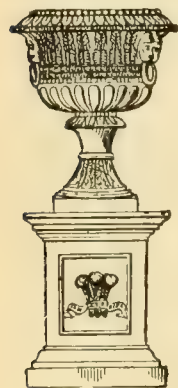
PIT LIGHTS.

Best quality and workmanship, 2 inches thick, 6 ft. by 4 ft., iron bar across and very strong, 4s. each; free on rail in London. Cash or reference with order.

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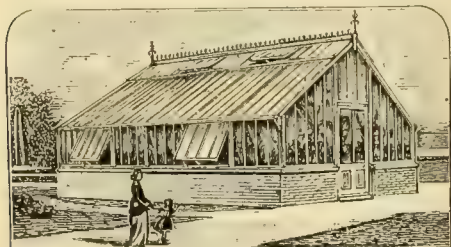
Timber sufficient to build 100 ft. by 12 ft. house, lights, door, &c. Put on rail in London. Low price. Send for detailed specification, to

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(LATE MATTHEWS)
CELEBRATED WESTON
FLOWER POTS
AND
HORTICULTURAL
POTTERY.

CONWAY G. WARNE,
Royal Potteries, Weston-super-Mare



Unanimous opinion of Gardeners:—"Best Plant House ever erected." The materials throughout the very best, the timber is well seasoned red deals, 21-oz. glass, painted four coats, wrought saddle boiler, and 4-inch piping. Ventilating apparatus roof and sides. The house erected complete within 200 miles by our own men, brickwork excepted. All goods carriage paid.

20 by 12, £44 25 by 12, £50. 30 by 15, £70.

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STOCK	Inches.	SHEET	Inches.	SIZES
	14x12		20x15	
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	18x12		22x16	
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	16x14		20x18	
	18x14		22x18	
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21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, delivered free and sound in the country, in quantity.

"HORTICULTURAL PUTTY." Own Special Manufacture. **GEORGE FARMILOE & SONS,**

LEAD, GLASS, OIL, and COLOUR MERCHANTS,
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Stock Lists and Prices on application Please quote Chronicle.

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COCOA-NUT FIBRE REFUSE,

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

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COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack; 10 for 12s., 20 for 20s., 30 for 28s. ORCHID PEAT, special, 8s. per sack. SPHAGNUM MOSS, 7s. 6d. per sack. Horticultural CHARCOAL, 8s. per sack. BONES, 4-inch, 10s. per cwt.; DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER, 10d. per lb.; 28 lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 26s.; CORD, 6d. per lb., 28 lb. for 12s. 6d. Brown Fibrous PEAT, 5s. per sack, 5 for 22s. 6d.; Black, 4s. 6d. per sack, 5 for 20s. Coarse SILVER SAND, 1s. 6d. per bushel, 14s. per 1/2 ton, 25s. per ton. LEAF MOULD, PEAT MOULD, FIBROUS LOAM, each 3s. per sack. Prepared POTTING COMPOSTS, 5s. per sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches by 4 feet 6 inches, 18s. per dozen. PETERSBURG MATS, 12s. and 10s. per dozen. BAMBOO CANES, STICKS, and SUNDRIES. List free.—W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

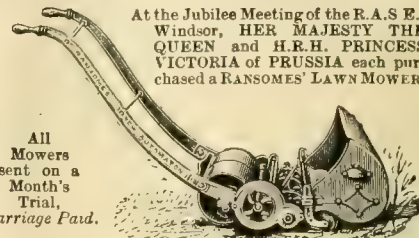
GISHURST COMPOUND used since 1859 for Red Spider, Mildew, Thrips, Greenfly and other blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a winter dressing for Vines and Orchard-house trees, in lather from cake for American blight, and as an emulsion when paraffin is used. Has outlived many preparations intended to supercede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s. from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

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At the Jubilee Meeting of the R.A.S.E., Windsor, HER MAJESTY THE QUEEN and H.R.H. PRINCESS VICTORIA of PRUSSIA each purchased a RANSOMES' LAWN MOWER.

All Mowers sent on a Month's Trial, Carriage Paid.



LAWN MOWERS,

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In all sizes to meet every requirement.

"NEW AUTOMATON," the Best Gear Machine.
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"EDGE CUTTER," the only one of real service.
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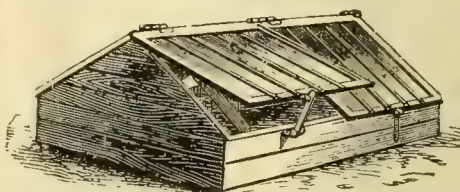
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Orders executed promptly by all Ironmongers.

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GREAT REDUCTION in FRAMES

OUR WELL-KNOWN MAKE.



PORTABLE PLANT FRAMES.

These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by any one.

Sizes and Prices, Glazed and Painted.		£	s.	d.
6 feet long, 3 feet wide	CASH	2	0	0
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12 feet " 6 feet "		5	12	6

Larger sizes at proportionate prices.

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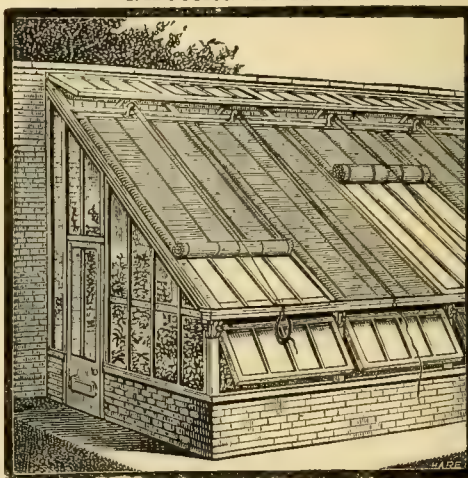
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MIDDLETON, MANCHESTER.

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MADE OF WOOD and ZINC ONLY.

AWARDED 40 PRIZE MEDALS.

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ORCHID PEAT, best quality; **BROWN FIBROUS PEAT** for Stove and Greenhouse use. **RHO-DODENDRON** and **AZALEA PEAT**. Samples and Prices to WALKER AND CO., Farnborough, Hants.

THE GARDENERS' CHRONICLE

NOTICE.

OUR PUBLISHING ARRANGEMENTS.—In consequence of the death of Mr. W. Richards, Mr. A. G. MARTIN has been appointed as Publisher, while Mr. LEONARD BARRON, heretofore of the Editorial Staff, will undertake the duties of Advertisement Manager. All communications relating to the business part of the paper should be addressed "Publisher."

NOTICE TO ADVERTISERS.—In many instances Remittances in Payment of Repeat Advertisements are received without name, address, or anything beyond the postmark on envelope by which to identify the sender: this in all cases causes a very great deal of trouble, and frequently the sender cannot be identified at all. Advertisers are requested when Remitting to give their Names and Addresses, and also a Reference to the Advertisements which they wish repeated.

POSITION.—Advertisers are specially requested to note, that under no circumstances whatever can any particular position be guaranteed for advertisements occupying less space than an entire column.

POSTAL ORDERS.—To Advertisers, Subscribers, and Others.—It is very important in remitting by Postal Order that it should be filled in payable at No. 42, DRURY LANE, to A. G. MARTIN, as, unless the number of a Postal Order is known, and it has been made payable at a particular office, and to a particular person, it is impossible to prevent any person into whose hands it may fall from negotiating it.

N.B.—The best and safest means of Remitting is by POST-OFFICE MONEY ORDER.

Advertisements for the current week MUST reach the Office not later than Thursday noon.

All Advertisements should be addressed to the PUBLISHER.

Publishing Office and Office for Advertisements, 41, WELLINGTON ST., STRAND, W.C.

SUBSCRIPTIONS.

All Subscriptions payable in advance. The United Kingdom, 12 months, 15s.; 6 months, 7s. 6d.; 3 months, 3s. 9d. Foreign (excepting India and China), including Postage, 17s. 6d. for 12 months; India and China, 19s. 6d. Post-office Orders to be made payable at the Post-Office, 42, Drury Lane, W.C., to A. G. MARTIN.

Subscribers who experience any difficulty in obtaining their Copies regularly, are particularly requested to communicate with the Publisher (in cases of delay in the delivery by post, the cover should be forwarded with complaint).

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Any one desirous of

Renting a Farm or Residence, or Purchasing an Estate, can have copies of the

MIDLAND COUNTIES HERALD

SUPPLIED FREE FOR SIX WEEKS,

on stating the purpose for which the paper is required, forwarding Name and Address, and six halfpenny stamps for postage, addressed, "Midland Counties Herald Office, Birmingham." The Midland Counties Herald always contains large numbers of advertisements relating to Farms, Estates, and Residences for Sale and to be Let.

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The Best County Medium for Advertising Sales of Estates is

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ESTABLISHED 1794.

The Leading County Paper. Extensive circulation among the upper and middle classes in Worcestershire and adjoining counties. Advertisers would do well to forward for reference and distribution plans and particulars of Estates, Catalogues of Machinery, Furniture, Books, and other Property advertised in the Columns of the "HERALD."

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The "WORCESTER HERALD" is the most effective organ for giving publicity to announcements of this class. It is the leading Agricultural Paper in the County, and Circulates most extensively among Agriculturists in and around Worcestershire.

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Land Agents, Estate Managers, and all having Farms to Let would do well to advertise in the "WORCESTER HERALD," the Leading County Paper. Specially adapted for bringing such notices before Tenant Farmers. Large circulation. Moderate charge.

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For producing results the "WORCESTER HERALD" is recognised as a specially good medium. Cheap Rates.

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AND

NEW SOUTH WALES ADVERTISER.

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THE SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 6s. per Annum.

Single Copies, 6d.; Stamped, 7d.

Publishing Office—Hunter Street, Sydney, New South Wales.

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Messrs. W. H. Smith & Son, 186, Strand.

BRISTOL James and Henry Grace, Royal Insurance Buildings.

MANCHESTER... James and Henry Grace, 78, Market Street.

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STOURBRIDGE,

DENNIS PARKIRON WORKS

PRICE LISTS FREE

THE MANUFACTURER

THE IMPROVED EXPANSION JOINT

HOT WATER PIPES

"THE BEST OF ALL"

HOT WATER JOINTS

TELEGRAMS:—"ALPHA"

BRETTLE LANE

BOILING WATER OR MILK.

E P P S'S
GRATEFUL—COMFORTING.
C O C O A
BREAKFAST OR SUPPER.

GARDENING APPOINTMENTS.

MR. ALBERT BAXTER, until lately Foreman in the Gardens, at Canford Manor, Wimborne, as Head Gardener to Lord RODNEY, Berrington, Leominster, Herefordshire.

MR. JAMES CHARLTON, as Head Gardener and Bailiff to the Right Hon. Lord BOSTON, Hedsor Park, Maidenhead, Bucks.

MR. C. HIBBERT, until recently Foreman at Craig-y-nos Castle Gardens, Swansea, as Head Gardener to Madame ADELINA PATI NICOLINI, at that place.

MR. G. KNIGHT, late of Sand Hall, Howden, as Head Gardener to G. AMBLER, Esq., Kirklands, Charlestown, Shipley, Yorkshire.

MR. A. VINCE, formerly of Delaford, Iver, Bucks, as Head Gardener to L. BROOKSBANK, Esq., J.P., Newlands Park, Sydenham.

Partnership.—To Florists and Nurserymen.

WANTED, a practical FLORIST, to TAKE the PLACE of a RETIRING PARTNER in an old-established Nursery in the Southern Counties. Capital from £500 to £1000 required. No agent need apply.—Apply to J. G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PARTNERSHIP.—Advertiser, with some capital, seeks PARTNERSHIP in Wholesale Fruit and Flower Commission Business, which must bear strictest investigation. Possesses good and sound connection amongst London and County Buyers.—ENTERPRISE, 1, Oswald Terrace, Worsley Road, Leytonstone, E.

WANTED, for a large Market concern, in course of completion, a MANAGER (married) to growing department. Must be first-rate at Grapes, early and late, Peaches, Tomatoes, and Beans; also, and particularly Roses, and Chrysanthemums. Expected to be steady, energetic, very strict, and devoted to his business. Terms, lodging and fuel, and salary such as to give satisfaction. Only first-class tried men are requested to answer this, giving full references, and stating wages required, to C. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, NURSERY MANAGER.—A Man thoroughly conversant with the Growing and Value of Plants in all departments, both Out and Indoor, and a good Salesman.—Apply, giving references and stating salary expected to MANAGER, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

REQUIRED, in a First-class FLORIST BUSINESS in the suburbs of London, a competent MAN, to TAKE CHARGE. One who is accustomed to the Making-up in good style of Bouquets, Designs, Wreaths, &c., and who has good taste in the arrangement of Dinner-table Decorations. None need apply but those thoroughly efficient, and who can produce the best references as to ability and integrity.—Apply, by letter only, to A. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED IMMEDIATELY, a good SINGLE-HANDED GARDENER.—Address, stating wages required, &c., to W. ACTON, Brookside, Balcombe, Hayward's Heath, Sussex.

WANTED, a good WORKING GAR- DENER, for small place, Hothouse, Vinery, and Conservatory. Wages, 18s. a week, and Cottage, with a nice if satisfactory. One Under Gardener.—C. G., Advertising Agent, 4A, Middle Temple Lane, London, E.C.

WANTED, a first-rate WORKING GARDENER.—Must thoroughly understand Green-houses, Flower, and Kitchen garden. Small Orchard; no forcing. Single-handed; married. 21s. per week.—Ivy House, Chertsey.

WANTED, a SECOND GARDENER.—Married; a thorough good working man. Must thoroughly understand Plant, Fruit, and Vegetable Growing, and be able to take entire charge of Men during Advertiser's absence. Wages £1 per week, with good cottage close to garden, and milk. None need apply who are not thoroughly competent. Write, stating age, and particulars of ability and character, to ROBERT STANLEY, The Gardens, Rushmore, Salisbury, Wilts.

To Working Men Everywhere.

WANTED, a number of YOUNG WORK- MEN, in a first-class Nursery in the South-West of England, for Potting, Watering, Planting, Training, Packing, and general Plant Nursery Work. Hours, 6 to 6 in Summer; 7 to 7 in Winter. Wages, about 12s.; encouragement given to those who make themselves useful, and require permanent employment.—By letter to STERLING, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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KEEP PACE WITH DIRT.

Sanitary Reform. As the world's knowledge of sanitary needs is augmented, the necessity of absolute cleanliness enforces itself with increased power, and gains wider acceptance. Still, marked as our advance has been in this direction of late years, there yet remains a great deal for the sanitary reformer to do before the virtue of cleanliness is adequately recognised.

If it could only be thoroughly realised by all, as it ought to be, that cleanliness is the chief promoter of health, and that health is the leading element of happiness, many of the discomforts and evils of existence would disappear.

The President of a recent Sanitary Congress, addressing an assembly of doctors and savants, insisted upon "the cultivation of cleanliness as the *sine qua non* of a happy life, here and hereafter;" and he declared that, "if by some magic spell England could wake to-morrow physically clean, she would wake pure also in spirit, and godly in comprehension of goodness."

This spiritual idea is perhaps beyond the hope of perfect completion; but as to the physical aspect of the question, there should be neither doubt nor delay in bringing about its attainment. It is within the power of everyone to compass this, both as regards one's individual self, and one's home surroundings. A pure body is the natural accompaniment of a pure mind, and a pure home is a home made sweet and beautiful, into which disease finds it difficult to enter.

Mankind's deadliest Enemy. Dirt is the deadliest enemy with which mankind has to contend. It yearly slaughters more people than all the other causes of death put together. It murders; it does not slay in open battle.

How, then, are we to get rid of this evil of evils? What power can we call up that will dislodge this monster? Water, and plenty of it—it is the first requisite; but unless some potent cleansing force is allied with it, the work of abolishing dirt is made arduous and difficult. With such an absolutely effective agent as HUDSON'S EXTRACT OF SOAP, however, dirt disappears as if by magic from whatever position it has taken up, and sweetness and purity reign in its stead.

The first of the household requisites, therefore, is HUDSON'S EXTRACT OF SOAP, which is a Dry Soap, readily soluble in all waters, and possessing cleansing properties that dirt, grease,

and impurity cannot resist; and in addition to cleansing, it imparts a delicious freshness to everything to which it is applied.

Another important fact in connection with HUDSON'S SOAP is this—while really of sterling value, it is so cheap as to be within the means of everybody, being sold in packets from a penny upwards.

The uses and application of HUDSON'S EXTRACT OF SOAP are not limited to laundry and household cleansing simply; there are more delicate uses to which it can be put with perfect safety and success, such as the cleaning of silver ware, statuary, objects of art, antiquity, and virtu, choice china, &c., from which it will remove all dirt without rubbing or friction, thus greatly reducing the risk of breakage.

Domestic Sanitation. As a promoter of Domestic Sanitation, it is of the highest value. For cleansing chamber utensils, bedroom carpets, floors, and woodwork, nothing can equal it; while it can be successfully used as a disinfectant and purifying agent in removing the cause of the deadly effluvia arising from drains, traps, sinks, cesspools, water-closets, soil-pipes, and other sources of blood poisoning, sore throat, and fever, existing in so many households. The germs of disease are effectually allayed by it.

Doctor and the Doctor. If heads of households were more alive to the absolute daily necessity of dealing with, and effectually preventing the encroachments of dirt and impurity, the doctor would be a much less frequent visitor in their homes than at present. The greater portion of the diseases from which mankind suffers is directly traceable to insanitary causes, and the wonder is that when this condition of things can be so easily and cheaply altered, such neglect should prevail. Motives of economy alone ought to impel people to adopt such ready precautionary measures as would be afforded by the regular use of a wholesome purifying powder like HUDSON'S EXTRACT OF SOAP, for one doctor's bill will often represent a much larger outlay than would be meant by a supply of HUDSON'S EXTRACT for a lifetime.

In these days, when the careless activity of modern life creates and spreads dirt with perplexing rapidity, it is of the utmost importance to have at command an article of such potent power as HUDSON'S EXTRACT OF SOAP, which is the ready vanquisher of dirt in all its forms.

Altered Conditions of Existence. In times gone by, when life was more reposeful than now, and there was more breathing room for people, dirt did not find such plentiful harbourage as it does to-day.

Our dwelling-places stood less thick, the populations of our cities and towns were not crowded, and the air was purer. But the great industrial awakening of the nineteenth century, while yielding untold wealth to the country, has brought about altered conditions of existence—conditions which are hurtful to the physical health of the people, despite the increase of material prosperity that has been experienced. While England enjoyed more of the pastoral order of existence, and agriculture was a chief pursuit, dust and dirt lay comparatively dormant; but with the new era inaugurated by the introduction of steam-power into every avenue of industry, the ancient quietude entirely disappeared, and on every side the prospect was darkened more or less by clouds of dirt. These clouds go on increasing year by year with the expansion of the nation's fortunes, and the great difficulty is how to keep pace with it. In thousands of homes it has already been realised that HUDSON'S EXTRACT OF SOAP is the most active and effectual dispenser of this destroying and polluting element in existence, and the more its power is acknowledged and utilised, the greater will be the happiness and enjoyment of the world.

An all-powerful Purifier.

The great advantage of this famous Extract is its almost universal applicability. Being free from anything of an injurious character, it can be used with safety in cleansing and purifying not only clothes, but nearly every article that can be mentioned. As a washing soap, it can be used as well for the daintiest laces as for the heaviest blankets. Where dirt exists, it will rapidly dislodge it, and where it does not exist, it will sweeten and make fresh. In hot water or cold, hard water or soft, it is equally soluble, and by its searching, yet gentle action, obviates the necessity for rubbing, brushing, or scrubbing. The saving of time, money, and labour that is thus effected is marvellous.

With such an aid to sweetness, purity, cleanliness, and good health, as HUDSON'S EXTRACT OF SOAP always at hand, there need be no fear of any unwholesome smell or taint manifesting itself. When once the benefit of its sweetening influence has been felt, it is not likely to be discontinued. In some houses, where old-fashioned ways still prevail, the servants are kept scrubbing, rubbing, and swilling from morn to night, and even then, the point of perfect cleanliness does not seem to be reached; but in houses made beautiful and sweet with HUDSON'S EXTRACT OF SOAP, no such commotion exists, all cleansing operations being performed with ease and cheerfulness. The ancient laborious methods will never be resumed where once this Extract has established itself.

The GARDENERS' CHRONICLE

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SERIES. }

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Now Ready, in Cloth, 11s. 6d., "The Gardeners' Chronicle," Vol. VIII., Third Series, July to December, 1890. The PUBLISHER, 41, Wellington Street, Strand, W.C.

"The Gardeners' Chronicle" in America. The Subscription to America, including Postage, is \$4.30 for 12 months. Agent for America, E. H. LIBBY, Manager, The Rural Publishing Co., Times Building, New York, to whom American orders may be sent.

"Paxton's Calendar." New Edition, "The Cottagers' Calendar of Garden Operations," Price 3d., post-free, 34d. 41, Wellington Street, Strand, London, W.C.

POSITION.—Advertisers are specially requested to note, that under no circumstances whatever can any particular position be guaranteed for advertisements occupying less space than an entire column.

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CUT FLOWERS.—A splendid lot of Narcissus "Sir Watkin," and other leading varieties. Apply, DICKSONS Nurseries, Chester.

ORCHIDS A SPECIALTY.—A Private Collection of 1000 fine established Plants for Sale, at about half their value. Write for LISTS. W. L. LEWIS AND CO., F.R.H.S., Chase Side, Southgate, London, N. Nursery, Orchard Road.

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FOR SALE, 12 splendid EUCHARIS, in perfect health, in 16 and 12-inch pots. Apply to GARDENER, Sefton Park, Stoke Poges, Slough.

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W. ICETON begs to offer some extra fine BELMORIANA, FOSTERIANA, MOOREANA, and RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on Application. Inspection invited. Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

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H. LANE & SON, The Nurseries, Berkhamstead, Herts.

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Long Market, Covent Garden, W.C.

WANTED, DAFFODILS.—Primrose Pearl, Double White, or Poeticus Plenus, Telamonius Plenus, Double Yellow. For Forcing and Planting. To be delivered, carriage paid, in London. State price and quantity to S. C., 41, Wellington Street, Strand, W.C.

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Full descriptions, with numerous Illustrations and Price List of upwards of 1500 varieties, see SUTTON'S AMATEUR'S GUIDE in HORTICULTURE for 1891. Price 1s., post free; gratis to Customers ordering goods value 20s.

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Sterling Garden Seeds.

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B. S. WILLIAMS & SON beg to announce that their NEW PLANT CATALOGUE, for 1891, is now published, and will be forwarded gratis and post free to all applicants. Victoria and Paradise Nurseries, Upper Holloway, London, N.

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SALES BY AUCTION.

Tuesday Next.

ORCHIDS in FLOWER, and IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will **SELL** BY AUCTION, at their Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, April 28, at half-past 12 o'clock, a quantity of ORCHIDS in FLOWER, from various collections.

500 Imported ODONTOGLOSSUM ALEXANDRE, Pachs' variety.

150 ODONTOGLOSSUM TRIUMPHANS.

A consignment of CŒLOGYNE LOWII.

100 CYPRIPEDIUM SPECTABILE, from America.

A large number of DENDROBIUM THYSIFLORUM, and others, many showing flower, and CYPRIPEDIUMS, &c., from the Liverpool Horticultural Co.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIES, GLADIOLUS, ROSES, and PLANTS.

MESSRS. PROTHEROE AND MORRIS will **SELL** BY AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, April 29, at half-past 12 o'clock, 2000 JAPANESE LILIES of sorts, 500 LILIUM AURATUM, 5000 GLADIOLUS, named sorts and hybrids; a consignment of AZALEA INDICA and PALMS from Belgium, Stove and Greenhouse FERNS, 500 Dwarf ROSES, 8000 ARECA BAUERII Seeds, &c.

On view morning of Sale, and Catalogues had.

Bassett, near Southampton.

CLEARANCE SALE of CHOICE EXHIBITION and OTHER PLANTS.

By order of the Executor of the late Mrs. Pearse, of The First, Bassett.

MESSRS. PROTHEROE AND MORRIS will **SELL** BY AUCTION, at the Red Lodge Nurseries, Bassett, Southampton (kindly lent by Mr. W. H. Rogers for the purpose) equidistant 2 miles from Southampton West and Northam Stations, on **THURSDAY**, April 30, at 12 o'clock, without reserve, the celebrated Collection of CHOICE EXHIBITION PLANTS, exhibited with such great success at the leading Shows in the South and West of England, and consisting of Specimen Palms and Ferns, fine Kentias, grand Crotons, Stove and Greenhouse Plants in variety, Lapageria alba and rubra, Azaleas, a small Collection of Orchids, Fuchsias, &c.

The Plants may be viewed two days prior to the Auction. Catalogues had at the place of Sale, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Friday Next.

ESTABLISHED ORCHIDS, Particularly adapted for Gentlemen who are forming Collections.

TERRESTRIAL ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will **SELL** BY AUCTION, at their Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY NEXT**, May 1, at half-past 12 o'clock, about 400 lots of various ESTABLISHED ORCHIDS, consisting of Cattleyas, Lelias, Odontoglossum Alexandræ, and others; Dendrobiums, Cypripediums, and many others.

Also an Importation of New and Rare TERRESTRIAL ORCHIDS, from cool-house, comprising:—

100 DISA GRANDIFLORA, the best large scarlet.

100 " RACEMOSA, new crimson.

50 " GRAMINIFOLIA, true, large sprays of blue flowers.

50 " LONGICORN, the large blue DISA. And others.

On view morning of Sale, and Catalogues had.

Thursday Next.

A choice Collection of ESTABLISHED ORCHIDS in flower.

MR. J. C. STEVENS will **SELL** BY AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, April 30, at half-past 12 o'clock precisely, some choice ESTABLISHED ORCHIDS, chiefly in flower and bud, including Cattleya exoniensis, with ten bulbs and two leads; a fine plant of Odontoglossum Rossi majus Evansianum, in bloom, fully described in last week's *Gardeners' Chronicle*; Lælia Amauda, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

A Consignment of CATTLEYA HARRISONI and ONCIDIUM CRISPUM from Brazil; many thousand seeds of KENTIA FOSTERIANA, K. BELMORIANA, and COCOS WEDDELIANA, just received; S. African TUBEROSES, LILIUM LONGIFLORUM EXIMEUM, from Japan, &c.

MR. J. C. STEVENS will include the above in his SALE BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, April 30. On view morning of Sale, and Catalogues had.

Saturday Next.

GRAND COLLECTION of BORDER PLANTS, LILIUMS, ROOTS and BULBS, &c.

MR. J. C. STEVENS will **SELL** BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **SATURDAY NEXT**, May 2, at half-past 12 o'clock precisely, a GRAND COLLECTION of CARNATIONS, DAHLIAS, PHLOXES, PINKS, PÆONIES, &c., Home-grown and Imported LILIUMS, Hardy ORNAMENTAL EVERGREENS and FLOWERING SHRUBS, GREENHOUSE PLANTS in variety, choice sorts of GLADIOLI, BEGONIAS, GLOXINIAS, &c.

On view morning of Sale, and Catalogues had.

Ickworth Gardens.

Three Miles from Bury St. Edmunds.

MESSRS. BIDDLE and BLENCOWE are honoured with instructions from the Marquis of Bristol, who has let Ickworth, to **SELL** BY AUCTION, on **FRIDAY**, May 1, all the RARE CONTENTS of WINTER GARDEN, CONSERVATORIES, GREENHOUSES, and GARDENS, including many rare and some unique Palms, Tree and other Ferns, including magnificent specimens of Dracaena australis, Chamaerops excelsa, Scaevola elegans, Dicksonia Youngii; about 40 fine Camellias, 50 Azaleas, Orange and other choice flowering Shrubs; Collection of Hothouse Plants, several thousand Hardy and Bedding Plants, Roses, &c., and various other effects. Sale to commence at 11 o'clock, there being upwards of 400 lots.

Catalogues may be had of the Auctioneers, Lavenham and Bury St. Edmunds.

City of Peterborough and Woodstone.

VALUABLE and IMPORTANT FREEHOLD and TITHE. FREE BUILDING ESTATE, known as WESTWOOD GRANGE, situate within half-a-mile of the centre of the city of Peterborough, and close to the Great Northern and Midland railway stations, comprising an excellent private residence, with large Seed and Onion sheds, and commodious farm buildings, with garden and accommodation land, containing 10a. 2r. 0p., large and well-planted orchard, containing 4a. 0r. 30p., thirty-one plots of valuable freehold building land, in close proximity to Mayor's Walk and Westwood Road, six closes of accommodation pasture land, and five inclosures of freehold arable and pasture land; also 1a. 2r. 0p. of building land, in the parish of Woodstone, the whole comprising a total area of about 64a. 2r. 0p.

MESSRS. BIDWELL are instructed by **H. H. ENGLISH, Esq.**, to **SELL** the above VALUABLE ESTATE BY AUCTION, in lots, at moderate reserves, at the Grand Hotel, Peterborough, on **WEDNESDAY**, May 20, 1891, at 4 o'clock in the afternoon precisely. The attention of private purchasers, builders, land speculators, market gardeners, and seedsmen, is particularly directed to this sale, as it affords an excellent opportunity of purchasing building plots, garden ground, and accommodation land, within half-a-mile of the centre of Peterborough, from which there is excellent railway communication with London, and all parts of England. There is gravel and stone under a part of the estate, and the site is a commanding one. The water supply and gas mains adjoin the property. Possession of all lots will be given at Michaelmas next. Two-thirds of the purchase money may remain on mortgage at 4 per cent., on all the lots except the small building lots.

Particulars, with plans and conditions of sale, are in course of preparation, and may shortly be obtained from Messrs. PERCIVAL & SON, Solicitors, Peterborough; or from Messrs. BIDWELL, Land Agents and Surveyors, Ely, and 12, Mill Lane, Cambridge.

WANTED, for a NURSERY.—1 or 2 Acres of SUITABLE LAND, on Long Lease, with Dwelling. Within 12 miles of Covent Garden. Rent must be Low. Write "NURSERY," *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, TO RENT, near London, 2 or 3 ACRES of NURSERY GROUND, with Greenhouse and Hothouse, and Gardener's Cottage.

Apply to A. B., 12, Grosvenor Gardens, London, S.W.

WANTED, on LEASE, with option of Purchase, Six to Ten ACRES, suitable for Fruit Growing. Small Dwelling-house and a Stream desirable. South Coast of England; Hampshire preferred.—Reply to L. F., Hope Villa, Hextable, Swanley.

THOMAS CHRISTY, F.L.S., will be glad to hear of a FREEHOLD HOUSE, 8 best bed-rooms and light sitting-rooms, with about 10 acres of land facing south, near a railway station, with trains convenient for the City. Bothy-house and Glass-houses suitable for growing economic plants, and for bleaching the new surgical dressing (lately referred to in this paper). State if water and gas are laid on.

Apply by letter, 25, Lime Street, E.C., or Malvern House, Sydenham, S.E.

TO BE SOLD, a NURSERY, with extensive Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, and easy of access per rail to Manchester, Wigan, and Liverpool. For further particulars, apply to—

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Bargain to an Immediate Purchaser.

FOR SALE, a SMALL NURSERY, comprising nine modern Glass-houses, well heated and Stocked with Plants. Stock includes two Houses of Orchids, Eucharis, Pancratiums, Vines, Gardenias, Roses, &c. Good six-roomed dwelling-house; eleven years' lease. Rent low. Full particulars on application to—

J. PREWETT, Swiss Nursery, Hammersmith, W.

MUST BE SOLD, a bargain, an old-established LEASEHOLD NURSERY in North London, with eight-roomed house and stabling. Main thoroughfare. Doing a good all-round trade, to which greengrocery could be added. Four houses, well heated and stocked. Satisfactory reasons for disposal.

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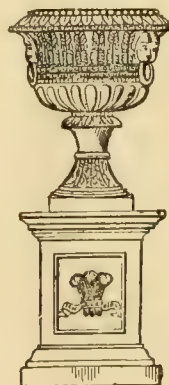
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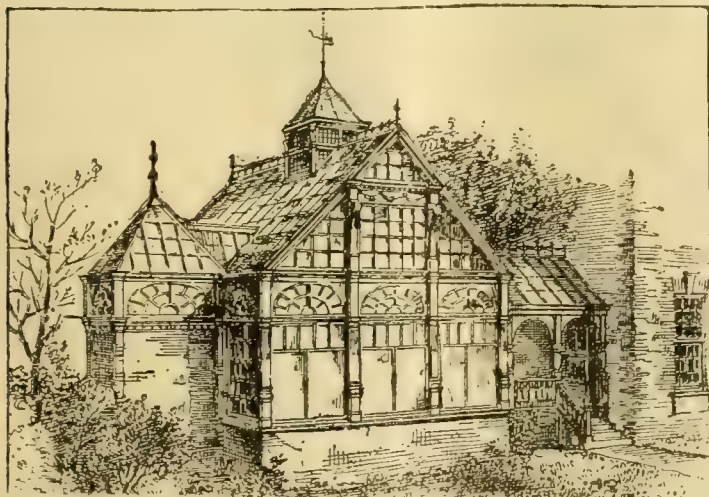
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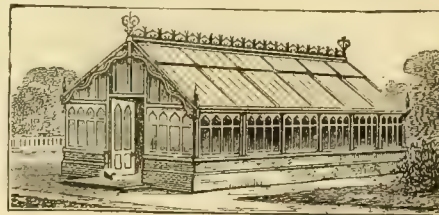
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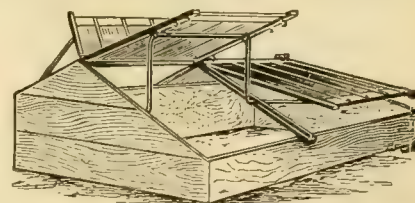
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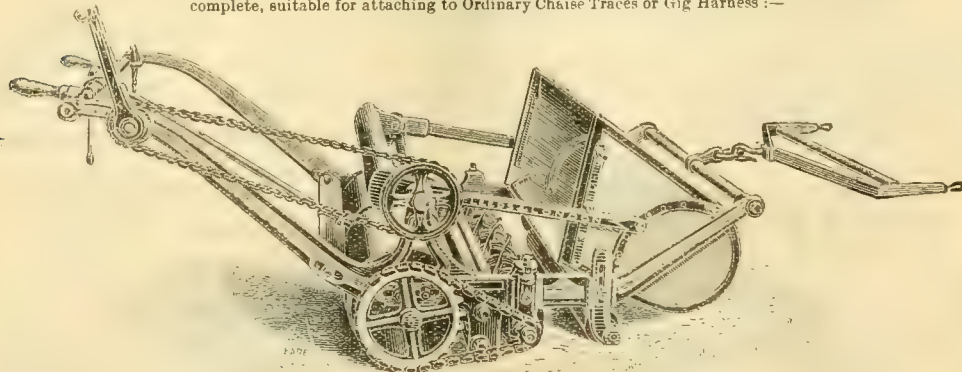
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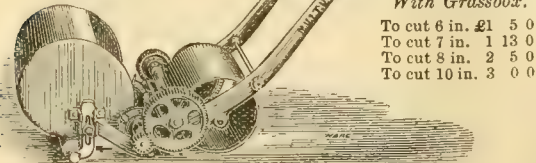
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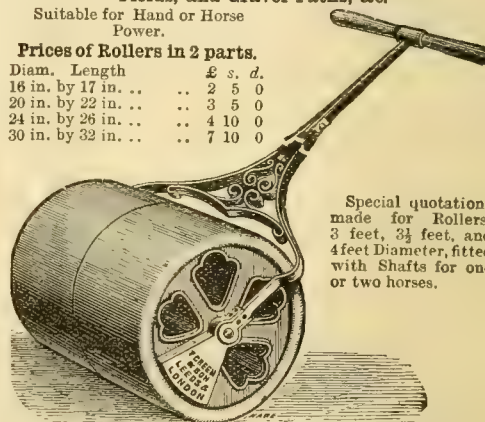
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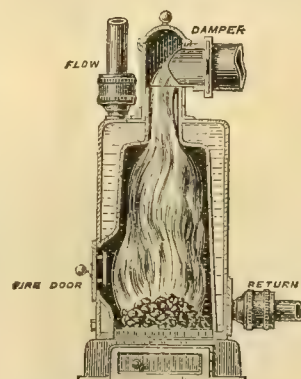
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THE

Gardeners' Chronicle.

SATURDAY, APRIL 25, 1891.

FRANÇOIS LEGUAT AND HIS PLANTS (1691).

I.—RODRIGUEZ.

MR. BAKER and Professor Balfour have well nigh exhausted all that there is to say about the flora of the Mascarene Archipelago; but there is still room, I venture to think, for a few words more on the original observations of that quaint old Huguenot, François Leguat, who has left to us such a valuable relation of what he saw in Rodriguez, Mauritius, and Java at the end of the seventeenth century. Leguat, it will be remembered, was the chief of a party of ten French refugees, who, being driven into the Low Countries a few years after the Revocation of the Edict of Nantes, were induced, by the glowing description of an insular Garden of Eden published by the Marquis Henri Duquesne, to embark as colonists for this Eldorado, which they understood to mean the island of Bourbon, of which Flacourt had taken possession, but which they believed to have been deserted and still unoccupied. The marquis, however, played them false. He directed the captain of the ship, which was to transport his dupes, to carry them past the delightful island he had written about, and which he knew by that time had been re-occupied by the French East India Company, and to land them on the island of Rodriguez, then named Diego Ruys, 400 miles to the eastward and windward of Bourbon. Here Leguat and his fellow-adventurers were landed, in May, 1691, with their stores and provisions for two years. At the end of this period, no ship making its appearance, the exiles constructed a boat and escaped to Mauritius, which island was then occupied by the Dutch. Here they found that they had only escaped out of the frying-pan into the fire. They were maltreated by the Dutch governor, Diodati, who imprisoned them on a rocky islet off the south-east haven, where the fort was established; and here the unfortunate captives languished until 1696, when they were conveyed to Batavia, again imprisoned, and forced to serve as soldiers. Finally, Leguat, and two others, the sole survivors of the original party, reached Holland in 1698.

Leguat published the relation of his voyage and sufferings in 1708; and doubtless his story would have long since become buried in oblivion, were it not for the strong interest excited among scientific naturalists by the description of the appearance and habits of the remarkable didine bird of Rodriguez, which shortly afterwards became extinct, and which Leguat named

Le Solitaire. Of this bird, and its congeners in the Mascarene Islands, remains have been found, which fully corroborate Leguat's acute observations, but we have nothing to do with them here. A large literature has already been devoted to the history of the Mascarene air fauna.

When the Transit of Venus expedition of 1874 visited Rodriguez, Professor Balfour minutely examined the botany of the island, and identified generically, as nearly as was possibly practicable, the plants enumerated by Leguat 200 years ago. These comprised the following:—

"Purslain" = *Portulaca oleracea*; "Tree with fruit like Olive" = *Elæodendron orientale*; "Nasty tree" = *Clerodendron lanceatum*; "Pepper" = *Capsicum frutescens*; "Ebony" = *Diospyros diversifolia*; "Plantane" = *Latania Verschoffeltii*; "Palm trees" = *Dictyosperma alba*, var. *aurea*, and *Hyophorbe Verschoffeltii*; "Pavillon" = *Pandanus*; "Rodrigo Kasta" = *Ficus*; "Flower, white as a Lily, and like a Jessamine," unidentified.

These identifications of Professor Balfour, an expert botanist as he is, who spent over three months in the island, have not been permitted to go unchallenged, of course, by a paradoxer, as De Morgan would have termed him. He must be a brave man who can thus attack a man of science on his own ground; but we all know those lines of Pope:—"For fools rush in where angels fear to tread."

One passage in Leguat thus contested, runs as follows:—"There are several other kinds of trees in this island which yield tolerable fruit. Those that bear a sort of Pepper are not a little like Plum trees of a moderate size; their leaves are much like that of the Jessamine; they bear their fruit in little bunches, and it did very well in our sauces."

The note appended to this passage in a recent edition of Leguat's Voyage, reads thus:—"Professor Balfour supposes this plant to have been either *Capsicum frutescens*, abundant everywhere in the island, or *C. cordiforme*, not common (*l.c.*, pp. 303, 360). But it seems scarcely probable that Leguat's Pepper was a *Capsicum*, which bears a long pod-like fruit or seed, whereas he compares that of his plant to a small plum."

Now Leguat, it may be remarked, states that it was the trees that nearly resembled small Plum trees. In the original French:—"Ceux qui portent une espèce de poivre ressemblent assez à des Pruniers de médiocre grandeur." He does not compare their fruit "in little bunches" to small Plums. He writes:—"Ils portent leur fruit par petits bouquets." Can anyone imagine the Professor's feelings when he reads the amateur's criticism and description of the "pod-like fruit?" Professor Balfour tells us that these *Capsicums* are named by the Creoles of the island "petit piment" and "gros piment," and there cannot be any reasonable doubt that the learned botanist's supposition is more than probably correct.

Leguat also mentions "a wonderful fine tree at Rodrigo, whose branches are so round and so thick, 'tis impossible for the sunbeams to penetrate through it. Some of these trees are so big, that two or three hundred people may stand under them, and be sheltered from the sun or the weather . . . The vast extent of it is occasioned thus: some of the great branches naturally tend downwards, and reaching the ground take root, and become new trunks themselves, which make a sort of little forest."

Leguat then alludes to the account of the Kasta mentioned in that curious old book, "Les Voyages et Observations du Sieur de la Boulaye Le-Gouz, Gentil-homme Angevin, où sont décrites les Religions, Gouvernemens & Situations, etc. . . . Isles & autres lieux d'Europe, Asie & Afrique, où il a séjourné, le tout enrichy de belles figures." MDCLVII., p. 196.

"De l'arbre Kasta que les Persans nomment Lul & les Portugais arbres à Pagodes." Les Indou honorent d'un culte respectueux l'arbre Kasta,

le disent chery des Saints & racontent que Kan se plaisoit dessous, lors qu'il jouoit de la flûte; ils y bastissent de petites Pagodes, où ils tiennent les statues de Ram, ou autre Saint; cet arbre commence à croître au vingt huitiesme degré de latitude vers le Pole Arctick sur l'Empire du Schah, & est fort commun dans les Indes Orientales; il s'étend prodigieusement en largeur, pour sa hauteur elle est égale à celle d'un noyer, de ses branches naissent des racines qui peu à peu croissent & viennent jusques en terre, où elles prennent de nouvelles racines, & se grossissent autant que le tronc, & la branche étant supportée de ce nouveau tronc, en pousse un autre qui fait le même effet que la première: J'en ay mis icy la figure au naturel, suivant que je l'ay dessinée sur les lieux. Quincurse (lib. 8 et 9) décrit cet arbre dans 'l'Histoire d'Alexandre,' & accuse les Bramens de l'adorer, le tesmoignage de cet Auteur, comme celui d'Herodote fait voir l'antiquité de cette Religion, dans laquelle Ram a confondu les choses divines & naturelles, afin que le peuple grossier qui n'est pas capable de connoissance, le sort d'admiration, & tiennent pour mysterieux ce qu'il ne peut entendre.

"Dans le voyage que j'ay fait de Sourat à Goa, j'ay campé plusieurs fois sous cet arbre, où j'étois à l'ombre du soleil que j'avois au zenit, & à couvert de la pluie à cause de la quantité de ses branches entrelassées les vnes dans les autres. A midy le bœtail y vient prendre son repos & se garantir de l'injure du temps. Il me semble que ces raisons ont obligé le Gimnosophe Ram, l'ornement & la gloire de son siècle, à rendre l'arbre Kasta en quelque veneration, mes ses sectateurs ont meslé de la superstition à ses ordonnances. Au royaume de Guzerat j'ay vu vn de ces arbres dont les Indou n'oseroient cueillir vne feuille de crainte de mourir dans l'an: Les Fakirs & autres pauvres se retirent sous cet arbre sans payer de giste lequel vient dans les lieux mesmes les plus arides & au bord de la mer & est le tresor des voyageurs pour se reposer."

The above passages are not quoted textually, but only mentioned briefly by Leguat, who proceeds to tell his readers that Tavernier speaks of it as the Lull of the Persians, to which the Franks have given the name of the Banians Tree, because the Penitents of the Faquors and Banians dress their meat and pay their devotions under this tree.

But yet Leguat also states, that the first time he saw this tree, he remembered he had read in some voyages that they (the trees) are to be met with everywhere in the Indies, and in the continent and isles of America. . . . He adds:—"Mr. de Rochefort calls it Paretuvier in his *Natural History of the Antilles*, and says its leaves are broad, thick, and long, without saying anything of the fruit. . . . The Rodrigo Kastas (for I ought to keep the Indian name, at least in the Indies) bear leaves as broad as one's hand, pretty thick, and somewhat like that of a Lilach or a Heart in shape; they are softer than Satin to touch. Their Flower is white, and smells well. Their fruit is red and round, and as big as a black Damask Plum. Their skin is hard, and within it is a thin seed, a little like that of a Fig. The fruit is not prejudicial to health, but 'tis insipid. The Batts commonly feed upon it, and multitudes of them nest in the tufted branches of this tree."

Professor Balfour, as above noticed, could not identify this tree. He writes:—"Leguat evidently refers to a species of *Ficus*, and gives a figure of it, but I do not know to what species. I found no species which would answer his description, which, if accurate, indicates a species formerly extant, now extinct, or at least of which all the large individuals are destroyed, and only young and inconspicuous ones left."

It may be here noticed that Leguat's figure of this tree bears the superscription of:—

"Kasta ou PARETUVIER, Arbre singulier,"

and is probably derived from M. de Rochefort's *Histoire des Antilles*, where the Mangrove is evidently designated.

Nevertheless, the same amateur in the most recent edition of Leguat's voyage before mentioned,

does not hesitate to identify dogmatically the Rodrigo Kasta with the *Ficus indica*. He writes:—"There can be little doubt that Leguat's description, and the authors he cites, point to the Banyan (*Ficus indica*). Its great height and the vast area it covers with its interlacing branches, the curious way these have of taking root and forming new stems, are all characteristic of this remarkable tree, which has been a favourite theme of writers in prose and verse in all ages, from the days of Pliny to our own time."

"But though indigenous to India, Southern Persia, and Ceylon, the Banyan is foreign to the Mascarene flora. We may suppose, therefore, either that it was formerly extant, and has become extinct in Rodriguez, or that Leguat referred to some other species of *Ficus*. Balfour describes two, *F. consimilis* and *F. rubra*, found by him on that island, where they are both common, but adds that neither of them is the one described by Leguat. Baker mentions these, and several other species in his *Flora of Mauritius* (pp. 283 seq.), and Sir Henry Barkly informs the writer that there is a large tree of *F. consimilis* in Seychelles, and that the bats feed on its fruit precisely as Leguat describes at Rodriguez; but the size of the leaves and fruit is much smaller than his species. (Phil. Trans., l.c., p. 368; Hemsley's *Vegetation of Diego Garcia*, in *Linn. Soc. Journal*, vol. xxii., p. 334.)"

The identification of Leguat's Rodrigo Kasta with *Ficus indica*, is another proof of the daring of the botanical amateur. A fig with spreading branches grew in Rodriguez. *Ficus indica* is such a fig; therefore *Ficus indica* grew in Rodriguez. That is the illogical syllogism. What true botanists may think of the argument is another matter. Here is the interpolation of a purely hypothetical view, which is against the scientific evidence in the same paragraph which quotes from scientific books, which may be proved to be wrong, perhaps, but until then must be accepted as giving the only accurate account of certain facts and phenomena.

It may be worth while to compare the account of the so-called Paretuvier, as given by Mr. de Rochefort in the first volume of his *Histoire naturelle des Iles Antilles de l'Amerique*, MDCLXVII., p. 209 of the small edition. He writes:—"Du Paretuvier.—Cet Arbre, ne se plaint qu'aux marécages, & aux bords de la mer. Il a la feuille verte épaisse, & assez longue. Ses branches qui se recourbent contre terre, ne l'ont pas si tost touchées qu'elles prennent des racines, & poussent un autre Arbre, qui entrelasse ordinairement sa tige & ses branches si près à prés, & à tant de réplis, avec tout ce qu'il peut joindre, que ces Arbres gagnent & occupent en peu de tems; tout ce qu'ils trouvent de bonne terre, qui est par ce moyen rendue si difficile à défricher, que l'on n'en peut atteindre aucun profit. C'est sous ces Arbres, que les Sangliers, & autres bestes Sauvages tiennent leur fort. Ils servent aussi en quelques lieux de rempart aux Habitans des Iles, qui sont assurez que personne ne les surprendra de ce costé là. Ils sont encore très utiles, en ce que n'y ayant point de Chesne en ces Iles, leur écorce est propre à tanner les cuirs."

Now, in the engraving given by Leguat, vol. i., p. 87, the artist employed by his publisher has inserted a porcupine and a saurian, apparently intended for an iguana or, perhaps, a small alligator; at all events, it does not represent a scene in Rodriguez, and if not copied from some other illustration, it would seem to have been evolved from a judicious composite mixture between De Rochefort and the Sieur Boullaye le Gouz.

It is evident that the artist employed to design the cuts which adorn Leguat's volumes was inspired as to his ideas of Rodriguez vegetation by the drawings of West Indian plants given by De Rochefort; for the next illustration gives what must be a caricature of the celebrated bird the Solitaire, behind which queer fowl he has inserted a strange-looking plant, which, on closer inspection, can be recognised as having been copied from De Rochefort's calebassier, given at p. 213 of his book on the Antilles.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

SCILLA ADLAMI, Baker, n. sp.*

This is a new small-flowered species of Scilla, after the style of *S. italica*, Linn. (*Bot. Mag.* t. 663), and *chinensis*, which has been sent by Mr. R. W. Adlam from Natal, to Mr. J. H. Tillett, of Sprowston, near Norwich. It has just been flowered by the latter gentleman, and sent to Kew for determination. Most of the Cape Scillas belong to the subgenus *Ledebouria*, in which the segments of the perianth are permanently connivent in a basal cup; but in the present plant, as in *S. natalensis* and *S. Kraussii*, the whole flower expands like a star from the very base.

Bulb ovoid, $\frac{1}{2}$ -inch in diameter; tunics brown. Leaf one only, contemporary with the flowers, linear, rather fleshy, glabrous, 8 to 9 inches long, $\frac{1}{2}$ -inch broad above the middle, narrowed gradually to the base. Peduncle slender, 3 to 4 inches long. Raceme short; pedicels $\frac{1}{4}$ to $\frac{1}{2}$ -inch long; bracts deltoid, minute. Perianth mauve-purple, $\frac{1}{2}$ -inch long; segments oblong, spreading from the base. Stamens shorter than the perianth; filaments flattened; anthers minute. Ovary green, globose; style short, subulate. *J. G. Baker.*

ODONTOGLOSSUM \times DELLENSE, n. hybr. nat.[†]
(? *O. Pescatorei* ♀, *O. præniten* ♂).

At first sight this might be taken for *O. \times excel-lens*, of which we have several varieties. A fine full page illustration of one of which, from the gardens of Sir Trevor Lawrence, Bart., M.P., appeared in the *Gardeners' Chronicle*, August 22, 1885. But a study of the flower, and especially of the crest, distinctly points to a new combination in its production, and I should say that the present beautiful variety which has appeared in the collection of Baron Schroder at The Dell, Egham, can only have resulted from the union of a purple spotted form of *O. Pescatorei* and the true *O. præniten* (*Bot. Mag.*, 102, t. 6229), which was imported some years ago by Messrs. Jas. Veitch & Son, and which is still a rare plant.

In the two prominent horns on each side of the crest, and in the wings of the column as well as in other features, The Dell hybrid seems to tell conclusively of *O. præniten*, and for the suggestion as to a purple-spotted form of *O. Pescatorei* playing a part, it may be said, that the spotting on the basal halves of each segment shows distinct traces of purple; indeed, on being examined with a lens the spots are pure purple, without a trace of the brown tint which appears to the unaided eye. The sepals and petals are white next the column, then rich yellow, all but a $\frac{1}{2}$ inch of their tips being profusely spotted with purplish-brown. Lip white with yellow crest, and yellow tinge down the centre, five or six reddish-brown spots surrounding the crest, with some lesser ones at the sides. *James O'Brien.*

* *Scilla Adlami*, Baker, n. sp.—Bulbo parvo; folio unico lineari glabro flacido cum floribus producto; pedunculo gracili foliis multo breviori; pedicellis floribus longioribus; bracteis parvis deltoideis; perianthio parvo rubro-purpureo, segmentis oblongis; staminibus perianthio brevioribus filamentis applanatis, stylo brevi.

† *Odontoglossum \times dellense*, n. hybr. nat. (? *O. Pescatorei* var. ♀, *O. præniten* ♂).—Flowers nearly 3 inches across; fragrant, the sepals slightly under, and the petals over $\frac{1}{2}$ inch wide, the former appearing narrower by turning back when mature, and the latter remaining flat. Sepals and petals white at the base, rich yellow towards the tips, which are the darkest, their entire surface, except the tips and a narrow margin, spotted and banded with purplish-brown, the markings being in smaller spots near the column, and increasing in size on the outer portions of the segments. Lip irregularly ovate, slightly pandurate, toothed at the margin, white tinged with yellow down the middle, and with several rich brown blotches round the crest, and some smaller spots at the sides of the basal portion of the lip. Crest yellow, with the side lobes bearing two prominent teeth; the middle tooth in the front of the crest having two or three notches in front, and an additional plate parallel to the sides. Column white, stained with brown at the back and on the two well-defined, slightly-jagged, hatched-shaped wings. Flowered in the gardens of Baron Schroder, The Dell, Egham. *J. O'Brien.*

PLANT NOTES.

BROWNEA CAPITELLA, Jacq.

This is the most gorgeous-flowered Brownea growing in these gardens. A specimen growing in the Nutmeg Ravine, in height about 25 feet, is now bearing numerous heads of scarlet flowers, on one of which cut a day or two since, sixty-two flowers were counted. The long scarlet stamens seated upon a pinkish-yellow base give the flowers a very showy appearance. The leaves are pinnate, with oblong acuminate leaflets, pale green above, and glaucous beneath. Fruits are seldom matured, hence seeds are a rarity. No mention is made of this species in *Nicholson's Dictionary of Gardening*. The tree has not that dense-looking appearance which characterises the other Brownneas, due to the comparative scarcity of leaves.

BROWNEA GRANDICEPS, Jacq.

A very much more vigorous grower and more densely foliated tree than the preceding. The heads of flowers are more compact, resembling somewhat in appearance the popular *Rhododendron*. In colour the flowers are pink, with the filaments much shorter, and the leaves with closer set and more numerous leaflets than seen in *B. capitella*. The flower-heads, as in the other species, are borne all over the tree-trunk, old branches, young branches, and at their extremities. And they are usually situated so as to look down upon the spectator, giving him a better view than standing erect. This plant matures seeds regularly.

CASSIA MOSCHATA, H. B. K.

A large tree with many spreading branches, along which spring the hanging racemes of orange-coloured flowers, resembling in some respects the *Laburnum*. The flowers are of a roundish shape, and before expanding have a dull-looking appearance, due to the very dark exterior sepals. The leaves are abruptly pinnate, leaflets shiny-green above and pubescent on both surfaces, the youngest chocolate-coloured. Both the petiole and the young wood from which they spring are pubescent. The fruits are cylindrical, from nine inches to two feet long, pulpy. Seeds are rarely obtainable, owing to the destruction caused by numerous weevils, many dozens of the pods having to be opened before a single good seed can be found. The old pods remain on the trees for months, and may often be seen hanging long after the tree is again in flower. In our dry and wintry months of February and March, it is a pretty sight to find one of these trees covered with thousands of its drooping flowers, hanging in most cases from leafless branches.

JACARANDA CÆRULEA, Gr.

To the uninitiated this could easily be mistaken as belonging to the Fern family when not in flower, so remarkably alike in their divisions are its leaves to those of numerous Ferns. The corymbose flowers are produced in enormous quantities at the same time, of a purple colour. The tube of the corolla is white and hairy within, and glabrous without. The trunk of the tree is smooth, owing to its greyish bark peeling off in flakes. Many specimens are now flowering in the garden, some leafless, others only partly so. The tree is quite common throughout Trinidad, and forms a striking feature of the landscape during this season of the year—March. *W. E. Broadway, Asst.-Supt., Royal Botanic Gardens, Trinidad.*

ORCHID NOTES AND GLEANINGS.

SOUTH AMERICAN ORCHIDS AT HOME.

(Continued from p. 492.)

ODONTOGLOSSUMS, those other marvellous American Orchids, are met with under the same natural conditions as are the *Cattleyas*, except that the specimens only grow in the highest regions, and are

found exclusively upon trees. They are most often met with in the low forests which cover the summits and slopes of the highest ridges of the Cordilleras. The trees which they select are always the lowest, and those which have their branches and stem covered with different mosses, which feed on the bark. The atmosphere of these forests is charged with moisture. It is only at mid-day, when the sun sends out its full power, that the leaves and branches of these trees begin to dry up a little. Towards evening they are again enveloped by the dense mists which rise from the valley and remain nearly all night, the moisture saturating the favourite habitat of these valuable Orchids. I have almost always noticed that the atmosphere of these forests is very cool, even in the day-time, and at night the temperature occasionally falls below freezing point. Some years ago, I found along a path through one of these *Odontoglossum* forests, that there was ice on the surface of some little pools of water by the wayside. In the same forest I noticed two majestic species of Palms among the trees; this showed what a low temperature many plants, which we consider tender in Europe, can stand in their native land. Thousands of *Bromeliads* are usually found on the same tree with the *Odontoglossum*, and the evaporation of the water they contain in the centre of their tuft of leaves, joined with that contained in the moss (which hangs so picturesquely from the branches, covering thousands of aerial roots and climbing plants with its beautiful garlands), adds still more to the great humidity of these regions. The low forests which cover the cold summits of the Andes are so situated that light and heat penetrate everywhere, as there are no very tapering or lofty trees; nevertheless, the light is usually tempered, for the sky is frequently covered with clouds, and perpetual mists prevent the rays of the sun from falling with full force on the plants and flowers. The *Odontoglossums* are most often found on the borders of forests, and like most Orchids, are rarest in the denser regions. If we follow the indications of Nature when cultivating *Odontoglossums*, we should always contrive for them a cool and very moist atmosphere, with abundant light, but without exposure to the direct rays of the sun. *E. Bungeoeth, Collecteur de L'Horticulture Internationale, Journal des Orchidées, March 15, 1891.*

ODONTOGLOSSUM ANDERSONIANUM.

A flower of a fine and richly-spotted form of this comes from J. W. Taylor, Esq., Thorn Hill Tower, Sunderland, and serves to demonstrate the untenability of the name *O. hebraicum*, as distinct from *O. Andersonianum*, for the present variety has the features assigned to both. There are three red lines at the base of each petal, and some quaint and bright brownish-red spotting over each of the segments, a large blotch of the same colour appearing on the lip. It is a very attractive variety, and it shows signs of good cultivation.

ORCHID COLLECTIONS
AROUND BEXLEY.

THE neighbourhood of Bexley, Kent, is a district in which great interest is taken in gardening, and in many places the culture of Orchids takes up much of the attention of the owners. Notably is this the case among a circle of friends who exhibit a pleasant rivalry in attempting to excel each other in the culture of some section or other of these favourite plants. Among these, the collection of Mrs. Arbuthnot at Bridgen Place, which, under the careful supervision of her son, F. G. Arbuthnot, Esq., and the cultural skill of Mr. Mitchell, the gardener is an excellent example of the pleasure to be derived from the culture of Orchids when they are kept in health and vigour.

Among the *Cattleyas* and *Odontoglossums* here this is especially noticeable, the whole of the plants, without exception, being what is commonly called "the picture of health." A mar-

vellous growth is obtained on the large specimens of *Cattleya gigas*, some of which produce five or six massive flower-spikes, whose beauty can easily be imagined. At present there are some fine forms of *C. Trianae* in bloom, especially good being one with fine sepals and petals, and rich glowing purplish-crimson lip. The light forms of the delicata type, too, are exceptionally good, and some of the earliest *C. Mendelii* are already in flower. The Dendrobe-house was a mass of bloom, although it was said to be past its best. In it were noted *Dendrobium fimbriatum*, with twelve spikes; three well-bloomed forms of *D. Ainsworthii* ×; and *D. A. roseum*; *D. primulinum*, with eight flowering bulbs; *D. crassinode Barberianum*, with nearly one hundred flowers; some excellent forms of *D. nobile*, *D. Brymerianum*, *D. crassinode album*, *D. Wardianum*, *D. Devonianum*, &c.; and the specimens of *D. thysiflorum* and *D. densiflorum* are profusely furnished with flower-spikes.

THE COOL RANGE

in three divisions, has in the first a grandly-grown batch of *Miltonia vexillaria* well set with buds, and various *Lælias*, &c., a good show of flowers being on the *L. harpophylla* and *Bifrenaria Harrisoniae*, and the rare *Cymbidium tigrinum* is in bud. In the second division are a fine specimen of *Odontoglossum luteo-purpureum*, with four spikes; some superb forms of *O. Pescatorei*—one with a twelve-branched spike; *Platyclinis glumacea*, with many of its elegant sprays; *Oncidium Marshallianum*, &c. The third division is filled exclusively with *Odontoglossums* and *Masdevallias*, and a magnificent show is made by the many fine sprays of *O. triumphans*, *O. crispum*, and *O. Pescatorei*, together with the rare *O. tentaculatum*; some excellent *O. Halli*, *O. Edwardii*, *O. luteo-purpureum*, and other *Odontoglossums*, and the many bright flowers of the varieties of *Masdevallia ignea*. Of *O. Pescatorei* there is a large quantity in bloom, and the strain seems to be a specially good one, many of the varieties having large flat labellums richly marked with purple, and some also exhibiting spotting on the petals. The type of *O. crispum*, too, is of the best class, the flowers very large, and some of the small plants of the spotted forms flowering for the first time very promising.

In the large plant-houses, in the centre of one of which is a great specimen of *Anthurium Schertzerianum* with over one hundred of its scarlet spathes, are in bloom, a good lot of *Lycaste Skinneri*, *L. plana*, *Cymbidium Lowianum*, *Oncidium leucochilum*, *Calanthe vestita gigantea*, a lot of good *Cypripediums*, some *Phalænopsis*, *Cœlogyne cristata alba*, *Cattleya amethystoglossa*, *Epidendrum Wallisii*, &c.

The fine display of cut Orchids tastefully arranged in the drawing-room is worthy of mention, in order to call attention to the elegant manner in which the sprays of *Heuchera sanguinea* (illustrated in the *Gardeners' Chronicle*, August 4, 1888, p. 125), arrange with those more massive flowers.

BOURNE PLACE.

The residence of John Flower Jackson, Esq., also has a rising collection of Orchids, among which, on the occasion of our visit, we found both Mr. Jackson and his son busily engaged. Here the species of *Phalænopsis* thrive remarkably well, small plants rapidly growing into large ones, which is the reverse to what is experienced in many collections. The foliage of these plants is thick and firm, and each leaf displays an advance in size over the one made before. The house is kept moist, and on the wet stages we noted some lumps of rock-salt which may contribute to the healthy character of the plants, for it will be remembered that salt used to be sprinkled in the house in which the fine plants of the Partington collection grew. Among those we noted were the rich crimson-centred *P. amabilis* Dayana, and sundry ordinary *P. amabilis*, *P. grandiflora*, several *P. Schilleriana*, *P. Sanderiana*, and a very large plant of *P. Ludemanniana* with abnormally long spikes, which will soon give a rich display of bloom.

IN THE COOL-HOUSES,

the plants are placed on open stages, made of frames covered with fine half-inch wire netting (the same as at Bridgen Place), stand over a close stage, covered with shingle to be kept moist, and it must be said that better results in both plants and flowers could scarcely be attained. At one entrance, purposely placed by the door for the better access of air, is a batch of very large-bulbed *Epidendrum vitellinum*, and throughout the whole house a good show of *Odontoglossum* is made, among the plants being that exquisite violet-spotted form of *O. Pescatorei*, which Mr. Jackson exhibited a year or two ago. Also in this house is a showy specimen of *Cypripedium Boxalli* with twenty-two flowers, and on a narrow shelf at the end a pretty show of *Odontoglossum Rossii majus*. In another part is a grand bank of Orchids in bloom, made up of many *Odontoglossum triumphans*, *O. crispum*, and *O. Pescatorei*, with some *O. Cervantesii*; *O. Rossii rubescens*, *O. cordatum*, *O. maculatum*, a noble form of *O. nebulosum* with very large pure white flowers spotted on the inner halves of the segments; various *O. odoratum*, *Cymbidium Lowianum*, many *Lycaste Skinnerii*, *Pilumna fragrans*, some good *Cattleya Trianae*, *Masdevallia Lindenii*, *M. ignea*, *M. i. coccinea*, *M. Shuttleworthii*, *M. triangularis*, some scarlet *Sophranitis*, and *Ada aurantiaca*, and various others—truly a fine show. In the *Cattleya*-house the *C. Mendelii* are coming on, and a stout plant of *C. Lawrenceana* is in bud.

An arched walk leads from the Orchid-houses to the long orchard-house at the bottom of the garden, and it is worthy of note, by reason of the admirable manner in which it is covered by trained Gooseberries on the one hand, and Morello Cherries on the other, both being said to produce good crops, the Gooseberries being very fine dessert fruits. The orchard-house has been a fine sight, with the bloom on the trees, but in the proper course they are now faded. One end of the house is used as a pleasant resting-place, and a row of Hyacinths and Tulips makes the border bright. In this house, which has a back wall, there is an admirable arrangement for bringing the water from the gutter in front to the tank which is built inside under the back wall. The pipe from the gutter is carried under the bed and walk inside the house, and up the outside wall of the tank to supply over the top on the inside. A very simple arrangement, but one which does not suggest itself to all who build, and who consequently place their tanks in inconvenient places to get near the rain-water shoot.

HONEYDEN, NORTH CRAY.

R. A. Todd, Esq., like Mr. Jackson, was busy in the garden. Here the Orchids are grown for the greater part mixed with flowering stove and greenhouse plants, and the result is very satisfactory. At the entrance of one of the houses, was a good show of Orchids in flower, conspicuous being some good forms of the fragrant pale-lilac *Cattleya Schroderae*, behind which was a very fine specimen of a richly-coloured form of *Lælia cinnabarina*, which had five spikes, each over 2 feet in length, and some plants of *Dendrobium Ainsworthii*, and other Dendrobes. In the same range, were *Vanda suavis*, *Angræcum polystachyum*, *Cypripedium callosum*, and other *Cypripediums*; two plants, the one having fine spikes, of the rare *Phajus Manni*. The largest is made up of several imported pieces potted together, and there is a very marked difference in the flowers, some having the front of the lip yellow, and some white. The scarlet *Epidendrum radicans*, too, is well-flowered; and the many *Catasetums*, *Mormodes*, and other curious plants which Mr. Todd is so fond of, promise to display a goodly number of their quaint spikes. Among the other showy plants in bloom with the Orchids are *Hymenocallis guianensis*, which has white flowers, the upright tubes of which are 8 inches in length; two specimens of an *Amaryllis*, near to *Hippeastrum regium*, each with six spikes; *Tillandsia splendens*, *Meenia erecta*, *Euphorbia splendens*, *Impatiens Sultani*, and various other showy stove shrubs. In

the cool-house, in the second division of which there are some rare Ferns, the pretty *Oncidium pyramense* has a showy, branched spike, about 1 foot high; *Odontoglossum cirrosus* has several spikes; the pretty rare and fragrant *Cœlogyne ochracea* is in bloom, so also *Masdevallia Lindenii*; *Odontoglossum Rossii majus*, with nine spikes, *O. Cæstedii majus*, and a very large and handsome form of *Oncidium maculatum*.

WILLIAM BARRON.

This gardener, whose death we announced in our last number, was born at Eccles, in B-erwickshire, on September 7, 1800. He was of a very old Scotch family, which originally came from the neighbourhood of Aberdeen. His father was a gardener, and the boy proved a sharp lad at school, subsequently studied Greek and French, and learned sufficient Hebrew to enable him to read the Bible in the original. Having developed a taste for gardening, William Barron was apprenticed at Lady Honstan Boswell's of Blackadder, Berwickshire. During his three years of apprenticeship, he studied his profession with such effect, that when, through the influence of his employer, he obtained admission to the Botanic Gardens, Edinburgh, he was, much to his own surprise, put (after an examination in Botany) into full charge of the houses there, by the elder Mr. William McNab, who was at that time probably the best practical botanist in Britain. Barron continued in this situation two years, during which time he attended the botanical lectures under Professor Graham for three terms, and together with the late Mr. James McNab (who was somewhat his junior), attended Chemical lectures in the evenings, under Professor Turner, and lectures in Natural Philosophy and Mechanics under Professor Lee.

Having expressed a wish to obtain some experience in Pine forcing, he was sent by Mr. McNab to the Duke of Northumberland's, at Sion House, Isleworth, and while there he assisted to plant the large conservatory. On March 1, 1830, he was appointed to lay out the grounds at Elvaston Castle, Derbyshire, for Charles, 4th Earl of Harrington, with whom he remained until the death of the earl, a period of twenty years and eight months. During this time, he began and completed one of the most distinct and regal gardens in Britain. What took place about this time will be best told in his own words:—

"Charles, the fourth Earl of Harrington, was a nobleman every inch of him. I arrived on August 2, 1830. The whole country was at that time in a fearful political ferment. Nottingham Castle was burnt down early in January, 1831. My mind was strongly impressed to have put in repair a small double-pistoned water-engine much out of repair; both the engine and hose had not been used for years. I had only had them finished on Saturday afternoon early in January, 1831. On the next Sunday morning, about five o'clock, I was awakened by screams on the staircase leading to my room (as I then slept in the castle) that the castle was on fire; I opened my window to prevent suffocation, every place being filled with smoke. I immediately despatched a man on horseback for the fire-engines from Derby; I then got one of the maids to sound the gong, which soon brought a number of my men from the village; meantime, I had ascertained where the fire originated, viz., in the housekeeper's store-room, and as soon as I obtained assistance, I got the engine in position in front of the castle. I then mounted a pair of steps, and dashed the engine-pipe through the shutters and window. The flame came out with such force as nearly knocked me off; I stooped below it, and directed the pipe to the corner where the fire originated, and, with a plentiful supply of water, and willing hands at the engine, I succeeded in putting it out before the fire-engines from Derby arrived. I had also placed a man with a cudgel in each doorway, to prevent any of the roughs from coming into the castle, as nearly 200 of them followed the engines; and all the thanks I got for my civility was a plentiful supply of threats and curses. I then placed two night watchmen around the castle and premises during the whole of the time the county remained in an unsettled state.

"With my morning exertions, I went to bed early, and slept soundly until midnight, when I was awakened by one of the watchmen, who said there was a barn on fire at Aston, a village about two miles off. I jumped out of bed, and partly dressed, I ran out and again sent off a man on horseback for the Derby engines; meantime I sent off our engine and men to work it. I then ordered my mule to be saddled: being a sharp frost at the time, my mule fell twice with me on the ice. As soon as we reached Aston, I found a large barn, full of barley, not thrashed, on fire, with the tiled roof fallen in; we imme-

diately set to work and got it extinguished before the Derby engine arrived. When they came, I was standing on the sidewalk, about fifteen feet from the ground, pouring water on the still smoking straw; they were so much annoyed because I had put out both fires without their assistance, that the chief fireman stood inside the barn-door directing the pipe of his engine to knock me off the wall. I instantly named him, and called out to him that I should have him dismissed from the force. Afterwards had him up before the Mayor, who made him beg my pardon or be dismissed. When the Earl of Harrington came down from London the following April, his first salutation was, 'Barron, you have saved my Castle.' I told him I had only done my duty.

"Before the time of the Fourth Earl of Harrington, nothing had been done to improve or ornament the grounds. There was a kitchen-garden of two acres, surrounded by a brick-wall; no hot-houses, only a Cucumber-frame or two. My worthy predecessor, who had been gardener about forty

1830, his lordship turned my attention to three Cedars of Lebanon in a plantation near the vicarage, which was at that time near the mansion. They were from 24 to 32 feet in height; he asked me if I knew anything of Sir Henry Stewart's mode of removing trees. I replied that I had studied for a time under the person who was gardener to Sir Henry during the time of his operations, so I had a trench cut round all three, and filled in with good soil, to enable them to make new roots, so as to be removed the second year. His lordship then astonished me by saying that he wanted them removed in February, a little more than two months after the operation. I asked him what good he expected from the operation if we were to move them two months hence! Without answering me (as I saw that he was puzzled), he asked if I had read Sir Henry Stewart's book. I told him I had not, but I was perfectly familiar with his practice. He went in, and gave me the book to read. After reading it through, I took it to him, and told him that Sir Henry, with his

The pleasure-grounds, which were practically non-existent in 1831, were gradually extended and most elaborately laid out, until in 1851 they covered about 80 acres.

The ornamental lake was pronounced by all who saw it to be "like a glimpse of fairyland," and the great Duke of Wellington, when he first saw this lake and the rockwork on the islands and mound, exclaimed, "This is the only natural artificial rock-work I have ever seen." (See fig. 104, p. 525). The finest specimens of all the rarest Coniferae at that time existent were obtained, regardless of cost, and planted with profusion. During the Fourth Earl's life, Elvaston Gardens were as a sealed book to the public. His

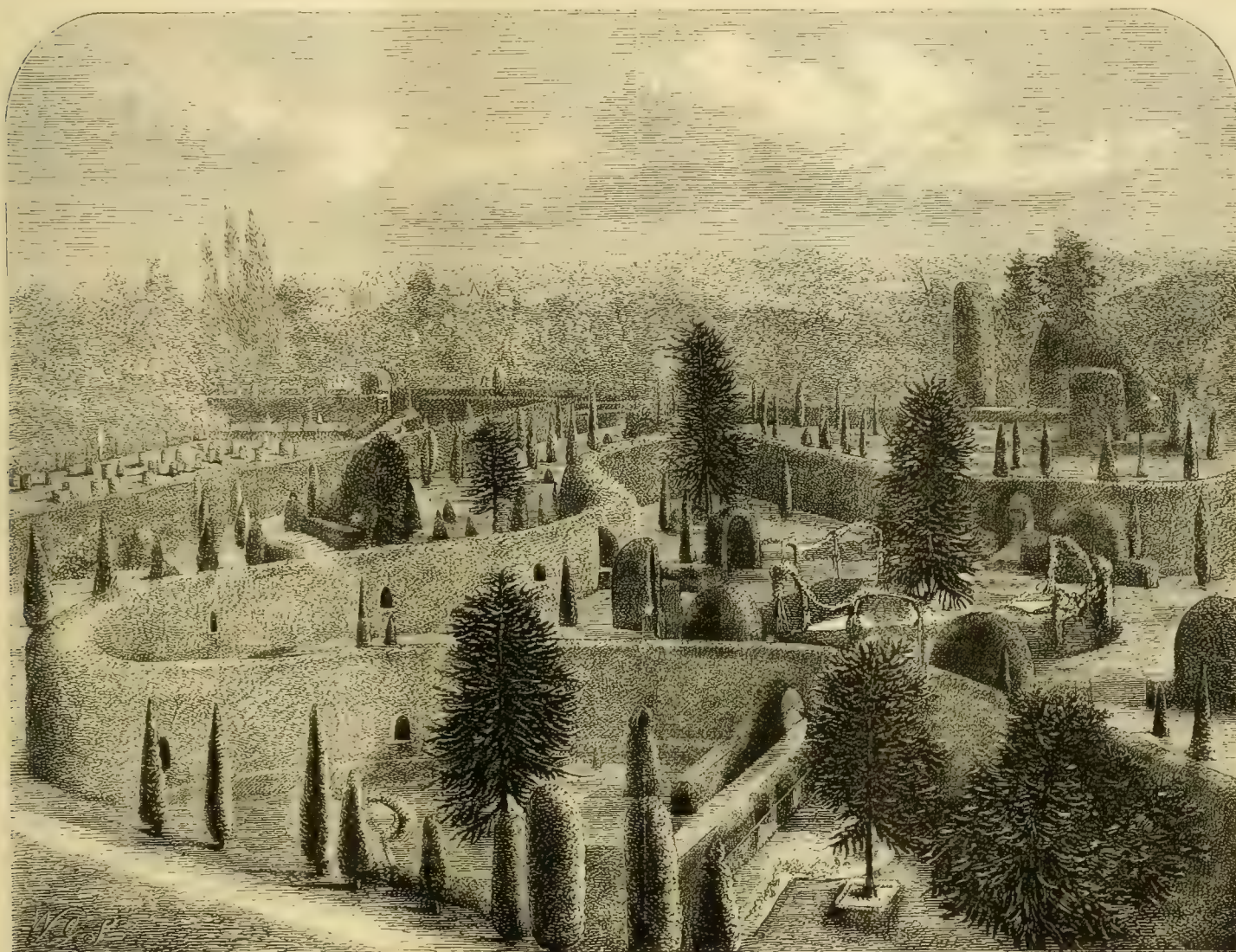


FIG. 103.—VIEW IN THE GARDENS, ELVASTON CASTLE: SHOWING CLIPPED YEWs.

years was of the old school; he strongly impressed upon me the necessity of seeing well to an open drain which passed through the grounds, telling me that the water stood so near the surface, that nothing would grow much before the month of June. I asked him if the open drain could not be lowered; he said he had done all he could to keep it clear from weeds, but as it entered into the river Derwent a mile and a quarter below, it could not be lowered. I had made up my mind, that after proving his statement to be correct, I should relinquish my charge; but on going over the whole with my spirit-level, I found that commencing a mile from the garden I could lower the stream 4 feet 7 inches. This I did at once, and cut drains through the kitchen garden 6 feet deep, and for days the water ran through the brook with a fetid smell. Thus the foundation was laid for successful operations all over the grounds. Elvaston, up to 1830, had no public attraction, and on the maps of the county there was only the usual hieroglyphic to indicate the parish church close to the mansion.

"After completing the drainage operations and commencing hot-houses, and an additional kitchen garden, in November

'Janker' or 'Timber Wheels,' never had, nor ever could remove trees of the dimensions we had in hand. I saw his lordship's disappointment, and said no such trees as these have ever been successfully removed before, but if your lordship will support me, I will form a plan of my own, and remove your trees, and make them grow. He replied, 'Go on, Barron. That is all I want.' So, in February, 1831, I removed all three successfully into the East Avenue. In November, 1831, following, I removed one from the front of the mansion, 43 feet high, 45 feet diameter of branches, and 2 feet diameter of trunk. Now it is over 10 feet in circumference, at the bottom of the garden of 'Fair Star,' as named by his lordship."

From this time until the death of the Fourth Earl tree moving on the most extensive scale was practised at Elvaston Castle. Mr. Barron scoured the country to find fine specimens, and many old Yew trees, some of them hundreds of years old, were brought from distances of nearly 20 miles

orders were, "If the Queen comes, Barron, show her round; but admit no one else." On his death in 1851, he was succeeded by his brother, Colonel Leicester Stanhope. Up to this time from eighty to ninety men had been constantly employed. What passed at the first interview Mr. Barron had with his new employer, we will give in his own words:—

"He sent for me, and said, 'Now, Barron, I come to the place a poor man, so that I cannot keep it up. All that I can do for you is, to continue your salary, and keep an efficient foreman. I can only afford you eight men and two boys. Your talent cannot be buried here. Your time will be your own. You must go out as a landscape gardener, and I will do all I can to further your interests.' And so he did. During the time that I was enlarging the grounds, every new piece which we were going to take in, I had to make a plan for his lordship's approval, and as soon as it was passed, he was like a child with a new toy, to see it finished, so that in order

to meet his views, I had formed a reserve nursery ground, filled with plants of a good size, enabling me to complete the design at once.

"When Leicester the Fifth Earl came into possession, he took me to this reserve nursery, and said, 'Now, Barron, I wish you to sell all these plants for me as soon as you can.' I told him that in order to keep them in a salable condition, that it would require two men. He said, 'Barron, I cannot afford it.' Then I replied, 'If you cannot afford it, I will try if I can.' I then told him what I would give per annum for the nursery, adding that I would not buy his plants, as he might be told that I had taken advantage of him. He at once said, 'Barron, write out your agreement and I will sign it.' I not only sold all his lordship's plants then in the nursery, but several valuable specimens in the grounds, which I knew could be well spared; amongst others, the finest specimen, now at Osborne, of *Picea (Abies) nobilis*, I sold for £21. The late Prince Consort lost his only plant at Osborne, and when he returned to Windsor, he came to the Queen's gardener, and said, 'Oh, Ingram, I have lost my plant of *Picea nobilis*, and the worst of it is I cannot replace it.' Mr. Ingram said, 'Your Royal Highness, I think I can find one.' Afterwards, Mr. Ingram came down to me. I took him into the East Avenue, and showed him a host of them; I pointed out a fine plant, 7 feet 4 inches high. I asked him what he thought it was worth? He at once replied, 'Twenty guineas.' I then said, 'Well, as the Prince is a poor man, he shall have it for pounds instead of guineas; and, to give him confidence in its removal, I am willing to insure it, the first year for 5s., and the next two for 5s. more.' He told the Prince, and he said, 'By all means pay the insurance.' Before the plant was sent off, I happened to see Mr. Toward from Osborne, and he exclaimed against so large a plant being sent off, saying that 'they were subject to such high winds at Osborne, and to think of sending a plant of that size so far, he was sure it never could succeed.' I told him I had insured it, and it must go. I sent it with a ball of earth about half a ton weight, and it grew about a foot the first year.

"I took a large number of *Cedrus deodara*, *Araucaria imbricata*, and other specimen Conifers, to the Crystal Palace grounds, for Sir Joseph Paxton, at prices varying from 3 to 18 guineas. Altogether, I sold plants for his lordship in nine years to the value of £3000, all of which I had propagated or reared."

During these years visitors were admitted to the grounds on a payment of 3s. each, which was devoted to various charities; and, notwithstanding the somewhat high charge, many thousands visited the Gardens. Shortly after the death of the Fourth Earl, Mr. Barron published a work under the title of *The British Winter Garden*, which met with a ready sale. Notwithstanding the entreaties of his publisher and friends, Mr. Barron would not allow a second edition to be printed until he had revised the work, which unfortunately he never found time to do. This book is full of valuable hints as to the growth of trees, and the best method of transplanting them. In particular, the evils resulting from planting "pot-bound" trees, up to that time not adequately appreciated, were insisted on and made apparent by striking illustrations.

From 1850 to 1885 he was one of the most prominent figures in the horticultural world, not only as a landscape gardener, but as a great authority in Coniferæ. His labours extended all over Britain, and it was no infrequent occurrence for work under his supervision to be going on in a dozen different counties at once. Soon after the death of the Fifth Earl of Harrington, in 1862, Mr. Barron's Nursery, at Elvaston, having largely increased, he purchased about 40 acres of land at Borrowash, within a mile of Elvaston Gardens, to which he gradually transferred his stock. Conifers were still his hobby, and he never could be induced to sell his choicest specimens. He called them his "Decoy Ducks." His son, who had been studying landscape gardening abroad, having now joined him, he resigned his appointment at Elvaston in 1865, and went to reside at Borrowash.

One of his greatest feats in tree moving he accomplished in 1880, when he successfully removed the Buckland Yew, a huge tree over 1000 years old, mentioned in the Doomsday Book, and which was growing close to Buckland Church, near Dover (see figs. 107, 108, pp. 533, 535). The last public work in which he took an active part was in the laying out of Abbey Park, Leicester, which was opened by the Prince of Wales in 1882; but he afterwards personally superintended extensive alterations for the present Duke of Portland, at Welbeck; and for Earl Dysart, at Buckminster, in 1886. He retired from business at

the age of eighty-one, but he was summoned as the first witness before the Commission on Forestry in 1887. Up to the time of his death, which occurred on April 8, 1891, his faculties were unimpaired, with the exception of his previously wonderful memory, which somewhat failed him, after a severe illness in the spring of 1890, although he could still recount with minuteness events which occurred from thirty to seventy years ago. He could both read and write without glasses to within a week of his death. He was a deeply religious man, of the sternest integrity, and under no circumstance did he ever allow his principles to be made subservient to his interests. He was one of the pioneers of the temperance cause at a time when such a course was far more difficult to maintain than at the present day.

The portrait which we affix (see p. 531), was taken a few years since, and is a good likeness of a remarkable man—one who, while he lived by horticulture, never forgot that it was his duty to live for it as well.

DISEASES OF PLANTS.*

(Continued from p. 460.)

THE association of host-plants is a very interesting aspect of the question, to which sufficient attention has not yet been paid. Take the Gymnosporangia, a very remarkable group, presenting many points of interest, such as the gelatinous aggregation of the teleutospores, the absence of uredospores, their perennial mycelium, the large size and peculiar structure of their æidia. The teleutospores of the Gymnosporangia are found only upon the Cupressinæ, the Junipers, and their allies, while their æcidiospores, the Rætelæ, occur only on the Pomaceæ. Many of these species resemble each other very closely morphologically, but biological research has demonstrated their distinctness.

There are ten species of Puccinia occurring on Carices whose æcidial hosts are known at the present time; of these, no fewer than seven have their corresponding æcidiospores upon Compositæ; while of the fifteen species of Puccinia occurring in Graminæ in Europe, only one is known to have its æcidiospores upon a composite plant (*P. poarum*). Therefore as the Gymnosporangia have for their associated host plants the Cupressinæ and the Pomaceæ; so of the Puccinæ, the group affecting the Carices, the most frequently associated host-plants are the Compositæ.

The host-plants of the fifteen graminicolous Puccinæ are found in the following natural orders:—

Ranunculaceæ	4	Boraginaceæ	1
Rhamnaceæ	2	Orchidaceæ	1
Liliaceæ	2	Compositæ	1
Polygonaceæ	2	Aroidæ	1
Berberidaceæ	1	Caprifoliaceæ	1

The association of the æcidial and teleutospore host plants seems, in many instances, to be governed by the environment of the respective plants; if we find a teleutospore growing upon a grass or carex in a damp situation, we expect to find the corresponding Æcidium upon a plant also affecting damp localities—as *P. Magnusiana*, which has its spore forms on *Phragmites communis* and *Ranunculus repens*; *Uromyces junci* on *Juncus obtusiflorus* and *Inula dysenterica*, *P. moliniæ* on *Molinia cærulea* and *Orchis latifolia*, *P. paludosa* on *Carex vulgaris* and *Pedicularis palustris*.

On the other hand, species which occur on plants in meadows, such as *P. obscura* on *Luzula campestris* and *Bellis perennis*, *Uromyces dactylidis* on *Dactylis glomerata* and *Ranunculus bulbosus*; or on dry sandy heaths, as *P. Schöerliana* and *arenicola* on *Carex arenaria*, have their æidia on *Senecio Jacobææ* and *Centaurea nigra* respectively; species growing on the sea-shore, as *P. extensicola* on *C. extensa* and *Aster tripolium*, *Uromyces maritimæ* on *Scirpus maritimus* and *Glaux maritima*.

Favourite Æcidial hosts.—Schröter long since remarked the number of æidia which occurred upon

Ranunculaceæ without corresponding spore forms from his own and subsequent researches it is known that four Puccinæ, viz., *P. persistens*, *Magnusiana*, *perplexans*, *aquilegia*, and two *Uromyces*, viz., *U. poæ* and *dactylidis*, occur upon plants of this natural order, besides some others whose life history has not yet been elucidated. Some of the commoner Ranunculaceæ are host-plants for more than one species of parasite, thus: *R. repens* for *U. poæ* and *P. Magnusiana*, *R. bulbosus* for *U. dactylidis* and *P. Magnusiana*. In a limited sense, we may therefore say that the Ranunculaceæ are the associated hosts of the grass-dwelling heterocœcious species.

The group of plants most highly favoured by the heterocœcious Uredinæ for the development of their æcidiospores, however, is the Coniferæ, upon which some eight or ten species are known to occur; three of these are Melampsoræ, viz., *M. pinitorqua*, *M. laricis*, and, according to some cultures recently made by myself, *M. betulina*; two Chrysomyxæ, two Cronartia, one Calyptospora, and the well-known *Coleosporium senecionis*. Of the above, *Pinus sylvestris* is the host plant for the æcidiospores of *Cronartium asclepiadeum*, *Coleosporium senecionis*, *Melampsora pinitorqua*, and of some other, at present unrecognised, species. On this point I feel convinced, having made a number of artificial cultures with the æcidiospores, as they occur near King's Lynn, on the above host plants with negative results.

On the Larch, as Hartig has shown, one of the Melampsoræ on *Populus tremula* forms its æcidiospores, but it also harbours the æcidiospores of *M. betulina*.

There are, upon the other hand, several large natural orders, which, so far as we at present know, afford the æcidiospores of no heterocœcious Uredine a domicile, such as the Leguminosæ, Crucifæræ, and Labiata; while several smaller orders, as the Rhamnaceæ, Primulaceæ, and Polygonæ, are the æcidial hosts for more than one heterocœcious species. There seems to be a tendency for the æidia of distinct species to occur on certain host-plants allied to one another; such a favourite group of æcidial host-plants is afforded by the *Ranunculus repens*, *bulbosus*, and *ficaria*.

Favourite Teleutospore Hosts.—As far as we at present know, all the Puccinæ and Uromyces occurring upon grasses, Sedges, and Junci are heterocœcious. The same remark applies to those Melampsoræ which occur upon the foliage of deciduous trees; but more than this, certain species of the host-plants support the teleutospores of more than one species. For instance, the common Reed has no less than three Puccinæ attacking, viz., *P. phragmitis*, *Magnusiana*, and *Trillii*, all of which have distinct life-histories, as well as differing from each other in marked morphological characters.

An even more striking instance is afforded by the common *Phalaris arundinacea*, upon which no less than four Puccinæ find a home, namely:—

<i>Puccinia sessilis</i> æcidiospores on	<i>Allium ursinum</i> .
" <i>phalaridis</i> "	<i>Arum maculatum</i> .
" <i>digraphidis</i> "	<i>Convallaria majalis</i> .
" <i>coronata</i> "	<i>Rhamnus cathartica</i> .

The above-named Puccinæ, although very similar (excepting the last-named), are quite distinct in their life-histories. Dietel has, indeed, suggested (*Hedwigia*, vol. xxix., 1890, p. 152), that *P. sessilis* and *phalaridis* are the same species, which, for some unaccountable reason, sometimes forms its æcidiospores on *Allium ursinum*, and sometimes on *Arum maculatum*. On this point, however, he has fallen into error, for I have made several cultures, in which the germinating *Puccinia sessilis* was applied at the same time to plants of *Allium* and of *Arum*, with the result of producing the Æcidium *Allii*, while the *Arum* remained healthy. And conversely, *P. phalaridis* has been applied to *Allium* and *Arum* plants at the same time, with the result of producing the Æcidium *Ari*; but the *Allium* plants remained free from any infection. With two teleutospores so closely resembling each other, occurring on the same host plant, it is very possible that one may employ for infecting material

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.

a specimen of the *Phalaris*, upon which both *Puccinia* are present, in which case *acidiospores* would be produced in both *Allium* and *Arum* plants; in other words, the mixed *teleutospores* would not afford a "pure culture." With the two species in question, such a result is not so likely to happen as is the case with some other species, if the *Phalaris* plants have been watched for any length of time, as there is a difference in the colour of the *uredospores* of *P. sessilis* and *phalaridis*. With regard to the third species, *P. digraphidis*, Mr. Soppitt, who marked out its life-history before he published the result of his cultures, convinced himself by experi-

histories worked out, and the fourth, although I have done no less than thirty cultures in the hope of discovering it, has so far eluded me. Nielsen, in 1882, showed that the *Aspen Poplar* was the host on which the *teleutospores* of *Cæoma mercurialis* occurred. In the following year, Mr. Rostrup showed it was also the host of *teleutospores* of *Cæoma pinitorquum*, and in 1885 Hartig showed that it bore the same relationship to *Cæoma laricis*. On South Wootton Heath, near King's Lynn, some small trees of *Populus tremula* annually are affected with a *Melampsora*. I have twelve times placed the germinating *teleutospores* of this species on *Mercurialis perennis*—

I found, when applied to a plant of the common Birch (*Betula alba*) that I have had growing, free from disease, for the past five or six years in my garden, produced the *Uredo* upon it; this was in due course followed by the *teleutospores* of *M. betulina*. This culture was made in May, 1890, and it is my intention this year to do the converse culture of applying the *teleutospores* to the Larch foliage. Until this confirmative evidence be obtained, I think the chances of error are so small, that we may take it that *Melampsora betulina* has for its *acidiospores* one form of *Cæoma laricis*.

(To be continued.)



FIG. 104.—VIEW OF THE LAKE AND ROCKWORK AT ELVASTON CASTLE, LOOKING N.E. (SEE P. 523.)

ment that it would not give rise to the *æcidia* either on *Allium* or on *Arum*, but only on *Convallaria*.

Many other instances of the same host-plant supporting the *teleutospores* of different species might be adduced, such as *Carex arenaria*, which harbours both *P. Schöerliana* and *arenaricola*, the *acidiospores* of the former occurring on *Senecio Jacobææ*, and of the latter on *Centaurea nigra*; but these species are not interchangeable.

With the *Melampsora* the same predisposition to form their *teleutospores* on certain favourite host-plants is evinced. Let us take one example only. *Populus tremula*, on which four species of *Melampsora* occur: three of these have had their life-

three times on *Pinus sylvestris*, seven times on Larch, once on *Allium ursinum*, and once on *Clematis vitalba*, always without producing any effect; so that there can be little doubt but that a fourth species of *Melampsora* exists on *Populus tremula*, whose life-history has yet to be unravelled. It may be added, that in my experimental cultures with the *Melampsora* on *Populus tremula*, some specimens, obtained from another locality some hundred miles distant from King's Lynn, produced the *Cæoma* on *Mercurialis* without the least difficulty.

On the other hand, *Cæoma laricis*, which also occurs sufficiently frequently in this neighbourhood,

WATER-SUPPLY HEATER.

AT the Dalhousie Nursery, Broughty Ferry, of Messrs. D. and W. Croll, my attention was directed the other day to an invention under the above name, which is well calculated to supply a long-felt want in horticultural practice, especially in connection with forcing fruit, and the culture of plants under high temperatures. It is simply an apparatus for the production and distribution of tepid or hot water, in such quantity that a house of any dimensions, containing thousands of plants, may be watered or syringed with water at any temperature required. The apparatus is the invention of Mr.

Simpson, a partner in the firm of Messrs. Croll. It is of the most simple description. Without going into the details of its construction, it may be stated that it is designed to utilise the waste heat that is inevitable in connection with all hot-water boilers, and which finds its way into the atmosphere either in the stovehole or by the chimney, and is lost. A quantity of lead-pipes of small diameter is laid in the built casing of the boiler, and in the flue at its connection with the chimney. These pipes are connected with the cold water supply, which in this case is that of the neighbouring city, and a cock at the junction of the ordinary distributing pipe with that of the coils which are built in the casing, regulates the supply of cold water to the coils. The heated water passing through a dome-like vessel is brought in contact with the cold water from the main, and by means of a cock on the pipe containing the hot water and on that containing the cold, the two are brought together in the supply-pipe for any particular house, so combined by the regulation of these two cocks that water at any desired temperature may be secured at will.

Such is a brief description of the apparatus; now for its applications. The procuring of tepid water, as everyone who is familiar with the work of forcing, and of watering plants growing in high temperatures, especially in winter, is always a troublesome and more or less time-consuming and laborious business, so much so, that it is not infrequently shirked with regrettable results. With this water-supply heating apparatus there is no labour, no time expended in order to get water at any desired temperature for immediate use. By the regulating of the two cocks already alluded to, the water may be conveyed to a tank as required, if watering or syringing is to be done in the ordinary way by watering-pot and hand-syringe or by pump. But the great advantage of the invention is, that it does away with all such laborious and time-consuming methods wherever the water-supply is laid on with pressure. At Messrs. Croll's nursery, the pressure is all that can be desired, and watering is all done by a hose attached to the tap of the pipe which distributes the heated water. The hose is fitted with fine or coarse roses at will for syringing and watering such things as require watering with the rose, and a nozzle may be attached when established pot plants are being watered. The economy of the method is obvious. There is no filling and refilling of watering-pots, no walking to and from tanks to different parts of the house; the water is continually in the operator's hand, and under his control by means of a tap attached to the extremity of the hose.

The possible maximum temperature of the water attainable at the delivery from the hose, is 120°, but this Mr. Simpson thinks could be considerably increased were it desirable, by increasing the coils, and using copper instead of lead piping. But this would hardly be necessary for horticultural purposes. Mr. Simpson finds that scale, and other insect pests, are easily destroyed by syringing the plants, such as Palms and Dracænas, &c., with the water at 120°, and without injury to the plants, and since he adapted his invention to his boiler, which is a gold medal saddle, he has saved time and money in the sponging of plants, and in the purchase of insecticides. To these advantages may be added, that the foliage of the plants is not liable to injury, either by accumulations of insects, or by clumsy handling in effecting their destruction.

The apparatus may be applied to any kind of boiler that requires to be set or cased up, and to any size of boiler. It adds only the cost of the piping and fixings to that of any heating apparatus already fixed up. Not an ounce more fuel is required on account of its use than would be wanted in the ordinary heating of the houses. It is always ready when the heating apparatus is at work, and it is not costly in the first instance. In large forcing establishments and market places, where economy of labour means increased profits and superior results, there is no doubt but this apparatus, when it becomes better known, will be universally adopted. *W. S.*

CULTURAL NOTES.

ERYTHRINA CRISTA-GALLI.

THE "Coral Plant," introduced from Brazil in 1771, is a very useful plant for large beds in sheltered places, and it is quite hardy in well-drained soils, if given the protection of a little Bracken, ashes, Cocoa-nut fibre refuse, or any similar substance over the crown of the roots during winter, wet being more injurious to them than frost. To get a bed of Erythrinas of an even height, and in flower at the same time, plants obtained from cuttings should be used. Cuttings may be struck similar to Dahlias, taking particular care to have a portion of the crown of the plant attached to each cutting; if this is not attended to, the majority of the cuttings will not strike, whereas almost all with a heel will root very readily. Grow them in moist heat, and use the syringe freely, to keep down red-spider. It is also an excellent subject for the greenhouse.

Cut the plants down after flowering, and keep them in any cool frost-proof house, and quite dry until November, when they may be repotted, and brought into a warmth of about 60°; they will then flower in March, after which cut them back again to five or six eyes, and place in a brisk stove heat, to restart them, when they may be treated as before, and if kept well syringed and grown in a light structure, they will be in flower again by the end of July. When out of flower the second time, allow them to rest until November or December. *A. P.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

PEAS.—Early-sown Peas must now have the sticks put to them after earthing up. Avoid placing the sticks close together at the top; in fact, the rows should be as wide apart at the top as at the bottom, bearing in mind that the plants are intended to be grown between the two rows of sticks, and if sufficient space be not allowed at the top they will grow out at the sides, and are then liable to injury during high winds.

Peas just appearing through the ground should be well earthed-up, and in gardens where the sparrows are troublesome and peck the tops, greatly injuring the plants, some means must be taken to protect them. Soot dusted over the rows frequently will render the leaves distasteful to these birds. Successional sowings may now be made at intervals of eight to ten days. At this season, the taller varieties of Peas should be sown, such as Telephone, Duke of Albany, Prolog, and Huntingdonian, all excellent Peas. These sowings should be made in well-prepared trenches, plenty of manure being placed at the bottom of the trenches, and it is judicious to allow as much space as possible between the rows, and if as much as ten feet can be allowed, the crop will be greatly improved in bulk and quality. A row of early Celery, or two rows of Cauliflowers, may be planted between the Pea rows. I find these spaces the best places for the early Celery, the rows of Peas when staked affording the shelter to the Celery which is so essential to its well-doing at first. Do not sow the Peas too thickly, or much labour will be wasted in thinning. One pint of seed will be ample for a row 12 yards in length.

BROAD BEANS.—Another sowing should be made if a regular demand for them exists; and a deep cool soil if possible should be chosen for this sowing, and one that has been well-manured. The rows if double, should be 3½ feet apart, and the seed be dropped at intervals of 9 inches.

SPINACH. in small breadths, should be sown every ten days. The varieties New Longstanding Round-seeded and the Longstanding Prickly-seeded are good varieties to sow, as the plants do not quickly run into flower. The soil for Spinach should be rich and well tilled. Sow in drills 1 inch deep, and 1 foot apart, and thin out the plants while still small, to 6 inches apart.

NEW ZEALAND SPINACH.—A half-hardy annual, may now be sown in small pots of light soil, a few seeds in a pot, and put into a close frame or green-

house till the seeds have come up, thinning the plants to two in a pot, and when sufficient growth has been made, harden them off in a cold frame. A warm place and rich soil—the soil being raised into a slight ridge, will suit these plants. The last week in May is early enough to turn out the plants into the bed. Let the plants stand at 2 feet apart, and press the soil firmly about the roots. During the hot weather, an occasional manual watering will be of service in stimulating growth. Twelve pairs of plants will be sufficient, treated as advised, to give pickings three times a week during the season.

WITLOOF.—The seeds of this plant may now be sown in rows 1 foot apart upon a well-tilled soil, and the plants thinned out to 10 inches. This is one of the finest of winter salads.

CAULIFLOWERS.—Those raised early, if in proper condition for planting, may be put out on warm borders, protecting them against frost and cold winds at night with inverted flower-pots, or branches of evergreen.

ASPARAGUS, &c.—The heads will now be appearing, and on frosty nights the rising heads should be protected with some kind of light litter or flower-pots. Attend to growing crops of all kinds in pits and frames, giving air freely on fine days, damping such kinds as require it overhead at closing time, and affording root-waterings when these are required. Never make use of cold water for this purpose.

The planting of late varieties of Potatoes should now be finished as soon as possible. Parsnips and Onions now appearing above ground should be carefully hoed. Keep weeds in check. *C. J. Waite, Glenhurst Gardens, Esher.*

THE FLOWER GARDEN.

BEDDING PLANTS.—The raising and preparation of the numerous kinds of bedding plants, still demanded in most gardens, will require unremitting attention, so that they may be in a good condition when planting time comes. The tender kinds should be pushed on in heat for the present in order to hasten growth, and the hardier ones gradually inured to the open air by careful ventilation and exposure whenever the weather is mild. All Pansies, Violas, Calceolarias, and others of a similar degree of hardiness, may at once be planted out, remembering that early planting is the secret of success, as it enables them to get established before drought and heat set in. As the roots of these plants go deep, it is advisable to deeply dig and well manure the beds they will occupy, as by doing this the flowering will be much extended.

TENDER PLANTS RAISED FROM SEED.—Zinnias Variegated Maize, and Asters never do so well when sown very early as when sown towards the end of the present month, the plants going out full of vigour and receiving no check. Seeds of the above-mentioned may be sown in boxes, or on mild hot-beds, there to stand till they go out into the open ground; but the Ricinus do best sown—one seed, or at the most two—in small pots, shifting the seedlings into larger pots as they appear to require it, and so growing them on till they are large enough for planting out in the open.

HERBACEOUS PHLOXES.—It is a good time of the year to propagate these plants from shoots that are sufficiently long to serve as cuttings. Sever the shoots just below a joint, put the cuttings in sandy soil under handlights, and shade them from bright sunshine. The cuttings quickly make roots, and if they are planted in a deep rich soil fine heads of bloom form in the autumn. For ordinary borders, plants may be increased by cutting the clumps in two or more pieces. It is always better to reduce the size of the crowns of Phloxes, or thin out the shoots at this season.

CHRYSANTHEMUMS.—All the early-flowering varieties that are to be grown out-of-doors, should at once be planted in warm positions; and any that have stood over one year taken up, and the strongest suckers, or rooted side-shoots, selected for replanting in other places, where the soil has been enriched, as Chrysanthemums give but poor returns if left in the same spot more than one year.

ROSES.—These plants are breaking strongly, but slow growth, induced by the cold winds, is all in favour of aphid and maggot, and the plants will need close attention to keep them clear from these pests, which soon cripple them if left alone. The remedies against greenfly are many, and of the handiest to use before the insects spread much is tobacco-powder; but in bad cases spraying, or syringing

with some approved kind of insecticide is more effectual, and should be resorted to, forthwith. The best way of dealing with the maggot is to give all curled-up leaves a gentle squeeze between the finger and thumb, which does the foliage less harm than unfolding it and searching for the creatures. *J. Sheppard, Wootton Bassett Park, Ipswich.*

THE ORCHID HOUSES.

THE EAST INDIA-HOUSE.—The weather still keeping cold, the occupants of this house fail to start into growth in the manner one expects them to do at this season, and *Dendrobiums* whose growths are from 6 to 8 inches long, are at a standstill although still robust. This condition of the plants will alter when warm weather does come, and the plants will then grow apace. It is not prudent to increase the temperature of this house much by fire-heat, with the idea of mitigating the evil effects of the cold weather, as the evils attendant on that kind of treatment would soon make themselves apparent in several ways—in sappy growth, which often rot off to the wonder of some growers, who can see no cause whatever when the plant was, perhaps, to all appearance, a picture of health; again, strong fire-heat alone is pretty sure to induce the spread of thrips and red-spider, and conditions which will increase these pests should always be carefully avoided. The atmospheric moisture should be in accordance with the temperature of the house, an excess of it being a fertile cause of spot. A trifling amount of air should be allowed at the top and bottom of the house, and this if properly attended to, will do more to keep the plants in a good state of health than almost anything else. A temperature of 65° to 68° at night is sufficient for the present time.

THE INTERMEDIATE HOUSE.—*Odontoglossum grande* is a superb autumn-flowering Orchid that is now commencing to root, and any of the plants which seem to require a change of pot should be repotted at once. The plant does well in peat and sphagnum moss; but in packing the materials about them, a few clean crocks should be intermixed with them, and I would remind the tyros that few Orchids dislike repotting more than this one, and the smallest size pot the roots of the plant will go into with comfort without breaking is the best. Again, very little water must be afforded, and only when the plant is growing fast will they take much, and errors are more commonly made on the wet than the dry side. Plants of *O. citrosimum* that may have missed flowering, or any small plants, should be repotted, or, better still, placed in hanging pans in peat and sphagnum moss. In these they do very well, and few things are more effective when in flower. When growing strongly it is a gross feeder, and weak guano-water may be given at each alternate watering with safety. Any that are now throwing out flower-spikes may get more water; indeed, as soon as the flower-spike shows, a good watering should be afforded. Traps should be laid for shell snails, slugs, and woodlice, all of which are particularly fond of the flowers of *O. citrosimum*. *Miltonia vexillaria* is a charming species, and although very largely grown, few lovers of Orchids seem to grow tired of it, the best varieties still commanding big prices. It is a very free-growing plant, and may be grown from an imported piece to exhibition size in about three or four years. To rear large specimens in a short space of time, it will be found a good plan to remove all the flower-spikes except one from each flowering growth, which will materially add to the strength of the plants. Guano-water may be given freely, but care should be taken to get real Peruvian guano, and not what is sometimes sold for it. *Pleiones* are now sufficiently rooted and strong to take a little assistance, and nothing I have found suits them better than guano, a little of it being crumbled into the water-pot, and allowed to dissolve perfectly; once a week will be sufficiently often at starting, affording a larger quantity as the plants get used to it, but the increase should be very gradual. *A. G. Catt, Parkfield Gardens, Hallow.*

FRUITS UNDER GLASS.

ORCHARD-HOUSE AND PEACH-CASES.—With cold north-east winds it is difficult to properly ventilate the orchard-house, especially when unheated, and no warm covering used at night to hinder loss of heat. With the prospect of brighter weather, the flowers should be encouraged during the day to set by careful ventilation, but closing the ventilators early in the afternoon. In dull weather the fertilisation of the bloom should receive daily

attention. Apricots and Cherries at that period should be afforded the best ventilated part of the house, and the sunniest. Peaches and Nectarines give less trouble, and at this date will be ready to disbud. The soil of the borders or the pots, as I have previously pointed out, must be copiously watered when it has got partially dry, as with sun-heat the loss of moisture in an orchard-house is very great. Any neglect in this respect will risk the loss of the fruit. If the house be heated, a small amount of air may be allowed at night. Insects will now increase apace, and their destruction will entail the use of various insecticides, and the vigorous use of the syringe, hose, or engine. Tobacco-water and Quassia, either alone, are capital remedies for aphids, and they are safe to use at all times. An extract of Quassia is now sold that is very effective for the above purpose.

POT VINES, AND EARLY FRUITING CANES GENERALLY.—If the Grapes on Vines in pots are ripe, the pots may be removed into a cool house, thus making space for the young canes that were potted a short time since. I find that rich soil tends to make Vines long-jointed, and I therefore only use bon-meal or $\frac{1}{2}$ -inch bones in the soil, and afford liquid manure when it is required, that is, when the pots get filled with roots, and the canes need help. I do not now plunge these Vines in bottom heat, and though growth is slower under this kind of treatment, the wood gets firm and has short spaces between the joints. Now is a good time to plant young Vines that were struck from eyes put into pieces of turf or into small pots; the Vine border having been got in readiness some time since, and become warmed and firm. A narrow border is really preferable to having Vines in pots, the bunches being larger and the Vines forcing easily, that is if a small house can be devoted to them. Such Vines may be early forced for two years, and then replanted; this system requiring, of course, two small houses if there is to be no break in the supply. These small vineries come in very useful for forcing flowers, &c. *G. Wythes, Syon House, Brentford.*

PLANTS UNDER GLASS.

THE ORANGERY.—Plants of Oranges and Citrons which require more root-space, may be shifted forthwith. In this operation it is very important that the drainage should be as perfect as possible, and great care taken in keeping the soil from clogging it and causing unhealthiness in the plants. When the plants are merely wanting in vigour, the best way in which to treat them, is to turn them out of the pots or tubs in which they may be standing, pick away all the soured soil, and cut off any decayed roots, and repot the plants in a compost consisting of a good fibrous loam, with the addition of a little decayed manure and sand, and for young stock a little peat may be added.

When Orange trees have been in an unhealthy state for a considerable period of time, smaller pots or tubs than those they occupied will be found to be best, as then the risk of the soil containing too much moisture for the feeble roots will be generally avoided. After repotting them, they will be greatly benefited by having some slight amount of bottom heat, say 65° to 70°. With this sort of assistance, fresh roots will form, which must precede any improvement in top growth. Oranges, Citrons, and Shaddocks should be grown in an intermediate temperature, and during the time the trees are making fresh growths, if they are syringed once or twice a day, it will do much good. The plants will require careful attention in the way of shading when the sun is bright, and be looked over occasionally if infested with scale and aphids.

PRIMULA SINENSIS AND CINERARIAS.—For raising Primulas to flower at an early date next season, a sowing may now be made in pots or pans, covering the seeds very lightly with sand or fine soil, and plunging the pots, &c., in a bed of tan or sawdust, where the temperature may range between 55° and 60°, and with plenty of moisture. The soil may consist of two parts loam, two of leaf soil, and some silver-sand, and be passed through a fine-meshed sieve. A small sowing of Cinerarias may be made, if plants are required in bloom by the end of the present year; but it is prudent to sow the seeds at two or three different times, so as to avoid any risks of total loss, and also to prolong the season of bloom. The treatment is identical with that pursued with Primulas.

CAMPANULA PYRAMIDALIS.—Plants of these which were raised from seed last spring, should now be repotted in loam, a small portion of rotten manure, and sand. A cold pit or frame where there is plenty of light is a good place for them, supporting them

whilst small, on other pots, but putting them lower as the flower stems gain in height. Keep a watchful eye for aphids, and fumigate on its first appearance, for if these insects are allowed to remain, they quickly destroy the lower leaves, giving the plants an unsightly look. Seeds of this useful plant may be sown at once, for raising flowering plants for next year; and when the seedlings have been pricked off into pans, and are grown large enough to be safe out-of-doors, they may be planted out, to there remain until the autumn, when they should be dug up and potted, and kept in a cool house during the winter, giving them the same kind of treatment as other cool greenhouse plants. I always find they grow much stronger and sturdier when treated in this way, than if grown in pots throughout the summer season.

HUMEA ELEGANS.—Plants which were wintered in 6 and 8-inch pots, will now require to be re-potted into 8 and 10-inch pots, as without large shifts it is difficult to keep the lower leaves healthy. Watch carefully for aphids and red-spider, insects which are partial to the *Humea*, and use means to clear them off without delay. The plants should be kept in the greenhouse, or better, a cool pit for the present, shutting them about 3.50 or 4 o'clock, after a good syringing of plants, walls, floor, &c. Do not let the plants stand far from the glass, or want for water at any time. Seeds may be sown so as to secure strong plants for wintering. *R. Milner, Penrice Castle, Swansea.*

THE HARDY FRUIT GARDEN.

APRICOT TREES.—These have flowered freely, and at the present time they are none the worse for the sharp frosts and cold easterly winds recently experienced in this part of the country. Trees well sheltered and protected by glass copings, blinds, &c., will now be making growth, and should have the fore-right and ill-placed shoots removed by an experienced man. The disbudding, if done early, and thinning of the fruit, so soon as it is safe to do so, is always in favour of early growth, a desirable point in Apricot culture. While some of the fruits of the Apricot are produced on the current year's wood, others come on spurs and two-year-old shoots. To secure as many spurs as possible should be the aim of the manipulator, which is best secured by pinching them back to four buds, and laying in shoots where required for fitting up the wall space. If branches show signs of failing, others should be laid in to take their places. When the fruits are set, a gentle syringing with tepid water will benefit them, by keeping them clean. Water must be afforded the roots before the trees suffer, borders soon getting dry at this season. The watering should not be stinted.

Carefully watch all young trees, rubbing off useless buds, and preserving the best situated ones, employing enough fastenings for the purpose, and placing slight sticks to important young shoots, always tying the shoots in place, whilst they are still young. Stocks will be benefited by a good soaking of the borders at flowering time, dryness of the soil causing the blooms to drop wholesale. Attend well to all late-planted trees in this respect, giving occasionally overhead syringing on bright days, and mulch the ground with short dung if the soil be light.

SMALL FRUITS.—Black Currants and the Gooseberry bushes should have the hoe plied amongst them, now that the soil is dry, weeds quickly shrivelling up under bright sun. See that all the tree-labels, which are suspended by wire, have the wire slackened to prevent injury to the bark, and all illegible labels replaced with new. *H. Markham, Mereworth Castle, Maidstone.*

A "HAY PALACE," recently built at Momence, Illinois, is described as being 206 feet in length and 163 feet wide in the centre. "The main hall is 103 feet in diameter, flanked on the four sides with wings. A circular gallery, 18 feet wide, sweeps entirely around the main hall. The walls are built of baled hay, with just enough baled straw to make a pleasing contrast in shading and colour. The primary object of the exhibition is to make a display of the varied products of Eastern Illinois and Western Indiana, which will include products of the farms, factories, forges, mines, quarries, and of the arts, domestic skill, and the accomplishments of the people of the district in music, oratory, and manual training. A special feature is the display of the latest tools in haying machinery, and implements for ditching, laying and making tiles, and road machinery." *Garden and Forest.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Photographs or drawings suitable for reproduction in these pages, of gardens or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS — Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

FRIDAY, MAY 1—Dundee Horticultural Association.
SATURDAY, MAY 2—Preston and Fulwood Society.

SHOWS.

TUESDAY, APRIL 28—Manchester Royal Botanical Society: Second Spring Show.
WEDNESDAY, APRIL 29—Royal Aquarium (two days).

SALES.

TUESDAY, APRIL 28—Imported Orchids, and Orchids in Flower, at Protheroe & Morris' Rooms.
WEDNESDAY, APRIL 29—Lilies, Roses, Gladioli, and other Plants at Protheroe & Morris' Rooms.
THURSDAY, APRIL 30—Established and Imported Orchids, Seeds, Liliuns, &c., at Stevens' Rooms.
FRIDAY, MAY 1—Exhibition Plants, at Basset, Southampton, by Protheroe & Morris.
SATURDAY, MAY 2—Orchids, at Protheroe & Morris' Rooms.
SATURDAY, MAY 2—Border Plants, Shrubs, Conifers, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—50°·4.

The Grape-Louse. In the fifth number of *Insect Life* for the present year, we find an important summary of the state of the Phylloxera question from the specially competent hand of Dr. RILEY. At length it is becoming clear that the means adopted to eradicate or circumvent the pest have attained a large measure of success. This is of course very satisfactory, much more so than are the Phylloxera laws. With the most praiseworthy intentions, the Governments of the Continent and of many of our colonies have enacted a series of the regulations against which we have protested from the first, on the ground of their utter futility. Ordinary prudence and reasonable precautions are, of course, indispensable, and no one ought to object to a certain personal sacrifice when necessary for such an important public object. Many of the regulations, however, are, as we have again and again pointed out, utterly unreasonable, and our provision as to their futility has been amply justified by the course of events, as is illustrated by a letter in our Foreign Correspondence.

"The Grape Phylloxera," says Dr. RILEY, "has continued to attract the attention not only of most European Governments, but also of those of Australia and New Zealand. It continues its spread in France, having at last invaded the more valuable champagne districts. The last report of the Superior Phylloxera Commission of that country shows that about 240,000 acres have undergone defensive measures, submersion being employed in 72,000,

bisulphide of carbon in 145,000, and sulphocarbonate of potassium in 23,000. The work is practically at an end in such Departments as Hérault, Gard, and Gironde, where the American resistant Vines have most effectually been used; while the wine growers of Algeria, Spain, Italy, Portugal, Hungary, Austria, and Switzerland are all battling against it, and are all more or less aided by their respective Governments.

"The advent of the insect in New Zealand has been the cause of much writing and of much legislation there, and the Government has been quite anxious to get the best and latest information on the subject. There is very little that is available in the way of published experience in this country, as my Missouri reports are now very difficult to obtain. I would repeat here in substance what I have recently written to Mr. F. D. Bell, agent-general at London for New Zealand, because the demand for the information is continuous.

"During the more than twenty years' struggle in France against the species, innumerable remedies have been proposed, most of which have proved to be absolutely valueless. A few measures have been devised, however, which, under proper conditions, give fairly satisfactory results. These consist in (1) methods which avoid the necessity of direct treatment, comprising the use of American stocks, and planting in sandy soils; (2) the employment of insecticides (bisulphide of carbon, sulphocarbonate of potassium, and the kerosene emulsion); and (3) submersion.

"It was early found in the history of this Phylloxera that most of the cultivated varieties of American Grape Vines, as also the wild species, resisted, or were little subject to, the attacks of the root form (radicicola) of the Phylloxera, although the leaf gall form (gallicola), which, in point of fact, does little, if any, permanent damage, occurs in greater numbers on many of our wild and cultivated sorts than on the European Grape Vines, which are all derived from the single species, *Vitis vinifera*, and which are so exceedingly subject to the attacks of the root form. The use of American stocks upon which to cultivate the susceptible European varieties has resorted in an enormous trade in certain American seeds and cuttings, and now supersedes all other methods against the insect.

"It was my privilege and pleasure to spend a week in August, 1889, among the world-renowned Médoc and Sauterne vineyards of the Bordeaux district in France. Here, by virtue of the rich alluvial soil, and the ease with which the chief vineyards can be submerged, the Phylloxera has made slower headway, and the opposition to the use of American resistant stocks has been greatest. Yet they have finally vanquished prejudice, and are, either from necessity or choice, rapidly coming into general use. When I say choice, I mean that even where the French Vines yet do well, and the Phylloxera is kept in subjection by other means, it is found that great vigour of growth and increase in healthfulness and yield of fruit result at once from the use of American stocks.

"Without going into a lengthy discussion of the subject of wild American species, those of practical importance to the Grape-grower are the following:—*Vitis æstivalis*, *V. riparia*, and *V. labrusca*.

"The varieties derived from *V. æstivalis* are of value for their fruit as well as for their resistant qualities, and, being easily propagated from cuttings, they are very often used in France as stocks. The most important varieties are Jacquez, Herbemont, Black July, and Cunningham.

"The varieties of *Vitis riparia*, both wild and cultivated, are, on account of their special fitness, almost exclusively employed in France as resistant stocks, for which they easily take first rank. The varieties used are, first, the wild forms; and, second, the cultivated varieties, Solonis, Clinton, and Taylor. Of the cultivated varieties, the Clinton was one of the first Vines tried for this purpose, and has been extensively used with fair satisfaction. The Solonis now ranks above it, but is valueless for any other purpose, on account of the acidity of its Grapes. In

California, the Lenoir, Herbemont, and Elvira have been used, but late experience shows that the wild *Riparia* is most satisfactory there, as it is in France.

"The different varieties of *Vitis labrusca* are less resistant to the Phylloxera than those above-mentioned. Certain varieties have, however, been grown successfully in France, and of these the Concord has given much the best results; but others, Isabella and Catawba, for example, succumb there to the root-louse, as indeed they do in many sections of this country.

"Of the many valuable hybrids obtained from the American species of *Vitis* which are serviceable as stocks, the more important are the Elvira, Noah, and Viala. The last-named, perhaps, of all the resistant varieties, gives the greatest percentage of successful grafts, and is admirably adapted for grafting on cuttings.

"Early in the study of the subject it was found that the nature of the soil has a very marked influence on the success of the different stocks. . . .

"The accompanying table from the last report of the Superior Phylloxera Commission indicates, better than words can tell, the steady growth in the use of American Vines:—

Years.	American Vines covered.	Departments.
	Acres.	
1881	22,000	17
1882	42,700	22
1883	70,000	28
1884	131,909	34
1885	188,200	34
1886	276,900	37
1887	413,700	38
1888	536,900	43
1889	719,500	41

"On the subject of direct remedies, the value of the kerosene emulsion for this purpose has not been properly realised in France, because of the relatively high price of petroleum in her Grape-growing Departments. A series of experiments which I made in 1883 showed conclusively its great value for this purpose, as it not only destroys the insect in all stages, but also stimulates root-growth.

"In this connection I have recently had a series of experiments made through Mr. Albert Koebele's agency, in the Sonoma Valley, California, to ascertain the effect upon the Phylloxera of certain of the resin washes which proved so valuable when used against the fluted and other scale-insects. The results have been quite encouraging, and the experiments have already shown that in the use of those washes we have a valuable addition to the underground remedies. Soaps were made by the use of bicarbonate of soda, sal soda, and caustic soda, each mixed with resin. In the earlier experiments the earth was removed about the base of the Vine to a depth of 6 inches, and for a diameter of 4 feet. Ten gallons of the mixture were poured into each hole, and found to penetrate from 12 to 16 inches, or from 18 to 22 inches from the original surface of the ground. Most of the insects, as also the eggs, were destroyed to a depth of 16 inches. In the later experiments, the holes were made only 2 feet in diameter, and nearly, if not quite, the same results were obtained with half the amount, or 5 gallons of the mixture. The plan, which I have previously adopted for the application of insecticides to underground insects, of washing the mixture in with pure water, was tried with good success. Soon after the first application, 5 gallons of water were added, and 5 gallons more on the following day. This would indicate that in the spring, when rains are frequent (occurring almost every day) in the Sonoma Valley, only a small amount of the mixture need be applied, and the rains will do the rest, as examination has shown that up to a certain point each application of water intensifies and extends the action of the original insecticide. The best soap was made with bicarbonate of soda, but the results of that made with caustic soda are so little inferior, while the price is so much less, that the caustic soda

and resin soap mixture is the one which I would recommend. The formula which was found preferable is as follows:—

	Pounds.
Cau-tic soda (77 per cent.)	5
Resin	40
Water to make 50 gallons.	

"The soda should be dissolved, over a fire, in 4 gallons of water, then the resin should be added and dissolved. After this the required water can be added slowly, while boiling, to make the 50 gallons of the compound. To this water may be added at the rate of 9 gallons for 1, making 500 gallons of the dilute compound, sufficient for one hundred large Vines, at a cost of only 84 cents, or less than a cent a Vine."

benefit to the plant can hardly be doubted. Perhaps they serve to prevent the access of undesirable insects. Indian friends, please note and record the result!

WANTED, A WILD FLOWERS PROTECTION ACT.—A correspondent writes to the *Pall Mall Gazette*:—"On Monday I went to a hedgerow close to Barnet to pick white Violets. I found two ghouls, respectably dressed, digging every plant from its roots. I endeavoured to induce them to desist both by arguments and bribes, but they took every root. It was one of the few places near London where these flowers still grew. Last summer I met a gang of four men digging Ferns and sending them up to London for a shilling a hundred roots. Is it not

across; it is literally covered with fine spathes. One spathe of another variety of *A. grandiflorum* measures about 8 by 4 inches. Some old but handsome specimens of *Anthurium Andreanum* are also to be seen here, besides a variety of *Rothschildianum*, with a spathe measuring 7 by 3 inches.

SHRUBBERY AT LEDEBERG (GHENT).—We have already described this shrubbery in these columns, and we refer to it again, because, owing to a change which has been made, the summer shrubbery of *Araucaria* has been turned into a winter shrubbery of Laurels with most satisfactory results. MM. DE SMET have covered it with tarpaulin, and introduced hot-water pipes to take the chill off the air, and give the necessary warmth. In spring the blinds



FIG. 105.—HIBISCUS SURATTENSIS. FLOWERS YELLOW WITH A CRIMSON CENTRE.

HIBISCUS SURATTENSIS, LINN.—Our illustration of this beautiful and curious plant (fig. 105) was made in the Royal Gardens at Kew, by Mr. ALLEN. It is a well known plant in the tropics generally, but is rarely seen in gardens, in spite of its beauty. It is a weak-stemmed trailing plant, adapted for growing in baskets or on trellises. The colour of the flower is bright yellow, with a deep crimson centre. But what gives the plant a special interest is the curious arrangement of the bracts at the base of the flower. These are spoon-shaped and leafy, spreading on long stalks at right angles to the stem, and from each projects upwards a rather stiff spine, which calls to mind the spikes on which the votive candles are placed near the altars and shrines in Roman Catholic churches. That these are of some

worth while to legislate to prevent the extermination of the wild flowers of England?" The writer might have given another illustration in the ruthless uprooting of Primroses at this season. As Primroses are so easily grown from seed, this terrible destruction is the more to be lamented.

ANTHURIUMS.—In the establishment of LOUIS DE SMET, at Ghent may be seen a great number of most interesting new varieties of *Anthurium Rothschildianum*, amongst others, Madame Raymond de Kerchove, the spathe of which measures nearly 6 by 3 inches. Here is also the first fine specimen of *Anthurium A. grandiflorum*, introduced into Europe twenty-five years ago; the specimen has now but one stem, and the whole plant measures nearly 6 feet

are taken down, rolled up, and stowed away until they are again required. The shrubbery, being kept dry all the winter, has suffered little.

A LETTER OF WILLIAM AITON'S.—At a recent sale, a letter from W. A. AITON to Sir JOSEPH BANKS was sold. It is dated Kew, September 14, 1803, and asks Sir JOSEPH'S interference on the subject of a large collection of plants which had been found on board a French prize captured by English privateers and which had been originally intended for "Madame Bonaparte and the French Institute of Paris." This collection had been sent to Kew to be taken proper care of until the decision of the Admiralty upon the matter, and Mr. ARRON begs Sir JOSEPH'S aid in fixing them there.

CHERRY REINE HORTENSE.—Fruit growers cannot afford to throw stones at the botanists for the number of synonyms they apply to one plant, for here is a Cherry which in thirty-five years has received no fewer than forty names. It is a French variety, with large ovoid drupes of a clear red colour, and with yellow, very juicy sweet flesh. It is not very productive, inasmuch as it flowers early, and the blossoms open simultaneously. It is a fruit for the amateur, rather than for the market grower, according to M. BURVENICH.

"THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—The March part has just been issued. Among its contents we find the papers read at the Dahlia Conference last autumn, and also the addresses to the Grape Conference on September 24. In addition, there are reports of the proceedings at the 3 o'clock meetings, comprising Sir CHARLES STRICKLAND's discourse on Crinums, those of Dr. MASTERS on Town Trees, Mr. SUTTON on Chinese Primulas, Dr. FLOWRIGHT's on Hoar Frost, Mr. BARON's on Figs grown at Chiswick; and several others, to which we may allude on another occasion. There is no doubt that the Guinea Fellows now get considerably more than an equivalent for their subscription, though they have still a legitimate grievance in having to wait so long before they see the text of the papers, concerning which, perhaps, their curiosity has been excited by appreciative comments in the gardening press. One important exception to tardy publication is to be noted in the case of Prof. F. W. OLIVER's Fog paper, which was read quite recently, and now appears in full.

ECONOMIC PLANTS.—We see by an advertisement that Mr. CHRISTY is desirous of finding accommodation in the vicinity of London for his collection of Economic plants, with sufficient space for experiments in connection therewith.

THE ALEXANDRA PALACE AND GROUNDS.—Mr. H. R. WILLIAMS, 6, Lime Street, E.C., writes in the *Times*, April 15, "The Bill promoted by the London Financial Association for repealing the protective clauses of the Muswell Hill Estate Act, 1866, and the Alexandra Palace Act, 1877, has been withdrawn to-day. The Alexandra Palace and Park are consequently safe at present from the exercise of the builder's art. I have every reason to believe that negotiations will be at once set on foot to secure this unrivalled park for the use and the recreation of the public in perpetuity. London cannot afford to lose the Alexandra Park; it is too important a lung to be dispensed with."

TASMANIAN FRUIT IN LONDON.—Considerable interest was shown in Covent Garden Market, on Friday in last week, upon the arrival of the first of the real Tasmanian Apples, the fruit recently received from the Antipodes being from Australia proper and New Zealand. Apples consigned to Mr. DUTHOIT, a city merchant, had the distinction of being the first to be sold, the fruit realising from 16s. to 25s. per bushel case, and being in splendid condition.

NEW POTATOS.—The *Cornishman* reports that Potatos under glass in the neighbourhood of Penzance look well. Many of the glasshouses could furnish a dish of fine tubers at any time. But they are ripening, and need not be forced on the market. The part of the outdoor crop that had sent its delicate leaves and stalklets above ground was cruelly cut by the snow; then the leafage that appeared when the snow cleared met with equally severe treatment by the hard and hoar frost of the early morn of Tuesday, March 31. Since then there has been a further growth; this looks healthy, especially in sheltered places. But the whole crop is backward—very backward compared with the most favoured seasons. We have known Scilly kidney Potatos, 4 to 5 inches long, drawn from the open, and on the 1st of May.

SCENT FARMING promises to be a very profitable industry in Victoria, according to the newly-issued report of the Royal Commission on Vegetable Products. The climate and soil of the colony are

declared to be particularly well suited for the cultivation of perfume-yielding plants. Already scent farms are springing up, and the day may not be far distant when *atar of Roses* or the like may come to us from "Britain of the Southern Cross."

LACHENALIA RUBIDA.—This plant was figured long ago in the *Botanical Magazine*, t. 933, but it appears that there is in some gardens a plant assuming its name, but which is none other than *Scilla campanulata*. Under certain circumstances this plant produces a cylindrical rhizome or root-stock rather than a bulb; and when this happens, the flower stem is not produced, and the bulb which surmounts the root stock produces leaves only. And so the imposter has escaped detection, but even in the leaves it is very different from a *Lachenalia*.

THE AVOCADO PEAR.—The *Revue Horticole* states that a plant of this species, *Persea gratissima* (a true Laurel not a Pear), has produced edible fruit in the open air, at Golfe Juan, near Nice.

THE SOCIETY FLOWER.—We learn from a contemporary that the Duchess of PORTLAND is to give Society its fashionable flower. The taste in flowers undergoes modifications and changes, just as the taste in bonnets and capes, and gowns. The Duchess thinks the *Carnation Souvenir de Malmaison* is deserving of far more consideration than it has received. Her Grace accordingly has fostered its adoption, which has naturally led to a more general study of its nature and capabilities by florists. In appearance and perfume the *Souvenir de Malmaison* is declared worthy of the highest patronage, which we hope it may get, in place of the Primrose, or any other flower that is not cultivated.

THE PATENT INSTANTANEOUS AUTOMATIC TAP SPlicer, HOSE PIPE, COUPLER, AND NOZZLE, is a simple, immediately-applied remedy for broken india-rubber tubing, and was exhibited at the Birmingham Spring Flower Show, April 8 and 9, by the patentees, Messrs. FRAZER & Co., Queen Victoria Street, London, and was awarded a certificate by the judges, Messrs. THOMAS of Chatsworth, and BENNETT of Rangemoor, Buiton-on-Trent.

VICTORIA REGINA VIOLET.—A correspondent in South Wales sends us blooms of this very pretty dark purplish-blue, large double-flowered variety. The fragrance is different from that of the Neapolitan Parma, and has the pungent sweetness of the Russian species. It is a most desirable variety for either indoor or outdoor cultivation.

"WIENER LANDWIRTSCHAFTLICHEN ZEITUNG."—We are informed by CHRISTIAN GRAF KINSKY, President of the club, Der Land und Forstwirthe in Wien, that the club purposes to give a banquet, on the 30th inst., in Vienna, in celebration of Herr H. HITSCHMAN, the Editor of the above journal, completing the twenty-fifth year of editorship.

LECTURE ON CAPE BULBS, BY MR. JAMES O'BRIEN.—At the meeting of the Royal Horticultural Society in the Drill Hall on April 21, Mr. O'BRIEN read a very interesting paper on "Cape Bulbs," and especially the South African *Amaryllis*. The paper dealt mainly with the cultural side of the question, with a view to popularise this beautiful section of the Cape Flora. Mr. O'BRIEN gave interesting particulars of experiments carried out on an extensive scale, to test the relative hardiness of many species of *Cyrtanthus*, *Nerines*, species and hybrids, and other Cape bulbs, proving many of them from the higher altitudes to be perfectly hardy. The lecture, which was illustrated by plates and examples of the bulbs experimented on, was delivered in the presence of a fine company (Sir CHAS. W. STRICKLAND, Bart., in the chair), and was well received.

PLANT PORTRAITS.

MILTONIA VEXILLARIA VAR. LEOPOLDINA.—A fine variety, imported from Antioquia by M. E. Pynaert van Geert, possessing very richly-coloured flowers. *Revue de l'Horticulture Belge*, April.

LEMBOTROPIS (CYTISUS) NIGRICANS CARLIERI.—A Broom-like plant, which has the peculiarity of continuing its growth after the formation of the first set of pods, so that it bears fruit and flowers at the same time. *Revue Horticole*, April 1.

CROSSANDRA INFUNDIBULIFORMIS.—An Acanthaceous shrub, with lanceolate leaves and terminal heads of rich orange-coloured flowers. Native of Ceylon. André, in *Revue Horticole*, April 1.

PEAR CHARLES COGNÉE.—Fruit large, turbinate, orange-red, flesh white, melting, juicy, with a Citron-like aroma. Season, January to April. One of the best winter Pears. Ch. Baltet, in *Bulletin d'Arboriculture*, &c.

FRUITS FROM WESTERN AUSTRALIA.

It would appear that we are soon to have importations of various kinds of fruit, Potatos, and Maize from our youngest Australian Colony. The Midland Railway Company in that colony extends now some considerable distance from Perth, and the lands abutting on the line have in some places been brought under cultivation to some extent. A small collection of the products of these farms and gardens was exhibited at the offices of the railway company above-named at Winchester House, Old Broad Street, on Thursday and Friday last, which we had the pleasure of inspecting.

The Apples were a very well-grown lot, and showed, in their fine smooth skin and freedom from speckiness, the genial climate in which they had been grown. The kinds were apparently Blenheim Orange, Pott's Seedling, Tower of Glamis, Northern Greening and Yorkshire Greening.

The only Pear shown was William's Bon Chrétien, very large and highly coloured. Fine Quinces were also observed.

The Grapes were a thin-skinned white variety, with a good deal of the flavour of the Muscat of Alexandria. These last-named fruits had travelled indifferently, owing to their not being properly packed. With so good a climate as that of Western Australia, the manufacture of raisins would be more profitable to the growers than exporting unprepared Grapes, which are scarcely fitted for a journey occupying six to seven weeks. Ripe Grapes fetch in the colony about 1d. a lb. Wine making is, we believe, already an industry that is carried on in the colony.

A sample was shown of the Giant Rocca, a nice Onion of mild flavour, but one that does not keep for any great length of time; however, it had stood the warmth of the passage through the tropics very well.

It was a surprise to find Pomegranates fully $4\frac{1}{2}$ inches in diameter.

Some of the Potatos—kidneys—were of nice marketable size, whilst others were very large and deep-eyed. Evidently the merchants do not make good selections of these tubers for their colonial customers. The price of Potatos ranges from 20s. to 40s. per ton in the colony. The heads of Maize, both red and white varieties, were of fine size and thoroughly ripened.

The land on which these varied productions were grown consists of a sort of ironstone sand mixed with something of the nature of peat, but in a very fine state, and intimately commingled with the sand, at least it was in the sample shown. It contains no stones. Most of it had, previously to the railway being constructed, been covered with scrub or timber, and at present is in no need of manure, as the various products attest.

In the room where the fruit was laid out was shown the model of a nugget of gold that had been found at Shaw's Falls, which weighed 333 ounces. The winter climate of much of the colony resembles a favourable winter in Cornwall or Devonshire, frost being very rare, and snow laying even inland only a few hours. Of course on the mountains, some of which reach a height of 3,000 feet above the sea, it lays nearly the whole summer.

HOME CORRESPONDENCE.

EFFECT OF THE PAST WINTER ON SHRUBS.—

Our experience at this place, South Hants, as to the manner in which shrubs have been affected by frost in the past winter, does not agree with the views expressed by Mr. Threlton Dyer on p. 458, and I think that Mr. Wilks' theory is much nearer the mark. It is found, where shrubs are actually dead, the injury first occurred at the base of the plant. For instance, in *Coronilla glauca*, *Euonymus radicans* in variety, *Ericas*, *Veronicas*, and *Myrtles*, the bark comes off the stem close to the ground, while plants of *Ceanothus* and *Escallonia*, which have many of their branches killed, are quite sound at the base, as far as the stripping off of the bark is concerned. My conviction is, that those trees and shrubs which have suffered, could not withstand the low temperature with impunity which was experienced on the night of November 28, when the thermometer registered 23° of frost, the lowest of any night during the winter. Following a summer that was cold and damp, the frost came on suddenly at that early date,

until they were 1 inch long, and then they withered and died, thus proving that this Rose tree possessed sufficient vitality in its shoots to enable it to make some attempt at growth without assistance from the roots, but when that was not forthcoming, owing to the plant being virtually killed, the shoots died forthwith. *South Hants.*

THE BIRMINGHAM BOTANICAL GARDENS.—Calling here a few days since, I noticed in bloom a plant of *Pinguicula caudata* (the Mexican Butterwort), and what a lovely little plant it is with its soft rich deep carmine-coloured flowers, which in appearance bear a resemblance to a flower of *Impatiens Sultanii*. It has an erect and one-flowered scape, and does well in peat and sphagnum, or in fibrous peat and pieces of broken pot, and with cool-house treatment. *Hoya globulosa* (from the East Indies), is flowering very freely from the roof of an intermediate-house, and the foliage is smaller than *H. imperialis*, and very thick. The flowers are of a creamy-white colour and fragrant, and abundantly produced. *Toxicophloeæ spectabilis* is always well grown here, some young plants, especially, being profusely flowered. It is an evergreen shrub, doing

appearing in quantity in some parts, though here we have only a few, owing to several years' combat with that scourge, in which it appears as if we should come out conquerors. *Aphis* appears on almost everything, so the winter has not affected them; and the same remark applies to slugs, which are more than usually plentiful on newly-planted Cauliflowers, Lettuces, Radishes, Asparagus, &c. *J. T. Wright, Gleniston Court Gardens, Ross.*

THE LATE MR. R. H. BARD.—Mr. Bard will always be associated in my memory with the well-known Golden Feather Pyrethrum. I well remember his bringing to a meeting of the Floral Committee of the Royal Horticultural Society, then sitting at South Kensington, a box of this plant, and while its interesting character was universally acknowledged, doubts were expressed as to its durability, and so a Certificate was not awarded at the first time of asking. A day or two after, Mr. Bard put in appearance at a meeting of the then United Horticultural Society at the "Green Dragon" Hotel, in Bishopsgate Street, also bringing with him a box of the Golden Feverfew; when a Certificate of Merit was unanimously adopted. It has proved one of the most useful bedding plants ever distributed. *R. D.*

A BLUE CHRYSANTHEMUM.—In my opinion, this Chrysanthemum, if it ever should arise, is more likely to arise from a sport than a seedling. With varieties at present in cultivation, there is a great tendency that way. I have seen traces of blue in sported flowers which came near to the desired goal. Last season blooms of Lady Dorothy, which is an incurved kind, and itself a sport from Hero of Stoke Newington, showed distinct signs of a colour that was more blue than purple in some parts of its petals, here and there blotches which prompts me to apprise those interested in this novelty to be on the look-out for further freaks of the kind, and to carefully preserve plants which show the slightest inclination to assume a blue colour. It is a well-known fact that some sorts do exhibit signs of sporting several years before an actual sport occurs. *E. M.*

OLD MAN.—Very popular still amongst Londoners is the Southernwood—*Artemisia Abrotanum*—one of the Wormwoods, the "Boy's Love" of old days; and, in Cockney phraseology, the "Old Man" of later ones. It is, indeed, difficult to understand why a plant, so widely known years since as "Boy's Love," should now obtain such a diverse and contradictory appellation, except it be out of pure "cussedness." Did we ask of the growers of hardy plants of all kinds for the million for "Boy's Love," they would probably look amazed. Still more would it be the case were the query addressed to the rough, uncultured plant hawker, and it is morally certain that neither would comprehend what was required were the botanical appellation given. But "Old Man" is the vulgar term, and "O.d Man" it will probably be for generations. The plant owes its popularity to its exceeding hardiness, for it has come through such a winter as the late one literally unhurt. Even were the foliage at all harmed, and it is so comparatively deciduous that there is little foliage to injure in the winter, it was but needful to cut back the top shoots, and in a few weeks the back buds burst, so that now the plants are tufts of the richest green, earliest amongst the early of deciduous shrubs in leaf. Then it has very pretty leafage also, which is of an exquisite green tint; and finally, it is of a sweet perfume. Somehow, plants which have a pleasant perfume never lose in popularity. Even now there is a big run on the "Old Man," and it is hard to keep pace with the demand. Some increase stock by cuttings, some by putting older stocks all topside, and dividing them—but propagated they must be plentifully. Lavender, too, finds favour, especially the Lavender Cotton, but still, no perfumed shrubs of this class are in such demand as the Southernwood as a market-barrow plant, and immediately it will be found in vast quantities in all our London streets. *A. D.*

FRUIT JUDGING.—I would like to bring forward a grievance felt by numbers of exhibitors who show Melons, Apples, Pears, &c., of the common practice of judges to eat these fruits before making their awards. The object of an exhibition is to show; and what does the public generally care about flavour in what is shown? Now, while granting that high flavour in all kinds of fruits is of much importance, I do not attach the same weight, as some people do, in exhibited fruits. If the committees of societies are anxious to have flavour tested, then why not have a



THE LATE WILLIAM BARRON. (SEE P. 522.)

whilst the new growth was immature. The exceptionally warm months of September and October, moreover, kept plants in a growing state to a later date than usual, especially quick-growing subjects like *Veronicas*, hence the shrubs suffered to a greater extent than under ordinary conditions. At no time in my experience were shrubs so little prepared to withstand low temperatures as last winter. The reason that shrubs which are now proved to be killed did not turn brown soon after the injury was done, is, in my opinion, due to the fact that the wood retained enough vitality to prevent the foliage suddenly turning brown; but the green colour of the leaves gradually paled, and changed to grey. No plant shows this sequence of conditions more clearly than *Euonymus japonicus*, which has thick and leathery leaves. *Magnolias* also provide another case in support of my contention. There was here a striking instance of the buds pushing forth, followed by a total collapse. A plant 7 feet high of Rose Isabella Sprunt growing in a pot was left out-of-doors by accident on the night of the frost, and unprotected in any way; early last month this Rose was stood in a Peach-house, and its buds at once began to break, the buds grew evenly all over the plant,

best in an intermediate-house, having *Pittosporum*-like foliage and habit, with clusters of pretty white flowers in the axils of the leaves, a plant well deserving more notice than it gets. *Ipomoea Horsfalliae*, in one of the stoves, is in full bloom, rich indeed in its glowing rich crimson-carmine colour. *D.*

THE DOUGLAS FIR.—In regard to the doubt as to the existence of what your correspondent calls "inferior varieties" of the Douglas, surely there can be no doubt that the fastest-growing variety from the Pacific slope is altogether inferior in beauty as an ornamental tree to the Colorado variety. I grow both, and can tell them apart at any distance. They have a different scent. *D.*

THE WINTER, AND INSECT LIFE.—The old notion that a severe winter destroys most of our insect enemies will not stand investigation, nor that a severe winter is followed by a good and fruitful season. The winter of 1860–61 was hard enough, and was followed by a disastrous summer. February was the best month of the year 1861; February, again, this year, was fine and bright. To return to insects. The larva of the winter moth is

separate class for that purpose. I hold that a person appointed judge, by reason of his experience, or by repute, should know pretty well what a ripe fruit of any well-known variety or kind ought to be, and if, in adjudging the comparative merits of two or more exhibits, if it be found impossible to do so without tasting, it should be done with a small instrument like a cheese-taster; and as fruit in most cases is fit for use, this simple rule would not be detrimental, and the fruit might be used at dessert. I am persuaded that if this useless practice of cutting fruits were abolished generally, it would do a great amount of good; for many employers object to their gardeners taking fruit to shows, knowing the risk that he runs. I think it has reached its lowest point when onslaught is made upon kitchen Apples. Those who have seen the handsome and trim array of fruit before the judging, and have observed its appearance afterwards, will fully comprehend the magnitude of the grievance alluded to above. *G. B. Claydon, Holbeck's Park.* [We do not think it at all desirable to encourage the exhibition of fruits and vegetables for show only. Such a practice leads to the production of inferior varieties. Ed.]

DOYENNÉ DU COMICE PEAR.—In the immediate neighbourhood of a large smoky town like Birmingham, this variety of Pear succeeds admirably, notably at Edgbaston, about two-and-a-half miles from the centre of Birmingham. The trees are grown by Mr. F. Mole, a keen fruit cultivator, and who pays much attention to root-pruning, thinning the blossoms and the fruits in the early stage, and pruning closely. He obtains crops of fine fruit from his trees, which are on a south aspect, showing plainly that a great deal may be done in the way of fruit-growing in town gardens, when thought is brought to bear, and proper varieties of various kinds are planted. *W. D.*

THE WINTER, AND HARDY SHRUBS AT HIGHBURY.—The mansion, kitchen garden, the houses, and a part of the pleasure-grounds, about the Right Hon. Joseph Chamberlain's residence are on high ground, and exposed to the east and west winds, and a large portion of the pleasure-grounds and the ornamental pools are at a much lower level, and as they caught the frost severely there, I had a hasty look through the grounds recently, to see what harm had been done to the shrubs. They have generally escaped wonderfully well, and a large specimen, 5 feet high, of *Veronica Traversii* has escaped with only very little injury. Several fine specimens of *Bambusa Metake* about the pools and other places are uninjured, beyond some of the foliage having a scorched appearance. *Andromeda floribunda* at the lower level is full of bloom-buds, and *Prunus Lauro-cerasus* var. *rotundifolia* is uninjured, and is a most valuable hardy Laurel. Against the mansion, *Choisya ternata*, planted out and unprotected, is all right, and *Camellias* out-of-doors in the borders are uninjured. An *Eriobotrya japonica* (the Loquat) is cut up by the frost, but is far from being killed, and will break again. Much attention has been paid at Highbury to the planting of various sorts of *Narcissi* about the grass of the pleasure-grounds, and they have a beautiful appearance just now. *D.*

DAFFODILS IN WESTERN ASIA.—On p. 495 it is stated that the yellow Daffodil grows abundantly all through Western Asia. This is a mistake, as no variety of Trumpet Daffodil (*Narcissus pseudo-narcissus*), is known to have been ever found wild in any part of Asia. E. Boissier, the best authority for the flora of Western Asia, mentions one doubtful instance, which, he says, requires confirmation. *C. W. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 14.—Present: Mr. McLachlan, in the chair; Dr. Müller, Dr. Bonavia, Professor Church, Mr. G. F. Wilson, Mr. Blandford, Rev. W. Wilks, and Rev. G. Henslow, Hon. Sec.

Bigeners.—Mr. Wilks exhibited a plant named *Chionoscilla*, which was considered to be undoubtedly a bigener between *Chionodoxa* and *Scilla bifolia*. It was received from Mr. J. Allen, Park House, Shepton Mallet.

Blue Primroses.—Mr. Wilson exhibited several specimens illustrative of different shades of purple and blue Primroses.

Lemon, Malformed.—Dr. Bonavia exhibited a

Lemon remarkable for a ridge from top to bottom. He suggested that it might be due to an adherent filament, and that the ridge was an independent structure. Mr. Henslow observed that an anatomical investigation into the distribution of the fibro-vascular cords of the carpels of Oranges did not appear to support that view. He added, that the well-known peculiarity of horn-like structures arising from the surface of Oranges, was due to the adhesion of pistiloid stamens, which are not at all uncommon in Orange flowers.

Theobroma Leaves Diseased.—Mr. McLachlan exhibited leaves of the Cacao tree badly infested by *Capnodium citri*, which forms a soot-like sheet over the surface, but does not penetrate the tissues. It was received from Mr. Smith, the Curator of the Botanic Gardens in Grenada, W.I. The leaves are attacked first by two species of coccidæ, one stellate the other linear in form. The coccids produce a secretion by which the fungus is nourished and thrives. Mr. Blandford observed that the same fungus occurs upon Oranges in California, which have in consequence to be washed. Mr. Riley, in his report of the U.S. Department of Agriculture for 1886, speaks of the large masses of secretion produced by coccids. In Florida this fungus, known as black blight, is a regular consequence of the presence of the coccidæ on Oranges, and lives in the honeydew secreted by them. The names of the coccidæ are *Vinsonia stelliformis*, Westwood; and *Ischnaspis filiformis*, Douglas. The first or stellately-formed species is found on Orchids in Assam, Mangos in Demerara, as well as on the *Theobroma* in Grenada. With reference to remedies, Mr. Smith recommends petroleum emulsion for the coccidæ, but for the fungus Dr. Müller suggested polysulphides—e.g., sulphur boiled with caustic lime.

Injury to Plants at Kew.—With reference to the remarks made by Mr. Dyer at the last meeting, they were somewhat incorrectly reported, in that the object of keeping the temperature as low as possible within glasshouses in the winter was, because it is practically impossible to retain a humid atmosphere with a high temperature, in consequence of the low external temperature and nocturnal radiation. The subject will be found fully discussed in Lindley's *Theory and Practice of Horticulture*, p. 207. With regard to exposed plants injured by frost in Kew Gardens, Mr. Dyer has added that, notwithstanding the long persistence of a low temperature at Kew, the bulk of the shrubs and evergreen trees did not at the close show the amount of injury which might have been anticipated. As soon as the sun came out, and milder weather followed the frost, the shrubs began to go off wholesale, the green colour of the leaves disappeared, and they turned, not brown, as in autumn, but pale and grey. His conviction was, that they bore the low temperature with comparative immunity, but that they could not bear the sudden transition from a low temperature to a high one. Mr. Morris informed him that precisely similar phenomena are observed at high levels in the tropics after frost. Mr. Wilks' theory that the shrubs are killed at the base is not the explanation at Kew, though, from local circumstances, it may be true of his own garden; and certainly it is not the case that any of the shrubs pushed forth buds before their premature decease.

MEETING, TUESDAY, APRIL 21.

The Drill Hall, James Street, Westminster, wore an unusually animated appearance on the occasion of the meeting of the Auricula Society, the various Committees of the Royal Horticultural Society, and of these last, mention must be made of that one which is specially entrusted with the *Narcissus*. Some few Orchids made their appearance from Sir Trevor Lawrence's gardens, from a few other amateurs, and Messrs. Sander & Co., and Messrs. J. Laing & Sons; and fortunate indeed was it for the more lowly Auricula that these showy plants were in no great preponderance as regarded numbers. At three o'clock a lecture was given by Mr. J. O'Brien on Cape bulbs, a short account of which our readers will find in another column.

Orchid Committee.

Present, Dr. Maxwell T. Masters in the chair, and Messrs. E. Hill, F. Moore, J. Douglas, L. Castle, T. B. Hayward, and J. O'Brien.

The fine *Lælia purpurata* var. *Schroderi*, a form with pale violet lip, much veined, with petals and sepals of the purest white, came from Messrs. J. Laing & Sons, Forest Hill, S.E. A beautiful supposed natural hybrid of *Oncidium curtum* and *O.*

Barclayanum and named *O. Larkinianum*, was exhibited by John Larkin, Esq., Delrow, Watford. The intensely dark brown markings on the sepals, and the richer hue of the same colour of the petals, in contrast with the large bright yellow lip, make it a very striking flower; the plant was in good health, and the spike large. Colonel R. J. Clarke, Welton Place, Daventry, showed out blooms of *Cattleya Lawrenceana*. Messrs. F. Sander & Co.'s collection of Orchids consisted of varieties of *Trichopilia suavis*; of *Odontoglossum Pescatorei*, one having three lake-coloured spots on the lip; *Cattleya citrina*, nicely bloomed; *Lælia purpurata* in variety, some with white petals, and others with mauve; *Dendrobium Schroderi*, an improvement on the normal form of *D. densiflorum*, in that the parts of the flower are larger, and there is more substance in it. *Odontoglossum Hallii* finely in bloom. *O. Edwardi*, with immense tall spikes and purple flowers, came also from these exhibitors.

Poyntz variety of *Lycaste Skinneri* were shown as cut blooms by Reginald Young, Esq., Fringilla, Sefton Park, Liverpool, the marking of which seem to be generally desirable as affording variety.

Sir T. Lawrence (gr., Mr. Bickerstaff), showed a finely flowered *Dendrobium Brymerianum*, *Odontoglossum Pescatorei*, Prince of Orange, a beautiful flower with a yellow ground colour, decorated in all parts with brown spots; *O. excellens*, also pale yellow, with an orange-coloured throat, and petals and sepals of great breadth and substance. A monstrosity in *Vanda tricolor* was shown by Mr. J. Hudson, gr. to M. M. de Rothschild, Gunnersbury House, which was a case of two blooms united.

Floral Committee.

Present: W. Marshall, Esq., in the chair, and Messrs. H. Herbst, C. T. Druery, J. Bryceson, C. Jeffries, R. B. Lowe, C. Noble, H. Turner, B. Wynne, G. Paul, H. B. May, J. Walker, H. H. D'Ombain, and G. Gordon.

An interesting group of Indian Azaleas was staged by Mr. C. Turner, Royal Nurseries, Slough, and consisted of modern varieties with a few novelties of which the following obtained certificates: *A. Phiraldie Mathilde*, a semi-double large flower, sparingly spotted with bright pink—it is new as to colouring. *M. Labrousse* is single-flowered of a deep rich purplish-crimson, and *Princess Clementine*, white, slightly double in shape, large, and with a very faint green tinge in the throat.

Two plants of the old-fashioned but ornamental *Iris fimbriata*, nicely flowered, came from W. Melles, Esq., Sewardstone Lodge, Chingford.

Messrs. J. Veitch & Sons, Royal Exotic Nurseries, Chelsea, exhibited a pretty *Anthurium Scherzerianum* Parisense, whose spathe is of the palest pink colour, and not varnished; spadix orange-coloured, leaves long and narrow.

A new species of *Rhododendron* from Hong Kong and named *Championæ*, came from the same nurseries. It is a flower coming in corymbs of about five, white in the superior limb, and densely spotted with pale pink. The flower is stellate in form, with the lobes folded backwards. The very narrow, pointed foliage is thickly covered with short, strong hairs on the upper and lower surfaces.

A showy stand was that put up by Messrs. Ryder & Son, Sale, near Manchester, consisting of their numerous varieties of *Primula Sieboldi*. We have seen them often in previous years, and have always been pleased with them. They deserve to be grown by every one, and, given a cold frame or sheltered border—their cultivation is very simple. The collection was well set off by *Maidenhair Fern*, &c.

Hardy plants in variety came from the nurseries of Messrs. Paul & Son, Cheshunt, and included the double *Caltha palustris*, a rare lot of *Sarracenia purpurea*, with plenty of pitchers; *Primula denticulata*, *P. altaica*, *Aubrietia taurica*, &c., mostly grown in his bog beds in the open. Mr. Phippen had hardy Primrose hybrids, a large number and well varied in colours. As showing the mildness of the Swansea district even in this disastrous year, a quantity of *Rhododendrons* of Himalayan species and hybrids were sent by Sir John Llewellyn; the blooms were fresh and unharmed by frost.

Fruit Committee.

Present: Philip Crowley, Esq., in the chair; and Dr. Hogg, Messrs. Harrison Weir, J. Cheal, J. H. Veitch, W. Warren, J. Wright, T. J. Saltmarsh, G. Wythes, J. Hudson, H. Balderson, F. Q. Lane, G. Reynolds, M. H. de Vilmorin, A. Dean, A. Moss.

Two varieties of Tomato, viz., Gilbert's Criterion, a small smooth red fruit, and Wynne's Early Forcing, a ribbed red fruit, came from Mr. R. Gilbert, of Burghley Gardens, Stamford, and were awarded a cultural commendation. Mr. G. Wythes, gr., Sion House, Brentford, showed ripe Grapes from pot Vines, and a box of Keen's Seedling Strawberries, and received a cultural commendation for the first.

About three score dishes of well kept Apples came from Messrs. Cheal & Son, nurserymen, Crawley, and some varieties of Pears of continental origin, and said to be of excellent quality, viz., Duchesse de Mouchy, Duchesse de Nemours, and Charles Cogné.

Narcissus Committee.

Present: Rev. G. H. Engleheart in the chair; and Messrs. Scrase-Dickens, Barr, Ware, Vilmorin, Walker, Wilks, Masters, and Webster.

The Rev. G. H. Engleheart showed a number of most interesting seedling Daffodils, one a pretty and sturdy dwarf form, said to be a cross between the Tenby Daffodil (*Narcissus obvallaris*) and *N. nanus*. Unusually fine, perhaps the finest form, we have yet seen of the Tenby was likewise exhibited by Mr. Engleheart, and in which the cup was large, deeply

Primrose Mary Erskin, from G. F. Wilson, Esq.; P. Covenanter, from G. F. Wilson, Esq.

Botanical Certificates.

Rhododendron Championæ, from Messrs. J. Veitch & Son.

First-class Certificates.

To *Oncidium Larkianum*, shown by Mr. J. Larkin. To *Odontoglossum Pescatorei*, Prince of Orange, shown by Sir Trevor Lawrence, Bart., M.P.

Medals.

Silver Flora, to Messrs. Barr & Son, for a collection of Daffodils.

Silver-gilt, to Messrs. G. Sander & Co., for a group of Orchids.

Silver Banksian, to Messrs. Ryder & Sons, for a group of Primula Sieboldi.

Bronze Banksian, to Messrs. Paul & Son, for a group of herbaceous plants; to Mr. G. Phippen, for a group of hardy Primroses.

FRUIT COMMITTEE.

Silver Banksian, to Messrs. Cheal & Son, for Apples and Pears.



FIG. 107.—THE BUCKLAND YEW BEFORE REMOVAL, AS SEEN FROM ABOVE. (SEE P. 524.)

and neatly frilled, and the colour good; another interesting seedling was obtained by crossing *N. corbularia* and *N. triandrus*, and in which the parentage was plainly visible. The same gentleman entered several seedlings for Mr. Barr's prize, one of these, a neat Tenby-like flower, but quite distinct in colouring from that well-known Daffodil. It was named Bianca.

Mr. Barr exhibited a more curious than beautiful flower in the double *N. cyclamineus*, and which had been collected amongst the typical kind in Spain. The comparatively rare *Narcissus Lady Watkin* was shown by Mr. Walker, it being more refined and chaste of colour than Sir Watkin. A single flower of the latter, with a distinct orange line on the corona corresponding to one on each petal, was brought by the same gentleman.

From Edge Hall came a series of interesting seedling forms, several being neat of habit and pronounced in colouring.

By the FLORAL COMMITTEE.

Awards of Merit.

Azalea Phiraldie Mathilde, from Mr. C. Turner; *A. M. Labrousse*, from Mr. C. Turner; *A. Princess Clementine*, from Mr. C. Turner.

National Auricula and Primula Society.

APRIL 21.—The annual exhibition of this Society took place on this occasion, and in the matters of extent and quality of the flowers surpassed the general expectations. A more trying season for Auricula cultivators could scarcely be imagined, but the pluck and persistence which overcomes difficulties is characteristic of the florist, and the Auricula growers are to be congratulated on their successful display. The Rev. F. D. Horner was unable to exhibit, a circumstance that called forth many expressions of regret; and the absence of his flowers, and especially the new varieties he is accustomed to bring, were much missed. But the treasurer of the Society, Mr. T. E. Henwood, of Reading, was to the fore with some finely-developed specimens, and for the first time won the blue ribbon of the exhibition—the 1st prize for twelve varieties of show Auriculas—and for the first time also he took the prize for the premier Auricula.

Show Auriculas.—In the class for twelve varieties there were four competitors, Mr. T. E. Henwood being a very good 1st, with green edges, Lancashire Hero, in the green dress it occasionally assumes; Abbé Liszt, a grand green edge, raised by

Mr. J. Douglas, having the finely-formed pip of George Lightbody, and a vigorous grower; the Rev. F. D. Horner, with eleven pips, and in fine character; and Prince of Greens. Grey edges, George Lightbody, a splendid specimen of this superb variety with six highly-finished pips, and Lancashire Hero, white edges, George Rudd, classed with the greys, but white on this occasion; Acme, Reliance (Mellon), and Mrs. Dodwell (Woodhead); selfs, Mr. Potts, Heroine and Black Bess, representing a dozen varieties it would be difficult to improve upon. 2nd, Mr. J. Douglas, gr. to Mrs. Whitburn, Great Gearies, Ilford, who had well grown plants as usual, but some were perceptibly stale. He had of green edges, the Rev. F. D. Horner, Abbé Liszt, and Prince of Greens; grey edge, Mrs. Moore; white edges, Heather Bell, John Simonite, Acme and Elaine (Horner) in the way of Acme, but with a stronger tube, evidently of the parentage of Acme, a seedling; selfs, Black Bess, Sapphire, and Heroine. 3rd, Mr. A. J. Sanders, gr. to Viscountess Chewton, Brockham Lodge, who had green edge, the Rev. F. D. Horner, very fine; and self, Black Bess. P. J. Worsley, Esq., Rodney Lodge, Clifton, Bristol, was 4th, having selfs Mrs. Potts and Black Bess, also in fine condition. There were five exhibitors of six auriculas, and Mr. T. E. Henwood was again 1st with green edges, the Rev. F. D. Horner and Lancashire Hero; grey edge, George Rudd; white edge, Mrs. Dodwell; selfs, Mrs. Potts and Heroine. 2nd, Mr. J. Douglas, with green edges, The Rev. F. D. Horner and Abbé Liszt; grey edge, Marmion, very fine; white edges, Elaine and Heather Bell; self, Black Bess. 3rd, Mr. A. J. Sanders. 4th, P. J. Worsley, Esq.

There were eight exhibitors of four specimens. Mr. G. W. Wheelwright, Post Office, Oxford Road, Reading, was 1st, staging green edge, the Rev. F. C. Horner, with nine fine pips; grey edge, George Rudd, very fine; white edge, Mr. Dodwell; and self, Mrs. Potts. 2nd, Mr. W. Smith, Bishop's Stortford, who had green, Rev. F. D. Horner, with thirteen pips; grey, Rachel; white, Heather Bell; self, Mrs. Potts. 3rd, Mr. W. Badcock, Oxford Road, Reading, who had very good plants, consisting of the Rev. F. D. Horner; grey, George Lightbody; white, Marmion, self, Mrs. Potts.

There were nine exhibitors of two Auriculas. Mr. G. W. Wheelwright being again 1st, with green, the Rev. F. D. Horner, with twelve excellent pips; and grey, George Rudd. 2nd, Mr. C. Phillips, Hamilton Road, Reading, with grey edge, George Rudd; and self, Heroine. 3rd, Mr. W. Badcock, with green, Rev. F. D. Horner, and self, Mrs. Potts.

Single Specimens.—Exhibitors being limited to two plants each, the number staged was somewhat small. Mr. T. E. Henwood, was 1st and 2nd with the Rev. F. D. Horner; Mr. G. W. Wheelwright being 3rd, with the same; Mr. J. Douglas coming 4th, with Abbé Liszt. The best single specimen of grey edge was George Lightbody, from the Rev. R. L. Flood, Merton; Mr. Wheelwright being 2nd, with William Brockbank; and Mr. P. J. Worsley 3rd, with George Lightbody. The best white edge was John Simonite, from Mr. T. E. Henwood; Mr. G. W. Wheelwright coming 2nd, with Acme; Mr. J. Douglas 3rd, with Conservative. Mr. Henwood was 1st and 2nd, with a self, staging Mrs. Potts in good condition; Mr. Wheelwright 3rd, with the same; and Mr. A. J. Sanders 4th, with Black Bess. Mr. Badcock staged Blue Beauty, a seedling of his own, and apparently from Mrs. Douglas, but a true blue, very promising indeed, though the plant was not in good condition.

Collections of Fifty Auriculas.—This is one of the least interesting classes, because the collections consist of what is not good enough to go into the smaller ones; and as it is one open only to large growers, there are never more than two entries. Mr. J. Douglas was placed 1st, his leading plants being green edges, Abbé Liszt, Prince of Greens, and Rev. F. D. Horner; grey edges, Mabel, George Lightbody, Rachael, Dr. Horner, and Dr. Kidd; white edges, Acme, Elaine, and Conservative. Selfs, Rev. C. Kingsley, bright blue, Sapphire, Royal Purple, and Heroine. Mr. C. Turner, Royal Nursery, Slough was 2nd with green, Rev. F. D. Horner; grey, Richard Headley, George Lightbody, &c.; white edged, Acme and Beauty; selfs, C. J. Perry, Negro, Black Bess, Topsy, and Mrs. Potts.

Alpine Auriculas.—These were seen in very fine condition; and if, as is stated, the season has told against their proper development, one can imagine how grand would have been the specimens had the season proved favourable. Mr. Turner took his old position of 1st place with twelve superb specimens, consisting of Harry Turner, Roland, Magnet, Sun-

rise, John Bright, a fine variety, shaded with a charming tint of bright salmon; Exquisite, T. E. Henwood, F. Knighton, very bright; and Mungo McGeorge, all with gold centres; white centres, Peter Flower, Phoebe, and Sensation. 2nd, Mr. J. Douglas, with Daphne, Calliope, Love Bird, Toujours Gaie, Nellie Hibberd, Circassian, Ceres, Lady Howard de Walden. No 3rd prize appears to have been awarded.

Mr. T. E. Henwood was 1st with six grand specimens of alpine, having Love Bird, Charles Turner, Mrs. Martin (Henwood), Mary Frances (Henwood), Defiance, and a seedling. 2nd, Mr. C. Turner, with Triumph, F. Knighton, Primrose Queen, Countess, Springfield, and Orion. 3rd, Mr. G. W. Wheelwright, also with a fine lot of admirably-bloomed plants.

With four alpine, Mr. Wheelwright was 1st with excellent specimens of Hotspur, Pallas, Garnet, and Defiance. 2nd, Mr. T. E. Henwood, with Mrs. Martin, Jeannie, and Princess of Wales. 3rd, Mr. W. L. Walker, also with capital specimens.

Single specimens.—The best gold-centred alpine was H. M. Pollett, a highly finished flower from Mr. C. Turner; Mr. T. E. Henwood was 2nd, with Florie Henwood; Mr. A. J. Sanders 3rd, with Diadem; and Mr. Wheelwright 4th with Sunrise. The best white centred flower was Maud Fellowes, the next Countess, both from Mr. C. Turner; Mr. Henwood, 3rd, with Paragon; and Mr. J. J. Keen, Southampton, 4th, with Edith.

Polyanthus Gold-laced.—These showed decided improvement on those of last year, and they were also fairly numerous. Mr. J. Douglas was 1st, with Cheshire Favourite, George IV., Exile, William IV., Lancer, and a seedling red ground. 2nd, Mr. J. Weston, gr. to D. Martineau, Esq., Clapham Park, with Lancashire Hero, Sunbeam, Topsy, and seedling. 3rd, Mr. R. Dean, Ealing. With three plants, Mr. J. Douglas was 1st, having Cheshire Favourite, George IV., and Lancer. 2nd, Mr. A. J. Sanders, with Lord Beaconsfield, William IV., and Sidney Smith. 3rd, Mr. Weston, with Lancashire Hero, Sunbeam, and a seedling.

Single specimens.—The best single specimen was George IV., from Mr. J. Douglas, who was 3rd with the same. 2nd and 4th, Mr. Melles, Chingford, with Lancer.

Fancy Auriculas.—Mr. J. Douglas obtained the 1st prize for twelve fancy Auriculas, all yellow-flowered varieties, that cannot be otherwise classified. Mr. R. Dean was 2nd with a few double and single varieties.

Premier Auricula.—The plant selected for this distinction was grey edged George Lightbody, a superbly finished specimen shown by Mr. T. E. Henwood in his 1st prize, twelve, having six finely finished pips.

Seedling Auriculas.—Mr. T. E. Henwood was awarded a first-class certificate for a very fine green-edged Auricula, named Mrs. Henwood, raised by Mr. Samuel Barlow, of Manchester, a superb flower, dense paste, good tube, blackbody-colour, rich deep green-edge.

In the alpine classes, first-class certificates were awarded to Mr. Charles Turner, for Primrose Queen, golden centre, dark ground shading to silvery-grey, fine shape; John Bright, golden centre, dark ground shaded with orange-salmon, very fine and effective; and Mrs. Harry Turner, creamy centre, black ground shading to delicate mauve, very pretty. To Mr. T. E. Henwood for Mrs. Walker, golden centre, maroon ground shading to salmon-red, fine shape; and Mrs. Douglas, cream centre, maroon ground, edged with rose paling off to pink, very fine shape.

Fancy Polyanthuses.—These lacked the superb finish of last year, owing to the cold weather. Mr. J. Douglas was 1st with twelve plants; and Mr. R. Dean, 2nd, with large plants, not yet fully in bloom.

Single Primroses.—In this class Mr. R. Dean was 1st with a very bright lot, not yet fully in bloom; Mr. J. Douglas was 2nd; and O. T. Hodges, Esq., Lachine, Chislehurst, 3rd.

Double Primroses.—Messrs. Paul & Son, Old Nurseries, Cheshunt, was 1st with pans of Croussii, one of the finest, and a most robust grower; White Lilac, Platypetala, Harlequin, and Sulphur. 2nd, Mr. R. Dean, with old velvet crimson, blush, white, lilac, &c.

Primula species.—These were somewhat numerously shown; some of the examples were remarkably good. Mr. J. Douglas was 1st with *P. japonica*, *P. amana* variety, *P. cashmiriana*, *P. obconica*, *P. nivea*, *P. floribunda*, *P. verticillata*, *P.*

intermedia, *P. Nelsoni*, very much the same in general character, *P. marginata*, *P. obtusifolia*, a kind of miniature *P. japonica*; and *P. rosea*. 2nd, Sir J. T. D. Llewelyn, Bart., Penlergare, Swansea, with *P. verticillata* var. *Boweiana*; *P. japonica*, a fine pale coloured variety; *P. obconica*, *P. cashmiriana*, *P. floribunda*, *P. rosea*, *P. latifolia*, *P. auricula*, *P. viscosa*, *P. denticulata*, *P. involucreta*, and *P. cortusoides*. Collections of six specimens were also well represented. Mr. O. T. Hodges was 1st with *P. denticulata*, a very fine piece; *P. viscosa* purpurea, *P. viscosa*, *P. hirsuta*, *P. nivea*, and *P. marginata*. 2nd, The Guildford Hardy Plant Company, with *P. auricula*, and a pubescent variety also; *P. rosea*, *P. nivea*, *P. villosa*, and *P. Balfouriana*, type of *P. ciliata* of a bright claret crimson colour. 3rd, Mr. R. Dean, who had a fine form of *P. obconica*, and a pretty lilac form probably of *P. nivea*, named *P. Peyritschii*.

Basket of Primroses.—Messrs. Paul & Son were awarded the 1st prize, and Mr. R. Dean the 2nd, but the award by no means gave general satisfaction.

ROYAL BOTANIC: SECOND SPRING SHOW.

APRIL 22.—This was one of the brightest and best spring exhibitions that has been held at the gardens for some time, plants and flowers filling the corridor and overflowing into the conservatory. In some classes there was no competition, but miscellaneous contributions were numerous and good, and compensated, in a great measure, for the falling-off in those classes.

Roses in pots made a fine feature, and Messrs. Paul & Son, Old Nurseries, Cheshunt, took the 1st prize with nine finely grown and bloomed specimens; and Mr. W. Rumsey, nurseryman, Waltham Cross, was 2nd.

Greenhouse Azaleas made, as is usual, a bright feature. Mr. C. Turner, Royal Nursery, Slough, was 1st with six specimens in the nurserymen's class, his best being Madame Alex. Hardy, Apollo, Mrs. Turner, and Irene, the latter large and of fine colour.

In the amateur's class for the same number, Mr. H. Eason, gr. to B. Noakes, Esq., Highgate, was 1st, his best plants being Stella, Charmer, Roi de Hollande, and Reine des Pays Bas. Mr. P. Nutt, gr. to Miss Foster, Regent's Park, was a very close 2nd, having Duchess Adelaide de Nassau, Ceres, and Alexis Dallièrre as his best.

Amaryllis, shown in collections of twelve, were a striking feature: Messrs. Paul & Son was 1st, with a very fine variety named William Coomber, bright deep scarlet, flamed with white, and some capital seedlings; and Mr. J. Douglas, gr. to Mrs. Whitbourn, Great Gearies, Ilford, was 2nd, with a fine lot also.

Cinerarias were represented by medium-sized specimens, well grown and bloomed; Mr. D. Phillips, Langley Broom, Slough, was 1st; and Mr. J. Ford, gr. to Sir C. Pigott, Bart., Wexham Park, Slough, 2nd.

Pelargoniums were represented by one collection of nine plants only, from Mr. D. Phillips, consisting of medium-sized specimens of popular decorative varieties, admirably grown and flowered; Rosetta deserves mention from its pleasing colour.

Collections of alpine plants in flower were represented by one collection only—that from Messrs. Paul & Son, and were identical with those shown by them on the previous day at the Royal Horticultural Society's meeting. It was thought that in one or two cases the term alpine had been used to cover plants not exactly conformable to the name.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was 1st with a collection of hardy herbaceous plants. Messrs. Paul & Son were 2nd, with *Sisyrinchium grandiflorum*, and its variety album; *Narcissus* Sir Watkin, *Violas*, double Primroses, &c.

Mr. J. Douglas was the only exhibitor of a collection of hardy Primulas.

Messrs. Ryder & Son, Sale, near Manchester, were the only exhibitors of *Primula Sieboldii*.

Auriculas were well shown: Mr. J. Douglas being 1st, with a dozen of the best specimens he exhibited at Westminster on the previous day; and Mr. C. Turner was 2nd, with green edge, Rev. F. D. Horner; grey edges, George Lightbody and Richard Headly; white edge, Acme; and selfs, Mr. Potts, Black Bass, and Elegance. With twelve alpine, Mr. Turner was 1st, with a very fine set, and Mr. J. Douglas 2nd.

Mr. Douglas was 1st, and Messrs. Paul & Son 2nd, with twelve Polyanthus, almost all of the fancy type.

In the way of miscellaneous exhibits, a large silver medal was awarded to Messrs. B. S. Williams & Son, Victoria Nurseries, Holloway, for a fine group of plants, including Orchids. Silver Medals to Messrs. H. Low & Co. Clayton Nursery, E., for a collection of Orchids, *Dendrobium thyrsiflorum* being conspicuous, mixed with other plants; Messrs. J. Laing & Sons, Stanstead Park Nursery, Forest Hill, for foliage and flowering plants; and Mr. H. B. May, Dyson's Lane Nurseries, Edmonton, for a very fine group of Ferns and foliaged plants. Small silver medals to Mr. W. Ramsey, Waltham Cross, for Roses in pots, and in a cut state, some of the tea-scented varieties being very fine; and to Messrs. W. Cutbush & Sons, Highgate, for a collection of flowering plants. Large Bronze medals were awarded to Mr. T. S. Ware, for a collection of cut Daffodils; and to Messrs. Barr & Son, King Street, Covent Garden, for the same; Messrs. Ryder & Son, for a collection of *Primula Sieboldii*; Mr. J. Douglas, for a collection of Auriculas and other types of Primulas; and Messrs. Hayes, Bros., nurserymen, Edmonton, for a collection of decorative Pelargoniums. Bronze medals to Mr. P. Nutt, for specimen *Rhododendron*, Countess of Haddington; and to Mr. Charles Turner, for a collection of Azaleas. A group of new and rare plants came from Messrs. James Veitch & Sons, nurserymen, Chelsea. A Cultural Certificate was awarded to J. H. Boroughs, Esq., Ketton, Stamford, for a collection of blooms of varieties of *Anemone fulgens*.

Botanical Certificates of Merit were awarded to *Pteris serrulata densa*, from Mr. H. B. May; to *Caladium Jas. H. Laing*, from Messrs. J. Laing & Sons; to *Anthurium Schertzerianum parisiense*, and *Rhododendron Championae*, a white flowered species with reflexed blossoms, from Hong Kong, from Messrs. Veitch & Sons.

Floricultural Certificates of Merit were awarded to Messrs. Hayes Bros., for decorative Pelargoniums, *Duchess of Fife*, white throughout, broadly edged with bright carmine; to Azaleas Mons. P. de Schryver, President O. de Kerchove, and Princess Clementine; and alpine Auriculas, Primrose Queen, H. M. Pollett, John Bright, Exquisite, and Mrs. Harry Turner, from Mr. C. Turner; to Amaryllis Wm. Coomber, from Messrs. Paul & Son; to Camellia *Duchess*, from Messrs. W. Paul & Son, to Messrs. J. Laing & Sons, for Cliveia Lady Wolverton; to Messrs. Veitch & Sons, for Streptocarpus, Plato, Finette, Aces, and Virgil; to Amaryllis, Erato, and Kyneton; and to *Rhododendron H-rcules*, of the Javanicum type; to Mr. J. Douglas, for green edged Auricula, Abbé Liszt, and white-edged Bellona.

SPRING SHOW AT YORK.

THE first show of the season was held under the auspices of the Ancient Society of York Florists, in the Guildhall (kindly lent by the Lord Mayor), on April 22. Despite the cold east winds and absence of sunshine, there was an excellent display in almost all the classes. The following were among the principal prizetakers:—Miss Steward, Miss Barstow, Dr. Baker, Mr. Douglas, Mr. T. Lambert, T. F. Wood, Esq. In the class for six Auriculas (show), Messrs. Steward was 1st, with good plants of Gen. Neil, Beauty, Nonsuch, and Col. Champneys. The classes devoted to Hyacinths and Tulips were well represented, some excellent flowers being noticed in each class. A nice collection of *Narcissus*, *Fritillarias*, and other spring flowers was exhibited by Messrs. Backhouse & Son, The Nurseries, York.

NEWCASTLE-UPON-TYNE.

APRIL 15 AND 16.—The 67th Spring Show was held in the Corn Exchange and Town Hall, Newcastle. To see the beautiful display of well cultivated plants, with which the large building was filled, one would not suppose that the weather in the north of England had been unpropitious. There is perhaps, no other floral society in England which has kept up an unbroken series of annual exhibitions for sixty-seven years, and if it has not been quite so financially successful as some others, it has been due to circumstances not in the power of the committee to control. These spring and summer exhibitions provide amusement and instruction to many of the inhabitants of the

district, and are of incalculable benefit educationally to those who are gardeners by profession, and to amateurs, the leading gardeners in the north of England and in Scotland annually exhibiting there.

Dutch Bulbs.—Messrs. Alex. Kerr and Sons, Roxburgh, were successful in winning the 1st prize for twenty-four well-grown plants of dwarf habit, and a good selection of varieties, such as La Grandesse, Koh-i-noor, King of the Blues, King of the Blacks, Mont Blanc, &c. Mr. N. J. Watson, of Newcastle, who has usually won in this class, had to content himself with the 2nd place, although he took the 1st one for twelve Hyacinths, with the best varieties, very well grown. Mr. A. G. Brown, of Whitburn, exhibited very fine Hyacinths, and was 1st in class B for twelve and for six. The competition in all the classes for Hyacinths was keen; the difference between many of the exhibits being two and three points.

Tulips were likewise shown very numerous; the rather lumpish double varieties showing up rather better than usual. Mr. W. J. Watson was 1st for nine pots, and also for six single and double varieties.

Mr. F. C. Ford easily won the 1st prize in stove and greenhouse flowering plants with *Cœlogyne cristata*, *Tremandra ericoides*, a handsome *Cliveia*, and a grand specimen of *Erica Victoria*.

Auriculas, Polyanthus, &c.—One expects to see good *Auriculas* and laced *Polyanthuses* in the north, and this year they were better than usual. For twelve show *Auriculas*, Mr. Robert Patterson, of Sunderland, took the lead with a fine clean, well-grown lot of the best varieties, as, John Simonite (which also won the premium), Mrs. Potts, Rev. F. D. Horner, Prince of Greens, Heroine, &c. Mr. Patterson also came in 1st for six show varieties, and also for two. Mr. Patterson and Mr. W. H. White, of Killingworth, were the prize takers in the classes for single plants.

The alpine *Auriculas* were especially meritorious, as regarded culture and choice of varieties. Mr. Wm. Sutherland, Newcastle, was 1st, and he was closely followed by Mr. W. H. White, for twelve plants; and the same exhibitors were the leading prize-takers for single plants and for seedlings.

The laced *Polyanthuses* were very bright and cheerful, but not quite up to the usual Newcastle

neum, *Eucharis*, *Lily of the Valley*, &c. Messrs Perkins was a close 2nd, but the judges thought too much greenery was shown. The last named exhibitors were 1st in the hand-bouquet class, and in this a few red-tinted *Croton* leaves were used to great advantage.

Miss E. Armstrong was the first prize winner in another class for bouquets, and in addition to *Niphetos* *Roses*, *Lily of the Valley*, and *Cymbidium eburneum*, she used eight spikes of *Ada aurantiaca* with great advantage. Another first prize winner of bouquets was Miss Jobson, of 18, Vegetable Market, Newcastle; she very tastefully utilized red, white, and yellow *Roses* with *Lily of Valley* and other flowers.

The vases of flowers for dinner table and other decorative purposes were all of the tall trumpet-shaped kind; which have been so used here for many years. Perhaps some other form would now be met with more appreciation from the visitors; it must be said the arrangements of the flowers were excellent in most of them. The leading prizes were taken by Mr. Geo. Webster, of Newmarket, Sunderland. Sprays and button-hole bouquets were numerous and good. Mr. John Battensby, Miss M. Jobson, Miss E. Armstrong, and Mr. William Handysides, of Newcastle, were the prize-winners for sprays; and for button-hole bouquets were Mr. G. Corbett, of Newcastle, Mr. Jas. Wood, Mr. Jas. Russell, of Felling, and Mr. J. R. Chard, of London. Cut flowers formed an interesting feature, but at this early season they are not very numerous.

SCOTLAND.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

THE monthly meeting of this Association was held on Saturday evening, 18th inst., in the Music Hall Buildings, Aberdeen, Mr. D. M. Smith, president, in the chair. A paper was read on "Fruit Farming for Profit," by Mr. A. McKinnon, Scone Palace Gardens. Those who took a very sanguine view of the future of fruit farming for profit in this country, he said, estimated the average annual returns per acre at from £40 to £50, and at that rate, the annual value of the produce of 200,000 acres would be about £10,000,000. The writer contended that every effort made towards increasing the cultivation of fruits in this country to the extent advocated by many practical men would, in good and fruitful years, only lead to over-production and diminished prices, while to those who had invested a large amount of capital, a series of bad fruit seasons would prove disastrous. The judicious capitalist, before embarking in the enterprise of fruit-farming, had many other conditions to consider apart from foreign competition, such as climate, soil, and locality. In Scotland, owing to the uncertain nature of the climate, and the inferior quality of the fruit when compared with the foreign article, the cultivation of their orchards, notwithstanding all that had been said in their favour by many practical men, would never, in the essayist's opinion, extend much beyond their present limits even in the best districts. If the business of horticulture in Britain were to be successful, and hold its own with that of foreign countries, it would have to be conducted by men of capital, scientific knowledge, energy, and enterprise; men who, by a thorough training to the business, could recognise the wants of the soil, and would cultivate it in such a way as to produce crops of a kind and quality best suited to the markets of the country.

A paper by Mr. James Cocker, Aberdeen, on "Flower Shows of the Year, and Noteworthy Exhibits," was next read. Comparing the National Show at York held in June last year with that of the Royal Horticultural Society of Aberdeen, in which the former had only 110 classes, with £576 in prize-money, and the latter 232 classes, with £150 in prize-money, the following queries were suggested:—Was the Aberdeen Society doing right in offering so many prizes for so many different subjects? Was it doing good? Would it not be better to give larger prizes, and



FIG. 168.—THE BUCKLAND VIEW AFTER REMOVAL (SEE P. 524.)

In class B, Mr. G. McDougal, and Mr. James McIntyre, of Darlington, were the winners of the 1st prize. Mr. W. J. Watson and Mr. John McIntyre took 1st prizes in the *Polyanthus-Narcissus* classes, with fine well-grown plants. Indeed, in all the bulb classes the competition was very strong, and the general quality throughout rather better than usual.

Plants.—These classes were well filled with seasonable subjects; *Azalea indica* in immense specimens; A few *Orchids* of merit; *Deutzia gracilis* in large specimens, not distorted by being trained; *Genistas* with very beautiful blooms; *Dielytra spectabilis*, of which there were scores of elegant drooping spikes; *Spiræas*, *Cinerarias*, *Primula sinensis*, *Cyclamens*, hardy *Primroses*, and plants for table decoration. The six pots of *Lily of the Valley* which gained Mr. W. J. Watson the 1st prize have seldom been equalled. Mr. J. McIntyre, gr. to Mrs. Pease, Darlington, showed four well-grown *Azaleas*, viz., Oswald de Kerchove, bright rose; Madame Charles van Eekhaute, white; Duc de Nassau, and Bernard Andreas. Mr. F. C. Ford, gr. to Mrs. Hy. Pease, of Darlington, was placed equal 1st with the above, the varieties being A. Boursig, Duc de Nassau, Annette, and Vesuvius, and had this group not been touched by frost, it would have taken first place.

standard. Mr. J. Cawthorne, Wickham, obtained the 1st prize for six distinct varieties.

A feature of the exhibition much admired was a very large and fine collection of *Narcissus* of the best sorts, sent by Mr. T. S. Ware, of Tottenham.

Messrs. Ryder & Son, Sale, near Manchester, exhibited, amongst other things, some very fine pans of *Primula amoena* in good varieties.

The local florists added many attractions to the show, in the form of foliage and flowering plants which were displayed in groups. Amongst the Newcastle dealers were Mr. J. W. Tate, Messrs. Adamson Bros., Mr. F. Edmondson, Mr. John Hood, Mr. H. H. Hellier of Darlington, and Messrs. Robson & Sons, Hexham.

Miscellaneous.—The dinner-table decorations, bouquets, &c., always a special attraction at Newcastle, were this year exceptionally well done; and as an evidence of the educational value of such a society as this, the local florists and gardeners are able to beat in open competition such world-renowned bouquetists as Messrs. Perkins, of Coventry. The bridal bouquets were of much beauty, as, indeed they ought to be. The 1st prize was well won by Miss E. Armstrong, 32, Neville Street, Newcastle. It was charmingly arranged with *Niphetos* *Roses*, *Dendrobium Jamesianum*, *Cymbidium eburneum*, &c.

to reduce the number of classes? Did we lose or gain by trying so many subjects individually? If our attention were directed to fewer articles, should we not improve the quality of all the exhibits?

FOREIGN CORRESPONDENCE.

THE PHYLLOXERA LAWS.

IN corroboration of what you said in your issue of April 11, on the utter failure of these absurd regulations, I may mention that the Italian periodical, *L'Agricola Italiana*, of April 15, states that there are now in Italy 288 communes infested with the Phylloxera, and that it is spreading rapidly. When Italy, by the advice of certain Professors, who were more conversant with the laboratory than with practical possibilities, persuaded most of the continental powers to sign the Conference of Berne, the Phylloxera was believed not to exist in Italy, and now no part of the kingdom is exempt. It extends along the Alpine frontiers of France, Switzerland, and Austria; down the coasts of the Mediterranean and the Adriatic; in northern, central, and southern Italy; in Sicily, Sardinia, and Elba. In Sicily it first appeared in the centre of the island; how it got there no one knows. How the Phylloxera originates and springs up suddenly by great leaps from one centre of infection to another is a mystery. Certainly not always, nor mostly, by introduced vines or other plants. It is most probably conveyed on the clothes of men moving from place to place, by railways, on the carriages and amongst the goods, by ships; and also, no doubt, by wind. We know that the sands of the Barbary deserts, carried by strong winds, have fallen in showers of dust in Italy and even in Constantinople—how much more easily the winged aphid?

In the interest of English horticulture, the time would seem to have arrived when our Government would be justified in moving for the repeal of this vexatious and irrational boycotting of English produce.

To Italy itself the Phylloxera law is most prejudicial, inasmuch as she has before her a large prospective commerce in fruit and vegetables, provided she will grow improved kinds, and from nowhere can she get them better than from England and the United States; but now she cannot import them direct, and can only obtain them at a greatly enhanced cost, by transit through other countries, implying extra charges for agency, certificates, &c.

While on this subject, I may also mention the red-tapeism of the British Post-office, which alone in Europe refuses to carry live plants. I can send or receive between Italy, France, Germany, Belgium, &c., live plants by Parcel Post; but cannot send them to England, as the British Post refuses to receive parcels containing live plants. Thus the English grower is at a disadvantage with his foreign competitors. *Tuscany.*

LAW NOTES.

A QUESTION OF NOTICE.

A DECISION affecting the relations between master and servant was decided on the 16th inst. by his Honour, Judge Edge, at the Stonehouse County Court, in the case of *J. W. Hurst*, foreman gardener, *v. Mr. W. G. Hodge*, florist, George Street. Mr. F. W. Skardon (Skardon & Phillips) represented the plaintiff, and Mr. Percy T. Pearce (Bond & Pearce) the defendant. The claim was for £6 16s., of which £6 was for four weeks' wages in lieu of notice, and 16s. for coals and vegetables. The plaintiff, it was stated, was engaged by defendant as foreman of gardeners at his nurseries at a salary of £1 10s. per week, with cottage rent free, and coals and vegetables. On March 7, defendant gave plaintiff a week's notice, and on the Thursday following ordered him to leave the nurseries. Defendant said

he gave the notice to leave in consequence of plaintiff's negligence. His honour held that a foreman of gardeners was entitled to a month's notice, and gave judgment for £6 and costs, allowing defendant 5s. on a counter-claim for the occupation of the cottage one week after the expiration of the month. *The Western Daily Mercury*, April 17.

Obituary.

MR. JOHN GAIR.—We regret to hear of the death, on the 14th inst., in his 77th year, of Mr. John Gair, a well-known banker at Falkirk. In the year 1853, Mr. Gair acquired the property of Kilns, on which he subsequently built a substantial mansion-house, and laid out the grounds and gardens. He was an ardent horticulturist, and the Kilns gardens have a more than local reputation, as may be judged from the occasional notices in our columns. The collection of Orchids is one of the finest and largest to be met with in the country, and containing, as it does, many rare and valuable specimens, it has attracted visitors from distant parts. Mr. Gair married fifty years ago, Miss Elizabeth Kinross, daughter of a Perthshire gentleman. She survives him, as does also a family of one son.

ENQUIRY.

"It is that question which men shall learn much."—BACON.

WEST INDIAN FERNS.—Will some correspondent favour me with the names of private growers of these plants, who may be disposed to increase their stock by purchase? *X.*

MARKETS.

COVENT GARDEN, April 9.

We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. *Ed.*

A STEADY business doing for all classes of goods. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4-0 6	Lettuces, per dozen	3 0-...
Beans, French, lb.	1 6-2 0	Mushrooms, punnet	2 0-...
Beet, red, per dozen	2 0-3 0	Mustard and Cress, punnet	0 4-...
Brussels Sprouts, lb.	0 6-...	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Seakale, per bunch	2 0-2 6
Cauliflowers, each	0 6-...	Shallots, per lb.	0 6-...
Celery, per bundle	2 8-3 6	Spinach, per bushel	7 0-...
Cucumbers, each	0 9-1 0	Tomatoes, per lb.	2 6-3 6
Endive, per dozen	4 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

OLD POTATOS.—Market steady. Supplies above expectation. NEW POTATOS.—Demand has increased. Stocks getting very low. Prices very firm. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ficus elastica, each	1 6-7 0
Aspidistra, doz.	18 0-42 0	Foliage plants, various, each	2 0-10 0
—speci. plants, each	7 6-10 6	Genista, per dozen	8 0-12 0
Azalea, per dozen	24 0-42 0	Hyacinths, per doz.	6 0-9 0
Bedding plants, variety, per doz.	1 0-2 0	Lily of the Valley, per dozen pots	9 0-18 0
Bouvardias, p. doz.	9 0-18 0	Marguerites, doz.	6 0-12 0
Cineraria, per dozen	8 0-10 0	Mignonette, per doz.	6 0-9 0
Cyclamens, dozen	9 0-18 0	Myrtle, per doz. pots	6 0-12 0
Cyperus, per dozen	4 0-12 0	Palms in variety, each	2 6-21 0
Dielytra, per dozen	8 0-12 0	Pelargoniums, doz.	12 0-18 0
Dracena terminalis, per dozen	30 0-60 0	—scarlet p. doz.	5 0-9 0
—viridis, per doz.	12 0-24 0	Primula sinensis, doz.	4 0-6 0
Euonymus, in var., per dozen	6 0-18 0	Roots for bedding, in boxes, each, from	1 0-3 0
Ericas, various, doz.	8 0-18 0	Spiraea, per dozen	9 0-12 0
Evergreens, in var., per dozen	6 0-24 0	Solanums, per doz.	9 0-15 0
Ferns, in var., doz.	4 0-18 0	Tulips, per doz. pots	6 0-9 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 6-6 0	Lemons, per case	15 0-25 0
—Nova Scotia, brl.	15 0-25 0	Pine-apples, St. Michael, each	2 0-8 0
—Tasmanian, cask	12 0-16 0	Strawberries, p. lb.	3 6-8 0
Cobs, Kent, 100 lb.	45 0-50 0		
Grapes, new	5 0-9 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemone (Fr.), 12 bun	2 0-4 0	Narcissus (paper white), 12 sprays	0 9-1 6
Azalea, 12 sprays	0 6-0 8	—French, 12 bun.	2 0-6 0
Bouvardias, per bun.	1 0-1 6	Narcissus (yellow), 12 bun.	2 0-4 0
Callaethiopica, 12 l.	3 0-6 0	—Poeticus (Pheasant Eye) 12 bun	4 0-6 0
Camellias, white, 12 blooms	2 0-4 0	Pelargoniums, scarlet, 12 spr.	0 6-0 9
—coldr., 12 blms.	0 9-1 6	Poinsettias, 12 blms.	...
Carnations, 12 blms.	1 0-2 0	Primroses 12 bun.	0 8-1 6
Cyclamens, per doz	0 3-0 6	Primulas, double, 12 sprays	0 6-1 0
Daffodils, various, 12 blooms	0 3-0 9	—single, 12 sprays	0 4-0 6
—(Foreign), 12 bun.	2 0-6 0	Ranunculus (Fren.), 12 bun.	1 0-2 0
Eucharis, per dozen	4 0-6 0	Roses, Tea, per doz.	1 0-3 0
Gardenias, per doz.	2 0-4 0	—coloured, dozen	2 0-4 0
Heliotropes, 12 spr.	0 6-1 0	—yellow (Marechal), per doz.	3 0-6 0
Hyacinths, Rom., 12 bunches	1 0-2 0	—red, per dozen	3 0-6 0
Hyacinth, various, 12 spikes	3 0-6 0	—do., French, doz.	1 0-3 0
Lilium Harrisii, doz.	3 0-4 0	Snowdrops doz. bun.	1 0-3 0
Lily of the Valley, 12 sprays	0 6-1 0	Tuberose, 12 blms.	0 9-1 6
Maiden Hair Fern, 12 bunches	4 0-9 0	Marguerites, 12 bun.	3 0-6 0
Marguerites, 12 bun.	3 0-6 0	Mignonette, Fr., bu.	1 6-2 6
Mimosa (French) 12 bun.	15 0-18 0	Violets, 12 bun.	0 9-1 6
—(French) basket 4 0-6 0		—Parma, Fr., bun.	3 0-3 6
Myosotis, 12 bun.	1 0-...	—dark, Fr., bun.	2 6-...
		Wallflower (Fren.), 12 bun.	1 0-2 0

ORCHID-BLOOM in variety.

SEEDS.

LONDON: April 22.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., report a steady retail demand for Clover seed at the moderate rates now accepted. Rye grasses keep steady. Sanfoin is very cheap. Tares move off slowly. Hemp and Rape seed both considerably higher. Millet and Canary seed also tend upward. Some foreign blue Peas extraordinarily good. Boilers are now old unable. Haricots advancing. Linseed is dearer.

FRUIT AND VEGETABLES.

STRAITFORD: April 21.—There has been a good supply of all kinds of produce at this market during the past week, and a brisk trade was done at the under-mentioned quotations:—Cabbages, 3s. to 5s. per tally; Greens, 2s. to 2s. 6d. per sieve; do., 3s. to 6s. per dozen bunches; Cauliflowers, 2s. to 3s. per dozen; do., 4s. to 11s. per tally; Turnips, 25s. to 35s. per ton; Carrots, household, 12s. to 14s. do.; do., cattle feeding, 35s. to 40s. do.; Parsnips, 1s. 6d. to 2s. per score; Mangels, 22s. to 25s. per ton; Swedes, 30s. to 35s. do.; Onions, English, 110s. to 130s. do.; do., Dutch, 3s. to 3s. 9d. per bag; do., Bordeaux, 4s. to 4s. 6d. per case; Apples, English, 3s. 6d. to 7s. 6d. per bushel; Radishes, 9d. to 1s. per dozen bunches; Cress, hot and cold, 1s. 9d. to 2s. per dozen bunches; Spring Onions, 4s. 6d. to 6s. per dozen bunches; Watercress, 7d. per dozen.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.			BRIGHT SUN.		
	ACCUMULATED.				10ths Inch.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.	
	Above (+) or below (—) the Mean for the week ending April 18.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 4, 1891.						Below 42°, difference from Mean since Jan. 4, 1891.	More (+) or less (—) than Mean for Week.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.			Ins.			
1 1 —	21	23	+ 40	+ 37	3	—	42	15.2	42	26
2 2 —	22	35	— 23	+ 61	3	—	70	5.5	47	30
3 2 —	19	26	— 31	+ 81	3	—	50	4.7	33	28
4 3 —	31	20	— 33	+ 116	3	—	51	4.3	33	30
5 2 —	33	23	— 23	+ 98	3	—	43	4.7	33	29
6 3 —	33	17	— 63	+ 145	4	—	41	6.0	37	30
7 2 —	34	19	+ 12	+ 32	5	—	59	9.6	41	29
8 3 —	27	16	+ 8	+ 24	4	—	40	4.9	35	29
9 1 —	39	13	— 34	+ 108	5	—	42	7.1	54	35
10 1 —	34	8	+ 8	+ 14	1	—	55	6.0	33	30
11 1 —	40	6	+ 16	+ 22	1	—	47	6.2	37	34
12 2 —	32	1	— 30	+ 41	3	—	47	6.3	59	44

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S. Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 18, is furnished from the Meteorological Office:—

"The weather has been fair, cold, and dry as a whole, but considerable quantities of rain fell over Ireland during the earlier days of the period, and some showers of cold rain and hail were experienced subsequently from time to time on our northern and eastern coasts.

"The temperature has continued below the mean, the deficit having varied from 1° to 3°. The highest of the maxima were registered during the latter half of the week, when the thermometer rose to 66° in 'England, S.W.' (at Plymouth), to 61° in 'England, S.' and 'Scotland, E.' and to between 53° and 59° in the other parts of the Kingdom. During the earlier portion of the period, the daily maxima at many stations were below 50°. The lowest of the minima, which were recorded between the 12th and 14th, ranged from 23° in 'Scotland, E.' to 30° in 'Ireland, N.' and to 36° in the 'Channel Islands.'

"The rainfall has been less than the mean in all districts; over England the fall has been very slight.

"The bright sunshine shows a considerable increase on that recorded last week, and has been above the mean in nearly all districts. The percentage of the possible duration ranged from 59 in the 'Channel Islands,' and 54 in 'England, S.W.,' to 47 in 'Scotland, E.,' and to 33 over central and eastern England, and in the north of Ireland."

NOTICES TO CORRESPONDENTS.

A CUCUMBER HOUSE WHERE THE LEAVES GET BURNED: *Subscriber*. Use light scrim fixed on wooden frames; or if the house is not very long fit the scrim to a roller, working from the top downwards. The shading should only be put into use in the warmest part of the day. Fixed shades or washes are mostly bad for plants.

ANCIENT LIGHTS: *Smith & Larke*. You had better consult a solicitor.

CLIVEIA: *C. S.* Imantophyllum, Himantophyllum, and Clivea are all synonymous. Cliveia has the preference as being the most correct name, but if you prefer to write Clivea there is no power on earth to prevent you.

CUCUMBER: *Vesta*. We cannot tell what is the matter from the specimen sent; examine the roots.

CUCUMBERS SHRIVELLING: *Vesta*. Eel-worms at the root may be the cause, but the scanty materials sent do not allow of our stating definitely what it is.

FRUIT TREES PLANTED BY TENANT: *R. S.* If you planted the fruit trees without coming to an understanding with the landlord as to their removal on the termination of your tenancy, he can claim them if he so chose.

GROWTH IN THE DARK: *C. W. D.* Plants grow fastest in the dark, but they feed and make preparations for growth in the light. In your case the shoots are feeding on the stores accumulated in the wood. We can give you no better reason why the shoots turn upwards than "because it is their nature to." Botanists would attribute it to "heliotropism," but we fear that is a case of *lucus a non lucendo*.

INDIA: *G. H. F.* Apply to Mr. Thistleton Dyer, Director, Kew Gardens, stating what you require, and your experience, and requirements.

KUDZU: *W. M.* Under this name the Japanese designate what botanists know as *Pueraria Thunbergiana*. It is a climbing plant grown in green-houses. The stem yields a fibre, and the roots furnish starch. See a notice of it by Mr. Gumbleton in our columns for February 14.

LOSS OF HYACINTH FLOWERS WITHIN THE BULBS: *G. P.* The snapping of the flower shaft is due to a constriction of the neck of the bulb, followed by its elongation, which takes the flower head with it, causing the head to part from the shaft. There is want of balance between the growth of the scales and that of the flower-stalk. There was nothing in the bulbs in the way of organic disease, but there must have been a check to growth from cold acting in some way.

NAMES OF PLANTS: *A. L. J.* *Iris persica*.—*Inquirer*. 1, *Cupressus Lawsoniana* var.; 2, *Abies* (*Tsuga*) *canadensis*; 3, *Cupressus Lawsoniana* var.; 4, *Retinospora filifera*; 5, *R. plumosa aurea*; 6, *R. leptoclada*, of gardens.—*W. P.* 1, *Ulmus montana*;

2, *Cotoneaster nummularia*; 3, *Berberis Darwinii*; 4, *Pyrus japonica*; 5, *Ruscus aculeatus*, Butcher's Broom; 6, *Amelanchier vulgaris*. Next time send better specimens, so packed that they shall not be shrivelled by the time they reach us.—*C. K. G.* 1, *Vinca minor*, blue; 2, *Omphalodes verna*; 3, *Fritillaria imperialis*; 4, *Eranthis hyemalis*; 5, *Vinca minor variegata*, white flower; 6, *Pulmonaria officinalis*.—*W. A. M.* *Pasiflora Buonapartes*, not *P. quadrangularis*. It is a hybrid between *P. alata* and *P. quadrangularis*. Its hybrid origin may account for your failing to set the blossoms. Many Passion flowers set better with the pollen of some other species than with their own.—*J. T. L.* 1, *Asclepias curassavica*; 2, *Curculigo recurvata*; 3, *Croton*; 4, send when in flower; 5, *Sanchezia nobilis*; 6, not found; 7, *Adiantum sancta Catherinae*; 8, *Adiantum pubescens*.—*C. J. C.* 1, *Cotyledon* sp.; 2, *Pachyphyton bracteatum*; 3, *Roechea falcata*; 5, *Echeveria pulverulenta*; 12, not recognised; 13, *Reineckia carnea variegata*.—*T. W.* *Doronicum caucasicum*. *A. W.* 1, 2, and 3, forms of *Phajus Wallichii*; 4, *Dendrobium lituiflorum*; 5, *D. undulatum*.—*J. C. B.* A form of *Cattleya labiata*, but the withered condition of the lip will not admit of our determining which.—*J. M. P.* *Eria* species.—*W. A. C.* *Hymenocallis caribaea* (*Pancratium*).—*Thos. B.* 1, *Odontoglossum Schillerianum*; 2, *Burlingtonia candida*; 3, *Oncidium altissimum*.

OVERHANGING TREES: *J. S. C.* If your neighbour will not lop the branches which overhang your land, you may do so, after giving him a written notice, but you must not remove the loppings; and nothing may be done that will materially damage the trees.

PEACH LEAVES EATEN BY INSECT: *W. Armstrong*. The insect you sent to us is the clay-coloured weevil, *Otiorynchus picipes*. Spread a white sheet under the trees in the afternoon, and when darkness has set in, go into the peach-house with a dark lantern, and suddenly turn on the light near the trees. The weevils will fall on to the sheet, and must then be caught with rapidity. Throw boiling water into their hiding places, under stones, clods, &c.

QUASSIA-WATER WASH FOR APPLES: *Black*. Boil 1 oz. of Quassia chips in 1 quart of water for one quarter of an hour, then add this to 2 gallons of soft water, straining off the chips. It may then be used for syringing purposes. When applied to tender foliage, the wash should be removed with clear water a few hours afterwards.

SEA-SIDE TREES: *A. F.* In addition to those given on the previous occasion, it would be as well to plant for shelter, Black Thorn, Sycamore, and Crab; and if hedges of Thorn are planted to put in here and there, the Travellers Joy—it will help to bind the hedge plants together, and afford better shelter; and without a dense thick shelter of these common plants, it is very difficult to get choicer plants to grow satisfactorily, if at all. *Pinus maritima* and *P. laricio*, and common Spruce, and Silver Fir, may be planted behind the shelter plants and hedges. Maples are good sea-side plants that resist wind very well, but like other trees, they must not be crowded together, or their hold of the soil will be slight. Tamarisk, Sweet Bay, Holly, Furze, and *Euonymus radicans*, should find place.

THUJA DOLABRATA: *A. W.* We have no means of knowing which is the highest specimen in this country, but it is not probable that any are higher than 18 feet.

CATALOGUES RECEIVED.

W. L. LEWIS & Co., Chase Side, Southgate, London, N.—Orchids.

W. PAUL & SON, Waltham Cross, Herts—New Roses, Florist's Flowers.

COMMUNICATIONS RECEIVED.—Dr. von Regel, St. Petersburg.—S. P. O.—Barr & Son.—N. E. Br.—J. B.—W. H. & L. C.—J. A.—H. A. M.—A. F. B.—G. N.—H. E.—C. W. D.—H. de Vries, Amsterdam.—J. W.—Count Kinsky, Vienna.—G. Smith & Co.—W. M.—J. Clayton.—I. R. H.—G. A. B.—E. J. D.—R. S. & J. F. A. Eaton.—A. Blackman.—W. Wood & Son.—J. E. M. V.—W. K.—Expert.—H. M.—J. Maers.—J. B. W.—J. Anderson.—Chas. de B.—Professor G. Lawson, Nova Scotia.—J. D.—H. G.

DIED.—On April 18, whilst on a visit at Ropley Vicarage, Alresford, of cerebral apoplexy, in his 49th year, WILLIAM WALLICH, only son of the late Captain William Biddulph, H.E.I.C.S., and his wife Hannah, residing in Southborough, Tunbridge Wells, and grandson of the late Dr. Wallich, many years Curator of the Botanic Gardens, Calcutta.

JAMES SENDALL & CO.,
HORTICULTURAL BUILDERS, CAMBRIDGE.

Conservatories, Plant Houses, Vineries, &c.
NEW LISTS, POST FREE.

Manufacturers of the Greatest Variety and best class of—

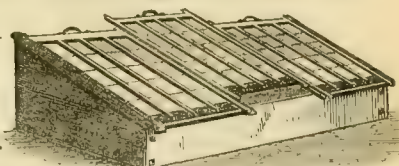
GARDEN FRAMES.

ILLUSTRATED LISTS of 20 Varieties,
OUR OWN INVENTIONS, Post Free.

Made of best red wood Deal, malleable iron hinges,
PAINTED three coats of best oil colour.

GLAZED with 21-oz. English Glass, ready for use.

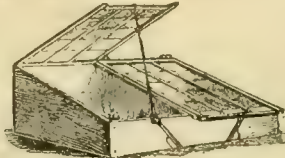
No. 100.—
MELON
and
CUCUM-
BER
FRAMES.



These Frames are made of well-seasoned red wood Deal, with our improved corners. Height, at back, 2 ft.; at front, 13 ins. The lights are 2 ins. thick, with iron cross-bar and handle.

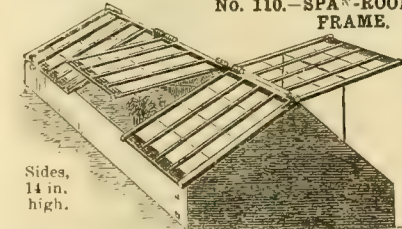
2 Light Frame, 4 ft. x 4 ft. ...	Notice the	£2 6 0
2 " " 8 ft. x 5 ft. ...	useful sizes we	2 15 0
2 " " 8 ft. x 6 ft. ...	Stock.	3 0 0
3 " " 12 ft. x 6 ft. ...	Cash Prices,	4 4 0
4 " " 16 ft. x 6 ft. ...	Packed and	5 8 0
5 " " 20 ft. x 6 ft. ...	Carriage Paid.	6 12 0

No. 101.—
The COTTAGE
GARDEN
FRAME.



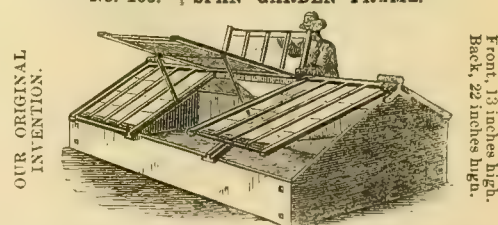
Front, 11 in. high;					
Back, 22 in. high.					
4 ft. x 3 ft. ...	£1 2 6	...	With hinged	£1 7 6	
6 ft. x 4 ft. ...	1 15 0	...	lights, prop.	2 2 6	
9 ft. x 4 ft. ...	2 7 6	...	and set-ops	2 17 6	
4 ft. x 4 ft. ...	1 7 6	...	as shown.	1 12 6	
8 ft. x 4 ft. ...	2 2 6	...		2 10 0	
12 ft. x 4 ft. ...	3 0 0	...		3 10 0	

No. 110.—SPAN-ROOF GARDEN
FRAME.



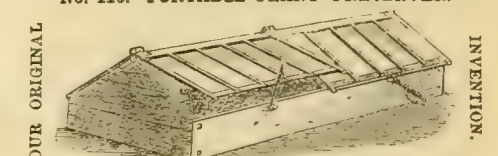
2 Light Frame, 5 ft. x 5 ft. ...	Cash prices,	£2 15 0
4 " " 10 ft. x 5 ft. ...	Packed,	4 7 6
4 " " 10 ft. x 6 ft. ...	and	5 0 0
6 " " 15 ft. x 6 ft. ...	Carriage	7 0 0
6 " " 20 ft. x 6 ft. ...	Paid.	9 0 0

No. 105.—SPAN GARDEN FRAME.



2 Light Frame, 5 ft. x 5 ft. ...	£2 15 0	
4 " " 10 ft. x 5 ft. ...	Notice	4 7 6
4 " " 8 ft. x 6 ft. ...	our useful	4 5 0
6 " " 12 ft. x 6 ft. ...	sizes.	5 15 0
6 " " 16 ft. x 6 ft. ...		7 7 6

No. 113.—PORTABLE PLANT PRESERVER.



6 ft. long x 3 ft. ...	£3 0 0	9 ft. long x 5 ft. ...	£3 17 6
6 ft. " x 4 ft. ...	2 7 6	12 ft. " x 3 ft. ...	3 3 0
6 ft. " x 5 ft. ...	2 15 0	12 ft. " x 4 ft. ...	4 0 0
9 ft. " x 3 ft. ...	3 0 0	12 ft. " x 5 ft. ...	4 15 0
9 ft. " x 4 ft. ...	3 10 0	12 ft. " x 6 ft. ...	5 10 0

FRAME or PIT LIGHTS.

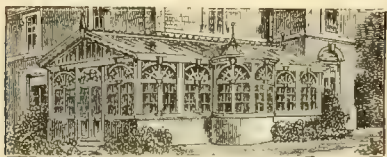
6 ft. x 4 ft., painted and glazed, 14s.; unglazed, 5s. 6d., each.
7 ft. 6 in. x 4 ft. " " 17s.; " " 7s. 0d. "

Orders of 40s. Value Carriage Paid to Stations in
ENGLAND & WALES, many in SCOTLAND & IRELAND.

JAS. SENDALL & CO.

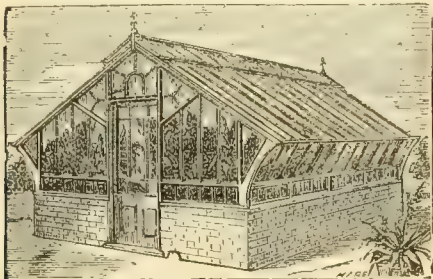
WRINCH & SONS, IPSWICH

and 57, HOLBORN VIADUCT, LONDON, E.C.
HORTICULTURAL BUILDERS.



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ARE OUR SPECIALTY.

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REGISTERED SPAN-ROOF GREENHOUSE.

The Best in the Market. More growing space than ground occupied. Better light and strength. Estimates free.



GREENHOUSES OF ALL DESCRIPTIONS.

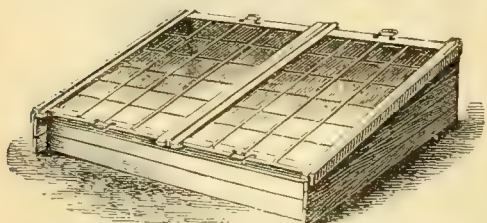
THE BEST AND CHEAPEST IN THE MARKET.

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GREAT REDUCTION IN FRAMES

OUR WELL-KNOWN MAKE.



PORTABLE CUCUMBER FRAMES.

These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by any one.

Sizes and Prices, Glazed and Painted.		£	s.	d.
1-light, 4 ft. by 6 ft...	CASH	2	0	0
2 " 8 ft. by 6 ft...	PRICES,	3	0	0
3 " 12 ft. by 6 ft...	CARRIAGE	4	2	6
4 " 16 ft. by 6 ft...	PAID.	5	5	0
5 " 20 ft. by 6 ft...		6	7	6
6 " 24 ft. by 6 ft...		7	10	0

Larger sizes at proportionate prices.

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ROYAL HORTICULTURAL WORKS,
MIDDLETON, MANCHESTER.

London Agent, Mr. H. SKELTON, Seedsman, &c., 2, Holloway Rd., N.

CARSON'S PAINT

Patronised by 16,000 of the Nobility, Gentry,
and Clergy, for all kinds of

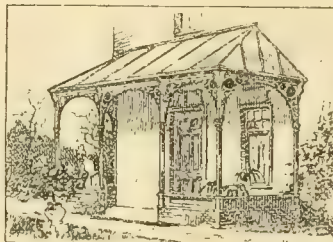
OUTDOOR WORK, CONSERVATORIES,
Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations.
Liquid Non-Poisonous Paints for Inside of Conservatories, &c.
Prices, Patterns, and Testimonials, Post-free.

GROVE WORKS, BATTERSEA, LONDON, S.W.;
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and BACHELOR'S WALK, DUBLIN.—Discount for Cash.

BOULTON & PAUL, NORWICH.

HORTICULTURAL BUILDERS,
WINTER GARDENS, CONSERVATORIES,
and GREENHOUSES of every description.



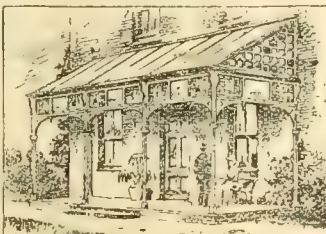
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AND
VERANDAHS
In all styles.

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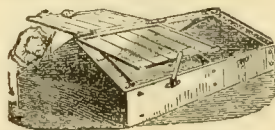
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of all makes and sizes supplied at the cheapest rates.
VALVES, PIPES, and FITTINGS always in stock.

Glazed Lights, 6 by 4, 14s. each.
Unglazed Lgts., 6 by 4, 5s. each.



GARDEN FRAMES in great VARIETY.



No. 60.
PORTABLE PLANT PRESERVER.

CASH PRICES. CARRIAGE PAID.

6 ft. by 3 ft. ...	£2 0 0	6 ft. by 4 ft. ...	£2 5 0
12 ft. by 3 ft. ...	3 2 0	12 ft. by 4 ft. ...	3 15 0

No. 73.

NEW SPAN-ROOF GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 14 0	12 ft. by 6 ft. ...	£5 14 0
8 ft. by 6 ft. ...	4 4 0	16 ft. by 6 ft. ...	7 4 0



No. 74.

THREE-QUARTER SPAN GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 14 0	12 ft. by 6 ft. ...	£5 17 0
8 ft. by 6 ft. ...	4 5 6	16 ft. by 6 ft. ...	7 8 6

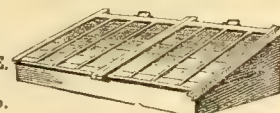
No. 75.

MELON AND

CUCUMBER FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ...	£2 0 0	12 ft. by 6 ft. ...	£4 3 0
8 ft. by 6 ft. ...	3 0 0	16 ft. by 6 ft. ...	5 6 0



No. 77, Smaller Size Frames, similar to No. 75. } 6 ft. by 4 ft. £1 15 0
9 ft. by 4 ft. 2 7 6
12 ft. by 4 ft. 3 0 0

All Frames made of Select Red Deal, painted three times, and Lights glazed with 21-oz. sheet glass.



21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, delivered free and sound in the country, in quantity.

'HORTICULTURAL PUTTY.' Own Special Manufacture.

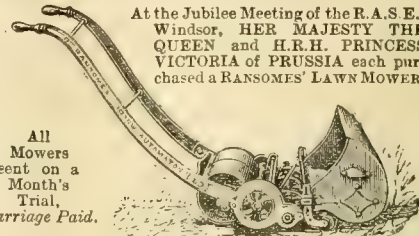
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LEAD, GLASS, OIL, and COLOUR MERCHANTS,

34, St. John Street, West Smithfield, London, E.C.
Stock Lists and Prices on application Please quote Chronicle.

RANSOMES'

At the Jubilee Meeting of the R.A.S.E., Windsor, HER MAJESTY THE QUEEN and H.R.H. PRINCESS VICTORIA of PRUSSIA each purchased a RANSOMES' LAWN MOWER.

All Mowers sent on a Month's Trial, Carriage Paid.



LAWN MOWERS,

The Best in the World.

In all sizes to meet every requirement.

"NEW AUTOMATON," the Best Gear Machine.
"CHAIN AUTOMATON," the Best Chain Machine.
"NEW PARIS," the Best Small Machine.
"EDGE CUTTER," the only one of real service.
"BANK CUTTER," the Best for Cutting Slopes.

THE BEST PONY and HORSE-POWER MOWERS.
Orders executed promptly by all Ironmongers.

RANSOMES, SIMS & JEFFERIES, Ltd., IPSWICH.



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HORTICULTURAL BUILDERS and HEATING ENGINEERS,

PAISLEY.

HORTICULTURAL STRUCTURES

of every description, in either Wood or Iron, or both combined.



Wooden Chapels, Shooting Lodges, Cottages, Tennis Courts, Verandahs, &c.

Hot-water Apparatus for warming Churches, Schools, Public Buildings, Mansions, Harnes Rooms, Drying Rooms, Hothouses, and Buildings of every Description.

Illustrated Circulars Post-free.

Complete Catalogue, 3s.



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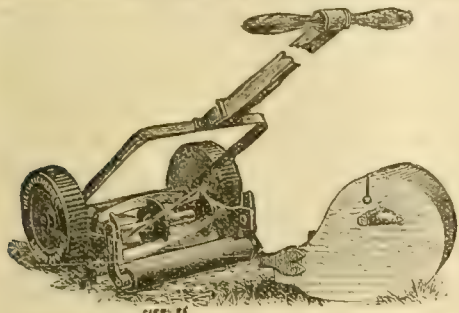
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These materials are largely used for protecting Wall Fruit Trees, &c., from frost and wind; also Greenhouses from hot sun or night frosts. Prices and Samples on application.

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TRY THE PATENT "MANCHESTER" LAWN MOWER.

Awarded numerous National & International Prize Medals.



Many thousands of these excellent English made Machines in use, giving unqualified satisfaction. Easy to work on uneven ground, and cut long or short grass, wet or dry, and give the turf a beautiful velvety appearance.

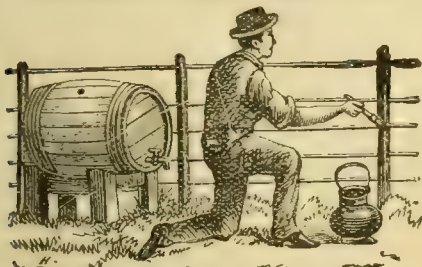
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ENGINEERS,
GORTON, MANCHESTER.

Patentees and Manufacturers of the Royal "ANGLO-AMERICAN," "TENNIS," and "CLIMAX" LAWN MOWERS.

80,000 SOLD SINCE 1869.

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**HILL & SMITH'S
BLACK VARNISH**
for Preserving Ironwork, Wood, or Stone.



(Registered Trade Mark.)

An excellent substitute for oil paint, at one-third the cost. Used in all London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

Price 1s. 6d. per gallon at the manufactory, or carriage paid to any railway station, 1s. 8d. per gallon in casks of 36, 18, or 9 gallons.

CAUTION.—Every Cask bears the above Registered Trade Mark. Beware of cheap imitations.

HILL & SMITH,
Brierley Ironworks, Dudley;
118, Queen Victoria Street, London, E.C.
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RAFTS, BOATS, AND CYLINDERS,
AND ALL GARDEN SUNDRIES.**

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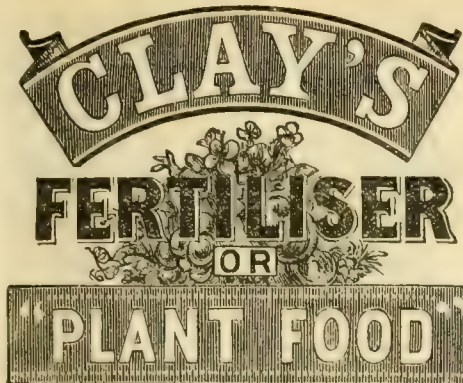
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H. C. SMYTH,
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100,000 yards to select from.

EXTRA STOUT strong-tanned NET, 2 yards wide, 1½d. yard; 4 yards wide, 3d. yard; or 2 yards wide, 10s. per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE NETTING, 1 yard wide, 2d. yard; 2 yards wide, 4d. yard; 4 yards wide, 8d. yard; 12 yards wide, 2s. yard. COTTON NET, nine meshes to square inch, 1½ yards wide, 7d. yard run.

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Sold in Packets, 6d. and 1s. each, and in Sealed Bags Only.
7 lb., 2/6; 14 lb., 4/6; 28 lb., 7/6; 56 lb., 12/6; 1 cwt., 20/-
CLAY & LEVESLEY,
TEMPLE MILL LANE, STRATFORD, LONDON, E.

BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

THE "PERFECT" SUMMER SHADING

Supersedes all Others.



Without which none is genuine.

FOR SHADING GLASS ROOFS OF ALL KINDS. Is the Cheapest. Goes four times as far as the old preparations. Note its merits described below.

Messrs. CARLTON, Contractors for the painting of the Glasgow Exhibition of 1888, write:

"By order of the Directors we applied this Shading to the glass roofing of the Glasgow Exhibition, and found it possessed great advantages over all other preparations we had met with. Being applied cold it was most convenient to use, and while it resisted the action of the rain the whole season it was at once easily removed by gentle rubbing after wetting. It afforded a cool and pleasant shade, at same time admitting an abundance of light."

1 lb. (cost 1s.) makes half a gallon for use.

THE "PERFECT" WEED KILLER



Without which none is genuine.

Maintains its Superiority over all Rivals

for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, etc.

Saves many times its cost in labour, and will keep Walks, etc., clear of Weeds for a year or more.

Used in the proportion of 1 gallon to 25 gallons of Water.

THE BEST TESTIMONIAL IS
A GUARANTEE OF COMPLETE EFFICIENCY.

And we hereby Guarantee all Weed Killer bearing our Trade Mark to be thoroughly efficient, and to give satisfaction.

SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

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SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97 MILTON ST., GLASGOW.

CAUTION.—Please carefully note our name, address, and trade mark, and do not be deceived by imitations.

SOLD BY SEEDSMEN, ETC.

STANDEN'S MANURE.

Established
30 Years.

Exceeds all others in general fertilising properties and staying powers.

It promotes a rapid, healthy, and robust growth to plants generally.

It is a clean and dry Powder, with very little smell.

It is consequently particularly adaptable for Ladies interested in Plant Culture.

The highly fertilising properties of this Manure render its money value, in comparison with other Manures, at least double; and users will find that very small quantities will produce favourable and lasting results.

Sold in Tins, 6d., 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each.

And in Kegs (free), at Reduced Prices:—28 lb., 10s. 6d.; 56 lb., 18s.; 112 lb., 32s. each.

LETHORION (VAPOUR CONE), (PATENT).



The total destruction of Insect Pests in Greenhouses is thoroughly secured without the slightest possible injury to Flowers or Plants of the tenderest kind. It CANNOT fail where the houses are secure.

PRICES.—For Frames, &c., of 50 cubic feet, 6d.; 100 feet, 9d.; 500 feet, 1s.; 1000 feet, 1s. 6d.; 4000 feet, 5s. each.

Owing to the enormous demand, intending users should give their Seedsmen Early Orders to secure a supply.

By permission of the Hon. Board of Customs
DUTY FREE.

TOBACCO PREPARATIONS FOR HORTICULTURAL USE.

THE "LONDON" TOBACCO JUICE.

(FREE OF DUTY.)

Manufactured from strong American Leaf Tobacco, and highly concentrated. Sold in bottles:—Pints, 1s.; quarts, 1s. 9d.; half gall., 2s. 6d.; gall., 4s. Or, in casks of 10 gallons, and upwards, at 2s. 6d. per gallon.

EXTRA STRONG TOBACCO JUICE.

Specially manufactured for Evaporating in Greenhouses. Pints, 1s. 6d.; quarts, 2s. 9d.; half-gall., 6s.; gall., 11s. And in kegs of 5 galls., 10s. 6d. per gall.; 10 galls., 10s. per gallon.

THE "LONDON" TOBACCO POWDER.

This preparation consists of best Virginian Tobacco, finely ground and mixed with other ingredients of an essential character. Price, in tins, 1s., 2s. 6d., and 4s. Or, in bulk, £3 per cwt.

NICOTINE SOAP.

An effectual and speedy Eradicator of Scale, Thrip, Green Fly, Mealy Bug, Red Spider, American Blight, and all Parasite-affecting plants, without injury to foliage. In jars 1s. 6d. and 3s. each, and in tins, 5s. 6d., 15s. 6d., and 25s. each.

The above articles are manufactured only at our Bonded Stores, Shad Thames, S.E., and are the only reliable Horticultural Tobacco Preparations produced. We caution the public against spurious articles offered by several firms.

CORRY, SOPER, FOWLER & CO.

(LIMITED),

16, FINSBURY STREET, E.C.;

And SHAD THAMES, S.E., LONDON.

TOBACCO PAPER SUPERSEDED!

Tobacco Paper, Cloth, or Cord have long been used with far from satisfactory results, and often with much injury to tender foliage. It is NOT the Tobacco that causes the injury, but the fuming of the paper or cloth, also the use of hot coals to start them.

McDOUGALL'S



PATENT
SELF-
ACTING.

No Hot Fuel
required.

Exterminates
all Insect Pests
and Blight
without injury
to foliage.

TOBACCO SHEETS.

The sheets consist of Cellulose, and are saturated with Nicotine Solution of standard strength, and are so prepared that they will fume when a lighted match is applied.

Fumigation is thus rendered easy, certain, safe, and cheap.

The *Gardener's Chronicle*.—"These Sheets for fumigating purposes, answer perfectly."

Messrs. JOHN LAING & SONS, Forest Hill.—"The most effectual as well as the handiest material we have ever used."

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"The HORTICULTURAL COLLEGE," Swanley.—"... Very satisfactory results. Send on half gross."—24/1/90.

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1s. Sheets (for 1000 cubic feet in parcels of 1 dozen, also 1/2, 1/3, and 1 Gross), } 12s. per Dozen
Counted at 13 to the Dozen.

From Nurserymen and Seedsmen. TRADE LIST FREE.

McDougall Bros.

London: 10, Mark Lane. York: 3, King Street.
Manchester: 68, Port Street. Glasgow: 70 to 78, King Street.

For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

"PICRENA," THE UNIVERSAL INSECTICIDE.

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15, PRINCES STREET, EDINBURGH, July 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95°, I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 120°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray.—I remain, dear sirs, yours truly. (Signed) A. MACKENZIE." of Messrs. Methven & Sons.

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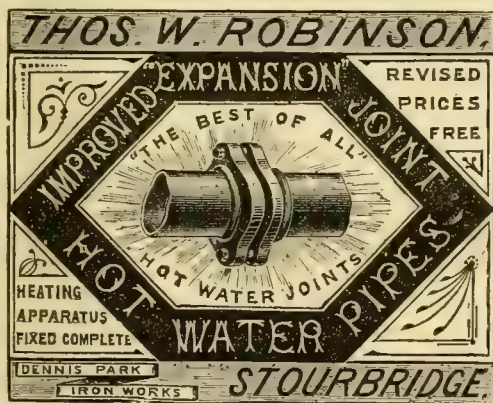
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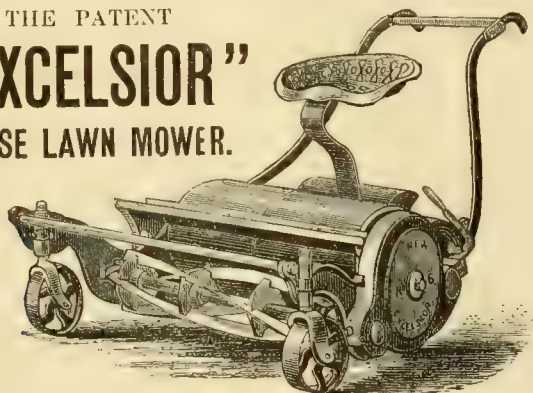
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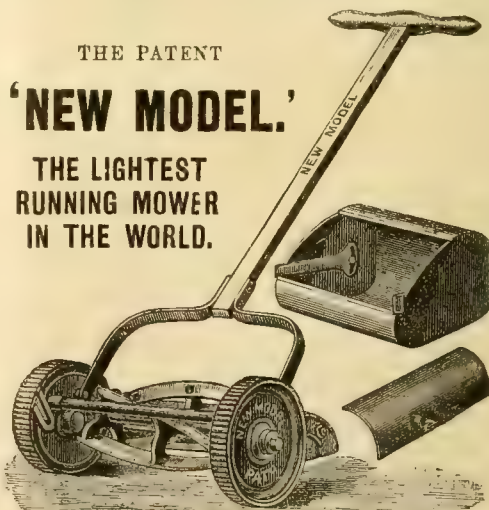
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ORCHIDS A SPECIALTY.—A Private Collection of 1000 fine established Plants for Sale, at about half their value. Write for LISTS.

W. L. LEWIS AND CO., F.R.H.S., Chase Side, Southgate, London, N. Nursery, Orchard Road.

VIOLAS (TUFTED PANSIES), resemble "a spray of Western Pine," in having a beauty and a fragrance all their own. Sample dozen of nine plants, in 12 splendid varieties, post free, 2s. 6d. DOBBIE AND CO., Seed Growers and Florists, Rothsay, Scotland.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE. JAMES CYPHER, Exotic Nurseries, Cheltenham.

STANDARD PLUMS, DAMSONS, and Single ALMONDS, per 100 or 1000. Price on application. Also AUGUBAS, 1 to 3 feet, per 100 or 1000.

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LOVEL'S YORKSHIRE STRAWBERRIES, for Spring Planting.—100 strong plants, in four good varieties, 3s., carriage paid for cash. Select Descriptive LIST, free. W. LOVEL AND SON, Strawberry Growers, Driffield.

MAIDENHAIR FERNS.—We have a large Stock of Grand Stuff in 5-inch, 6s. per dozen; 7-inch, 10s. per dozen, and large specimens up to 10s. 6d. each. Also, good 5 inch pots of ADIANTUM ELEGANS, the best Fern for decorations and cutting, at 9s. per dozen.

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Sow in May.

SUTTON'S SUPERB SINGLE WALLFLOWER.

Our strain of Single Wallflower is unsurpassed for variety of colour, size of the spikes of bloom, and robust, free-flowering habit. E. McDOWELL, Esq., Oatlands Park, says:—"The Wallflowers from your seed are the most charming I have ever seen." Price of Seed, mixed, 1s. 6d. per packet, post-free.

SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, the Queen's Seedsmen, READING.

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offer their superb strains of—

CALCEOLARIA, choice mixed, 1s. 6d. and 2s. 6d. per packet. CINERARIA, choice mixed, 1s. 6d. and 2s. 6d. per packet. CYCLAMEN, choice mixed, 1s. 6d. and 2s. 6d. per packet. GLOXINIA, choice mixed, 1s. 6d. and 2s. 6d. per packet. PRIMULA, red, white, and choice mixed, each, 1s. 6d., 2s. 6d., and 3s. 6d. per packet.

All post-free. Descriptive CATALOGUE on application. Seed Warehouse, 12, Old Millgate, Manchester.

GOLDEN YEWS, fine specimens, 5 to 6 feet high, and 5 to 6 feet in diameter, in various shapes; also smaller sizes in great variety. Many thousands to select from. Price on application.

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The most complete and exhaustive Treatise on

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HARDY HERBACEOUS PERENNIALS, free on application, describing the BEST HARDY HERBACEOUS PLANTS for Borders, Rockwork, and Cuttings. BARR & SON, 12 and 13, King Street, Covent Garden, London; and Nurseries, Long Ditton, Surrey.

ASPARAGUS.—This delicious Vegetable does not require half the expense often incurred. For directions, see Illustrated Seed List, free. Strong Roots, 2s. 6d. per 100.

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Four Gold Medals, and Gold Cup, and all First Prizes. Tubers, named singles, from 12s. to 42s. per dozen; unnamed seedlings, 12s. to 21s. per dozen; bedding, choicest, 6s. and 9s. per dozen; choicest named doubles, from 42s. per dozen; unnamed, very choicest, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Our Collection of Begonias is the largest, best, and most complete in the world. Catalogues gratis.

JOHN LAING AND SONS, Begonia Growers, &c., Forest Hill, London.

20,000 DAHLIAS, in 140 best Exhibition Varieties, True to Name. Show, Fancy, and Pompones, 3s. per doz.; Cactus and Singles, 2s. 6d. per doz.; 20s. per 100. Splendid Plants in single pots.

LOBELIA, Emperor William, and Primula magnifica, 4s. 6d. per 100; true from Cuttings.

PETUNIAS, double fringed, 2s. 6d. per doz.; single fringed, 2s. per doz.; most beautiful varieties.

LIST free. Send for a Sample doz.; Packing free.

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HENRY SQUELCH, North Row, Covent Garden, FRUIT SALESMAN and COMMISSION AGENT. Importer of Bananas, and all kinds of Madeira and Canary Island Produce.

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J. W. BARNHAM Receives on Commission, J. GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention to securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.

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THE CHINESE ARTICHOKE (Stachys tuberosa).—JAMES CARTER AND CO. have grown a very fine lot of this new Vegetable, and beg to offer selected tubers, price 1s. per lb., 6s. per 7 lb., 10s. 6d. per 14 lb. Trade price on application. An Illustration and full Cultural Directions are given in their Illustrated CATALOGUE of sterling Novelties. Post-free to intending customers. Royal Seedsmen by Sealed Warrants.—237 and 238, High Holborn, London.

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T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

ARAUCARIA EXCELSA (Norfolk Island Pine), for Sale, in 16-inch pot. Splendid specimen. WILD HESTON, Hounslow.

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—Do you want really good Seeds for your garden? If so, write to "Hartland, Cork." Ask for his "Year-book" of Seeds for 1891. Its pages will tell you he knows your wants. Price, Quality, and Services, everything so arranged, for rich and poor alike.

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Trade Offer of Large Kentias and Cocos.

W. ICETON begs to offer some extra fine BELMORIANA, FOSTERIANA, MOOREANA, and RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on Application. Inspection invited.

Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

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KELWAY'S GOLD MEDAL COLLECTION.

Grand Bulbs, selected from a Stock of 25 Acres. Twenty large Exhibition sorts, in good variety, for 10s.; twenty good Border sorts for 5s.; or select your own sorts (all prices), from a List of 400 varieties, gratis upon application.

Gold Medal, Paris, 1889.

KELWAY AND SON, Langport, Somerset.

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BARR'S Beautiful Hardy DAFFODILS. Cut SPECIMEN FLOWERS,

correctly named, now ready, at the following prices, post free, one flower each of 12 kinds, 2s. 6d.; of 18 kinds, 3s. 6d.; of 36 kinds, 5s. 6d.; of 50 kinds, 12s. 6d. Three flowers each of above, 6s., 8s. 6d., 17s. 6d., and 25s., respectively.

BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

50,000 Lobelia, Emperor William, warranted true

from Cuttings.

JOHN SOLOMON offers the above in thorough good stuff, at 2s. 6d. per 100; 20s. per 1000; for Cash with order, package included.

Queen's Road Nursery, Walthamstow, E.

Verbenas—Verbenas—Lobelia.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Pink VERBENAS, well-rooted cuttings, hardened off fit for potting, 6s. per 100, 50s. per 1000. LOBELIAS, Brighton Bluestone, Emperor William, and Snowball, all true from cuttings, 3s. per 100, 21s. per 1000. Packing included. Terms cash.

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THOMSON'S IMPROVED VINE and PLANT

MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney. WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday Next.

A FINE COLLECTION OF BORDER PLANTS, Home-Grown and Imported LILiums in variety, some choice sorts of GLADIOLI, a small COLLECTION OF PALMS, &c., BEGONIAS, GLOXINIAS, GLORIOSA SUPERBA, Hardy Ornamental Flowering TREES, EVERGREENS, SHRUBS, &c.; NARCISSE, SPIRÆA, SEEDS, &c.

MR. J. C. STEVENS, will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, May 6, at half-past 12 o'clock precisely.

On view Morning of Sale, and Catalogues had.

Thursday Next.

A good COLLECTION OF ESTABLISHED ORCHIDS, CHIEFLY IN FLOWER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 7, at half-past 12 o'clock precisely, a good collection of ESTABLISHED ORCHIDS, chiefly in Flower and Bud, consisting of many fine varieties and specimens of Cypripediums, Oncidium, Odontoglossum, Masdevallia, Dendrobium, &c. Also 20,000 fresh seeds of Cocos Weddelliana, Kentia Fosteriana, and Belmoriania; 5000 Liliun longiflorum from Japan, &c.

On view morning of Sale, and Catalogues had.

Thursday, May 14.

SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD will take place at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, May 14, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of ENTERING LOTS for THIS SALE will please send Lists not later than THURSDAY NEXT.

Tuesday Next.

CATTLEYA GASKELLIANA.

TRIANE.

LABIATA PERCIVALIANA.

DENDROBIUM FORMOSUM GIGANTEUM.

WARDIANUM LOWII.

VANDA CERULEA.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, May 6, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a splendid consignment of CATTLEYA GASKELLIANA, C. PERCIVALIANA, and C. TRIANE, VANDA CERULEA, just to hand in very fine condition; also DENDROBIUM WARDIANUM LOWII, recently imported, now starting into growth, and various other ORCHIDS, in and coming into bloom.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIES, GLADIOLI, and PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY, May 6, at half-past 12 o'clock, Japanese LILIES in great variety; GLADIOLI, ANEMONES, very fine; PEARL TUBEROSES, TIGRIDIAS, and a consignment of Californian LILIES, and Japanese IRIS. A consignment of AZALEA INDICA and PALMS from Belgium, STOVE and GREENHOUSE FERNS, &c.

On view morning of Sale, and Catalogues had.

Friday Next, May 15.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, at their Rooms, 67 & 68 Cheapside, London, E.C., on FRIDAY, May 15, at half-past 12 o'clock, about 400 lots of various NEW and RARE ORCHIDS, consisting of CATTLEYA, CYPRIPEDIUM, ODONTOGLOSSUM, ONCIDIUM, VANDA, AERIDES, &c.

By Order of L'HORTICULTURE INTERNATIONALE (Messrs. LINDEN), Brussels. Further particulars will appear next week.

Friday Next.

CATTLEYA SCHOFIELDIANA, C. SCHILLERIANA, MILTONIA CANDIDA, GRANDIFLORA.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 & 68, Cheapside, E.C., on FRIDAY NEXT, May 8, at half-past 12 o'clock, by order of Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, and 213, Park Road, Clapham, S.W., a fine importation of CATTLEYA SCHOFIELDIANA, just to hand, in excellent condition. The Plants have been collected with great care, and the Collector writes "The Flowers are the most strikingly coloured ones I have yet seen—sepals and petals tawny-yellow with a flush of purple and a slight tinge of green; the whole of the surface densely spotted with crimson-purple. But there is endless variation in the colouring of the flowers; all the plants offered will probably flower this season." Also Miltonia candida grandiflora, very large flowers with a salmon-coloured labellum, differing considerably from the type. Well-preserved flowers will be shown at the time of Sale. Also a fine batch of Cattleya Schilleriana, C. velutina, Lælia harpophylla, L. xanthina, L. Perrini, L. pumila (true), Oncidium liminghei, Ionopsis paniculata, Oncidium sarcodeum, Odontoglossum Reelii, O. crispum, Sophronitis grandiflora rosea, &c., all in very good condition and health.

On view morning of Sale, and Catalogues had.

Harlesden, N.W.

CLEARANCE SALE, PLANTS, GREENHOUSES, &c., the Land being required for Building.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Harlesden Park Nursery, St. Mary's Road, Harlesden, near Willesden Junction, on TUESDAY, May 12, at 12 o'clock, the whole of the GREENHOUSE and BEDDING PLANTS, 1000 FERNS, 250 White AZALEAS and CAMELLIAS, a few ORCHIDS, the Erections of 10 Span-roof GREENHOUSES, HOT-WATER PIPING, mostly 4 inch; 4 BOILERS, BRICKWORK, PITS, SLATE STAGING, GARDEN ROLLERS, and Effects.

The beneficial interest in the Lease of the same, with large Frontage, ripe for Building, will be offered before the Sale of the Stock. Lease about 80 years, at a low ground-rent.

May be viewed Saturday and Monday prior to Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Monday, May 11.—East Dulwich.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Seger & Tropp, to SELL by AUCTION, on their premises at 112, Lordship Lane, East Dulwich, on MONDAY, May 11, commencing at half past 12 o'clock, a large and well selected COLLECTION of healthy ORCHIDS. The following form a portion of the many rare and choice species and varieties catalogued, and the whole will be sold, with very few exceptions, ENTIRELY WITHOUT RESERVE.

A Grand COLLECTION, including many New and Rare SPECIES, such as:—

Masdevallia Schroderae	Masdevallia Fraseri
" Arminii	" Morreana
" torta	" Winniana
" hieroglyphica	" astuta
" Lauchiana	" radiosa
" minuta (only two plants of this are in existence)	" macrura
" Hinckiana	" Wendlandii &c.

CYPRIPEDIUMS

among which will be found the most select and beautiful species and varieties, embracing the following:—

Cypripedium amabile	Cypripedium Siebertianum
" Argus Moenst	" onanthum
" Schroderae	" Arthurianum
" Leeannum	" Hornianum
" Frederico nobile	" Schleswigerianum
" nitens magnificum	" orphanum
" Sallieri	" Argus Morrenianum
" Sueden candidulum	" grande
" Lawrenceanum var.	" Lindleyanum
" Hyeanum	" nitidissimum, &c., &c.

Sobralia leucoxantha, grand form

Cattleya hybrida intricata maculata

" Fausta

" Sauderiana, some very fine specimens

Sarcocochilus unguiculatus, a very beautiful Orchid with ivory-white flowers, often spotted with brownish-purple, and produced on long racemes

Trichopilia suavis alba

The SALE will also include consignments of Imported plants in excellent condition, and other Orchids of value.

Messrs. S. & T.'s Nursery is within five minutes' walk of East Dulwich Railway Station, and the Plants may be viewed on the SATURDAY prior to the SALE.

Catalogues can be obtained on the Premises, and of the Auctioneers and Valuers, 67 & 68, Cheapside, E.C.

City of Peterborough and Woodstone. VALUABLE and IMPORTANT FREEHOLD and TIMBER BUILDING ESTATE, known as WESTWOOD GRANGE, situate within half-a-mile of the centre of the city of Peterborough, and close to the Great Northern and Midland railway stations, comprising an excellent private residence, with large Seed and Onion sheds, and commodious Farm Buildings, with Garden and Accommodation Land, containing 10a. 2r. 0p., large and well-planted Orchard, containing 4a. 0r. 30p., thirty-one plots of valuable Freehold Building Land, in close proximity to Mayor's Walk and Westwood Road, giving good access to the City Cattle Market, &c., and avoids the double railway crossings; six closes of accommodation Pasture Land, and five inclosures of Freehold Arable and Pasture Land; also 1a. 2r. 0p. of Building Land, in the parish of Woodstone, adjoining Jubilee Street, the whole comprising a total area of about 61a. 2r. 0p.

MESSRS. BIDWELL, are instructed by H. H. ENGLISH, Esq., to SELL the above VALUABLE ESTATE by AUCTION, in lots, at moderate reserves, at the Grand Hotel, Peterborough, on WEDNESDAY, May 29, 1891, at 4 o'clock in the afternoon precisely. The attention of Private Purchasers, Builders, Land Speculators, Market Gardeners, and Seedsmen, is particularly directed to this Sale, as it affords an excellent opportunity of purchasing Building Plots, Garden Ground, and Accommodation Land, within half-a-mile of the centre of Peterborough, from whence there is excellent railway communication with London, and all parts of England. There is gravel and stone under a great part of the Estate, and the site is a commanding one. The water supply and gas mains adjoin the property. Possession of all lots will be given at Michaelmas next. Two-thirds of the purchase money may be taken on mortgage at 4 per cent., on all the lots except the small building lots.

To view, apply to Mr. BRANTON, the Bailiff, Westwood Grange. Particulars, with Plans and Conditions of Sale, may be obtained from Messrs. PERCIVAL and SON, Solicitors, Peterborough; or, Messrs. BIDWELL, Land Agents and Surveyors, Ely, and 12, Mill Lane, Cambridge.

To Nurserymen, Trustees, Builders, Speculators, and Others.—NOTICE OF SALE of very valuable LAND, BUILDING FRONTAGE, RESIDENCE, with SHOP and OUT-BUILDINGS; PAIR OF VILLAS, GROUND-RENTS, &c. Hounslow, Middlesex. For advantageous investment.

MR. WOODS has been favoured with instructions to SELL by AUCTION, at the Red Lion Hotel, Hounslow, on WEDNESDAY, May 6, 1891, at 2 for 3 o'clock in the afternoon, that extremely Choice Property, situate on the London Road, and known as DOBSON'S OLD-ESTABLISHED SEED WAREHOUSE and RESIDENCE, TWO VILLAS, and the NURSERY GROUND in front, &c., and extending to and possessing an extensive Frontage to Bridge Road—about 7½ Acres. A very commanding BUILDING SITE, situate opposite the "White Bear Inn," known as "Burton's," presenting Frontage of about 115 feet to the London Road or High Street. Also a GROUND RENT, amply secured on Nos. 1, 2, 3, & 4, Ralph Villas, Staines Road, with reversion to the Rack Rent in a few years, the whole producing about £129 10s. per annum. Part is Freehold, and part Copyhold, of the excellent Manor of Isleworth Syon, which is considered nearly equal to Freehold.

May be viewed by permission of the tenants, and particulars, with conditions, obtained one week prior to the Sale, at the Red Lion Hotel, Hounslow; of Messrs. FORD, LLOYD, BARTLETT, and MICHELMORE, Solicitors, 4, Bloomsbury Square, London, W.C.; of Mr. JEFFS, High Street, Hounslow and of Mr. WOODS, Auctioneer and Land Agent, Hounslow.

Southsea, in centre of.

FOR SALE, FREEHOLD SEMI-DETACHED HOUSE, with GLASSHOUSE, used as a FLORIST'S SHOP, and Garden at rear, containing Glasshouses (heated), and conveniences for large business. Old-established business now being carried on. Arrangements may be made for purchase of stock if desired.

Apply to W. H. BOLITHO, 40, Union Street, Portsea.

FOR DISPOSAL, a NURSERY, SEEDS-

MAN'S, and FRUITERER'S BUSINESS.—It embraces a respectable House and Shop; central position. The Nursery Grounds are near (about 1½ acres), in high cultivation, and contain about 3000 Budded, Briar, Manetti, and Seedling Stock; choicest varieties in cultivation. About 5000 Briar and Manetti Stocks; 14,000 Cuttings, Seedlings, &c., for continuous working. Also, planted Stock of Carnations (about 56 choicest varieties); together with a general Market Gardener's Stock. The management of Roses taught, if necessary. Incoming, for Stock, Fixtures, &c., £200. Satisfactory reason for leaving.—G. JEFFERY, Rose Grower, Milford St., Salisbury

TO BE SOLD, a NURSERY, with extensive

Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, and easy of access per rail to Manchester, Wigan, and Liverpool. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

MIDDLESEX (6436). For Sale, a small and

compact Nursery, doing a good business, and suitable for an energetic man. About an acre of land, eight greenhouses, and two cottages. Rent £58. Lease about fifteen years. Price £550, or offer. Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, E.C.

FOR SALE, large CIRCULAR GLASS and

IRON ROOF, 47 feet span, 250 feet long, with two return ends (can be reduced to almost any length, as every 15 feet is complete in itself), taken down from Horticultural Gardens, Kensington.

Apply, W. GOODMAN, Hartham Works, Hartham Road, Holloway, N.

MESSRS. POPE & SONS, HORTICULTURAL

AUCTIONEERS and VALUERS, 6, Phillip's Street, Birmingham, hold SALES at their Rooms as follows:—

CUT FLOWERS, every TUESDAY, WEDNESDAY, and FRIDAY (fresh entries invited, account Sales with Cheque every Saturday).

MISCELLANEOUS PLANTS and BULBS every THURSDAY. NURSERY STOCK SALES conducted and VALUATIONS made in any part of the Country.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received a large and splendid importation of ODONTOGLOSSUM ALEXANDRÆ, the finest PACHO TYPE.

Also large and fine importations of the following and many other ORCHIDS:—Odontoglossum grande, O. pulchellum majus, O. Cervantesi morada, Dendrobium Wardianum giganteum, D. Bensoni majus, D. Brymerianum, D. chrysotoxum superbum, D. nobile, D. densiflorum, Vanda teres, Cattleya bicolor, Lælia Perrinii, L. superbiens, &c.

The Company are constantly receiving importations from various parts of the world, and they have an immense stock of Established ORCHIDS. Descriptive LISTS, with full particulars, post-free on application to the

Vineyard and Nurseries, Garston, near Liverpool.

STRAWBERRY SEASON.

TO GROWERS and DEALERS.—

The CLYDESDALE BOX COMPANY, 45, Montrose Street, Glasgow, make a speciality of Manufacturing PUNNETS and TRAYS specially adapted for Strawberries and other soft Fruits. Illustrated PRICE LIST free by Post on application. Sample Parcels, containing 4 dozen assorted Punnets and Trays, sent Post-free for 3s. 2d., or 6 dozen Trays only, assorted, 3s. 2d. The above Company are prepared to appoint Agents to hold Stock in the principal districts.

DISA GRANDIFLORA, the beautiful Table

Mountain Orchid. Two or three 8-inch pans of from 18 to 20 growths, several of which will flower this year, price £3 per pan.

E. P. FRANCIS AND CO., Hertford Nurseries, Herts.

FERNS! FERNS!! FERNS!!!—Trade

offer. Twenty most saleable sorts, 12s. per 100; Adiantum cuneatum, for potting on large stuff in 2½ pots, 18s. per 100; fine stuff in large 60s, 20s. per 100; in 48 pots, full of top, 50s. per 100. Large Ferns, in 48s, 45s. per 100, in 6 sorts. Packed free. Cash with order.

J. SMITH, London Fern Nurseries, Loughboro' Junction, S.W.

ARTICHOKE GLOBE, LARGE FRENCH LAON (*truse*),
Strong Plants (not seedlings), 2s. each, 12s. per doz., free.
RED DWARF PICKLING and **EARLY**
RAINHAM CABBAGE PLANTS, 2s. per 100, free.
Golden Variegated and Silver Variegated THYME,
9d. each plant, free.
EDWARD LEIGH, Cranleigh, Surrey.

FORBES' EAST LOTHIAN STOCKS.

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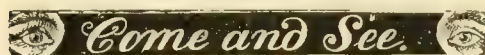
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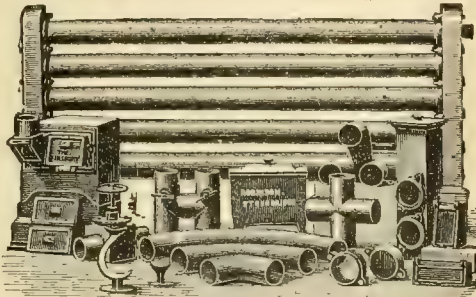


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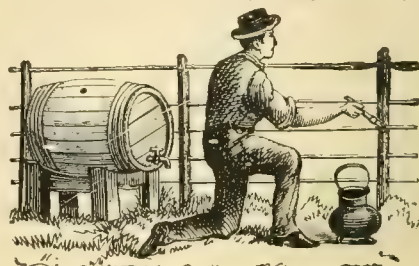


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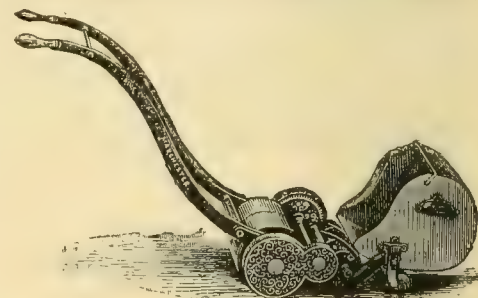
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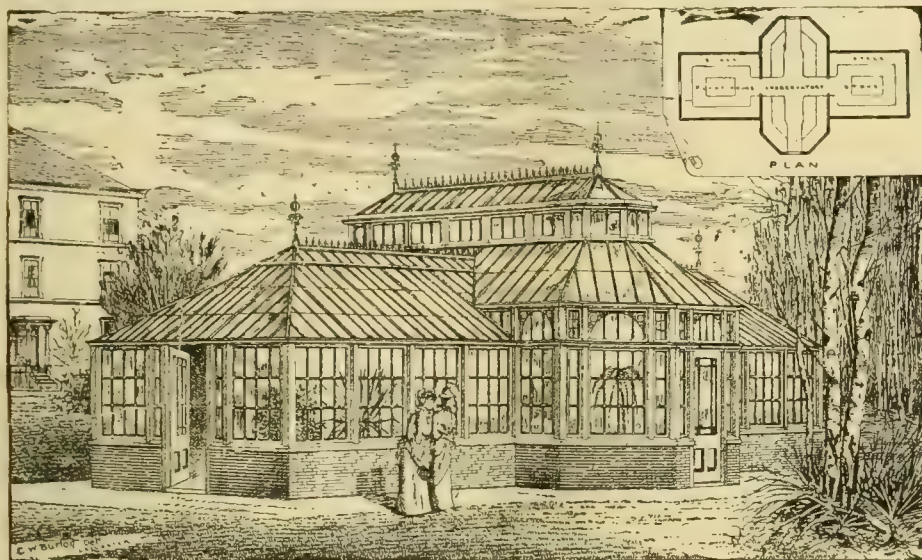
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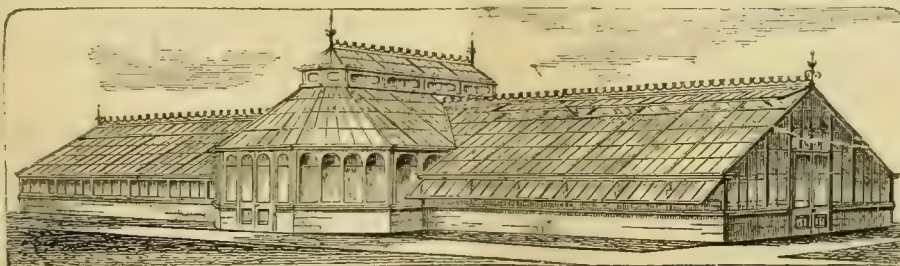
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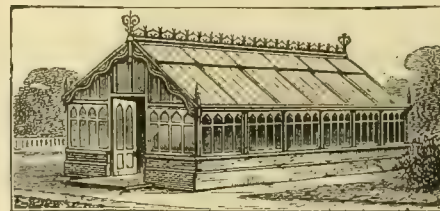
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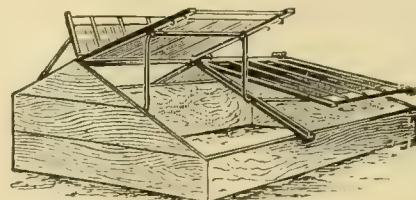
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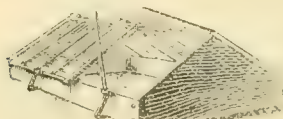
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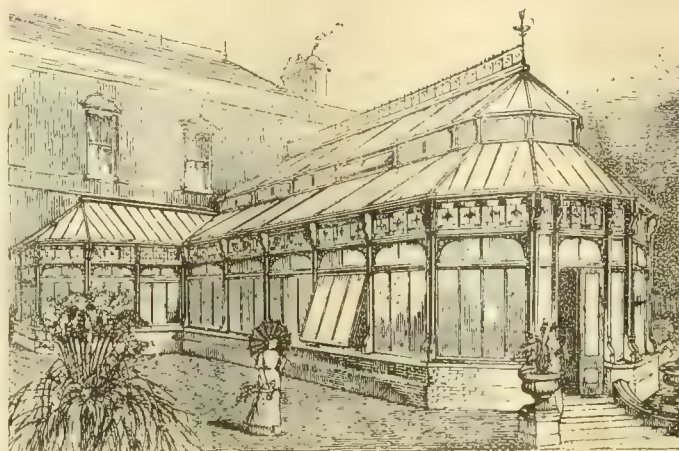


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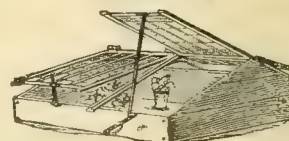
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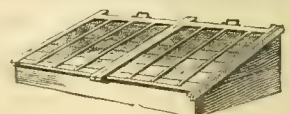
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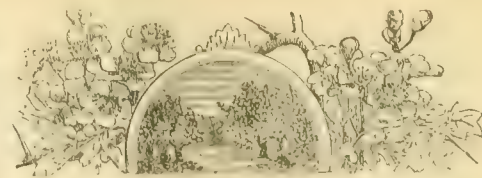
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THE

Gardeners' Chronicle.

SATURDAY, MAY 2, 1891.

DOES IT PAY TO GROW APPLES?

THE Apple is the most companionable of fruits. It is a part of the old home. The trees leaned over fences and grew on the hill-sides, when we first chased over the fields in the red October days; they shook their petals of pink and white over the honeysuckles in the old garden like belated drifts of snow; in their gnarled branches the robin gave the first news of spring, and from the croches a young brood flew in the early days of June. We cannot remember the time that we first knew the Apple tree. Every returning year it has whitened the landscape with its wealth of bloom, and every September the fruits have reddened in the sun; and the memories of the long winter evenings at home are fragrant with the crisp and spicy fruits. So much a part of us has the Apple become, that we have ceased to think of it. Like old friends and old places, it is inseparable from that compound of experiences which we call ourself.

And yet people are asking if Apples pay? Does it pay to live, to eat, to think? Does it ever fail to pay to raise what everyone wants? Yes, there are some people which nothing pays. In these times it never pays to raise common things in common ways. It does not pay to raise Apples if Apples receive no part of the farmer's care or thought. Where are the orchards that do not pay? You will find them everywhere. You will know them by the thick-topped and yellow trees, the tall grass and weeds, the broken fences. If they receive any attention beyond the knocking off of the wormy fruits in the fall, it is only such spasmodic effort as the farmer now and then finds time to devote to them, when all other work is done. Neglected orchards, like neglected children, are rarely a pleasant heritage; and it is well that it is so.

But even our best orchards fail now and then. Yes; so do Wheat, and Cotton, and stocks. It is all a question of how often the failures occur, and how great the capital invested. Perhaps, on an average, every alternate year brings no profit from the orchard, but what is the outlay when the crop fails? interest on an investment which is everywhere rated too low, a few odd days of cultivating and pruning, and something for fertilisers. There is no bustle or worry of sowing the crop in the spring, no laborious harvest to find that you have reaped only chaff. The trees are there, and your land is worth from five to twenty times more with the trees on it than without them, even though there is not an Apple on them. How many young men look upon an Apple orchard as an investment? Land worth 20 dollars to-day will be worth 100 or 200 dollars ten years from now, if it has a good orchard. And the cost of the improvement is nothing, for the immediate use of the land in the meantime should at least return all outlay.

Every man who cares for his orchard, as he

would care for other crops from which he expects to reap a profit, knows that Apples pay; and they must always pay. Demand is keeping pace with supply, perhaps outstripping it. Good fruit in the right market pays; poor fruit hustled off to the handiest market does not pay, and we are glad that it does not. Intelligent effort is needed for the development of men as well as for the improvement of Apples.

But difficulties are increasing. Worms, Apple-scab, glutted markets, all contribute to the risks of the business; but what then? Shall one soldier put us to flight? The difficulties do not come every year; or if the worms come, rout them! There is no longer any excuse for the loss of a crop from insects; and the scab is coming under our dominion. Yes, Apples pay; we must make them pay. *The American Garden.*

NEW OR NOTEWORTHY PLANTS.

CIRRHOPE TALUM ELEGANTULUM,

*Rolfe, n. sp.**

THIS is an elegant little plant, almost a pigmy, which has just flowered with Mr. James O'Brien, of Harrow-on-the-Hill, and which has been sent to Kew for determination. It was received from Coorg, in the Madras Peninsula, and is probably a native of the hills of that district, which rise to some 5000 or 6000 feet altitude, and are in reality a northern extension of the Neilgherry range. I am unable to identify it with anything hitherto described, though its nearest ally appears to be *C. pumilio*, Hook. f. (*Bulbophyllum pumilio*, Parish, and Rehb. f., in *Trans. Linn. Soc.*, xxx., p. 153). That species is very similar in habit and size, but has only 3-nerved sepals, with only three purple lines on the dorsal one; the lateral ones, according to Parish's drawing, being wholly yellow. They are also more acuminate. It is a native of Burma, and quite distinct. Our present species is too small to be showy, though the flowers are pretty enough, being striped with maroon-purple on a pale ground; the united part of the lateral sepals being yellow. Mr. O'Brien remarks that it is a most profuse bloomer. *R. A. Rolfe.*

MASDEVALLIA × *FALCATA*, *n. hybr.*

(*M. Lindenii* ♀, *M. Veitchii* ♂).

This very showy garden hybrid was raised by Drewett O. Drewett, Esq., Riding Mill-on-Tyne, by

* *Cirrhopetalum elegantulum*, *n. sp.*—Pseudobulbs, 4 to 6 lines distant, ovoid, somewhat wrinkled, 4 to 9 lines long by about as broad. Leaves linear-oblong, obtuse, coriaceous, $\frac{1}{2}$ to 1 inch long, $\frac{2}{3}$ to 3 lines broad. Scape slender, over $\frac{1}{2}$ inch long, 4-flowered. Bracts lanceolate, acute, 1 line long. Petioles $\frac{2}{3}$ lines long. Dorsal sepal oblong, obtuse, glabrous, 2 lines long, with five maroon-purple lines on a pale ground, and a few maroon-purple spots near the margin on the lower half of the same. Lateral sepals $\frac{1}{2}$ lines long, free below, united in upper half into an oblong obtuse yellow limb, the free basal portions with five maroon-purple lines on a slightly paler ground. Petals orbicular-oblong, very obtuse, glabrous, half-line long, with three broad maroon-purple lines, and a margin of the same colour, on a pale ground. Lip as long as the petals, strongly recurved, narrowly oblong, subobtusely, glabrous, dull brown with buff tip. Column very short, with a pair of minute triangular subobtusely teeth. Native of Coorg, Madras Peninsula.

† *Masdevallia falcata*, *n. hybr.* (*M. Lindenii* ♀, *M. Veitchii* ♂).—Leaves oblanceolate, 4 to 5 inches long, $\frac{3}{4}$ -inch wide. Scape 10 inches long, with two to three sheathing bracts; one-flowered. Perianth-tube $\frac{1}{2}$ inch long, furnished with a ridge on the upper side extending into the dorsal sepal. Dorsal sepal triangular, $\frac{3}{4}$ -inch wide; extending into a tail $\frac{1}{2}$ -inch long; yellow, studded over the entire surface with minute purplish-crimson papillae. Lower sepals broadly falcate, $\frac{5}{8}$ -inch broad; $\frac{1}{2}$ -inch long, and with a further tail-like continuation $\frac{1}{4}$ -inch long, and curved inward. Colour yellow, studded closely with minute purplish-crimson papillae, as in the upper sepal; the colour deepening as the tails are approached to a deep bright red, three-breaks of a similar dark red also appearing in the centre, one at each juncture of the sepals. The inconspicuous petals are white; the lip white, with a purple tip, edged with white. Column white, with crimson edges on the under side. Raised in the gardens of Drewett O. Drewett, Esq., Riding Mill-on-Tyne. *J. O'Brien.*

crossing the true *M. Lindenii* with the pollen of *M. Veitchii*. When I say the true *M. Lindenii*, I mean that form of the coccinea section which originated with *M. Lindenii*, of Brussels, many years ago, and as I have been informed by him, as a single plant. From this plant, the whole of the true stock now in cultivation must have been propagated. It is easily recognised by its flowers, showing naturally quite a month earlier than those of the more recently-introduced *M. Harryana*. By its smaller flowers, the pure white of the perianth-tube and reverse of the segments, and its bright bluish-mauve tint, *M. falcata* × shows, in an extraordinary manner, how nearly the influence of *M. Veitchii* has obliterated, in colour especially, all traces of *M. Lindenii*. Mr. Drewett's hybrid is a very fine garden plant, equal in general appearance to the best form of *M. Chelsonii*, and it is as showy as some of the forms of *M. Veitchii*. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM TIGRINUM.

A NICE specimen of the above rarely-flowered Orchid is now in flower in the collection of F. Wigan, Esq., Clare Lawn. We have three plants, two of which showed their flower-spikes in November. One plant has four spikes, two to three flowers on a spike. They are about $2\frac{1}{2}$ inches across, sepals and petals greenish-yellow, spotted with red; lip large, tapering to a point, middle portion white, striped with cross-bars of purple, sides of the lip also purple. Our plants are grown in baskets suspended near the roof of the intermediate-house. A good supply of water is afforded them during the growing season, but when the bulbs are completed, water is almost entirely withheld. Instead of the usual compost of peat and moss, loam-fibre and a little moss is used. *W. H. Y.*

ODONTOGLOSSUM TENTACULATUM.

This rare variety is now in bloom with De B. Crawshaw, Esq., at Rosefield, Sevenoaks, Kent. Its flowers, which are fragrant, resemble those of a narrow-petalled *Odontoglossum mulus*, the long narrow lip being very peculiar. The flowers are yellow, heavily spotted, and banded with brown. In the form and markings of the flower it also calls to mind *O. elegans*.

DENDROBIUM JOHNSONÆ.

Under this name was described, in Wing's *Southern Science Record*, May, 1882, a Papuan large white-flowered Phalanopsis-like *Dendrobium*, which for some years has passed into European culture. The description was made from a dried specimen, brought by the discoverer, the renowned Rev. James Chalmers, from one of his memorable missionary expeditions. This material had suffered in transit, as may readily be imagined from the conditions of travelling in such a country and in such a climate; thus, no pollinia were available in the first instance to fix the generic position of this superb plant with certainty. Subsequently this want was overcome, so that in the sixth part of the *Descriptive Notes on Papuan Plants*, p. 16, issued in June, 1885, additional information on *Dendrobium Johnsonæ* was given. At present it seems as if this species were identical with *D. Macfarlanei* of G. Reichenbach, published also in 1882, although somewhat subsequently to the definition in Wing's periodical. But irrespective of this, as well pointed out also by Mr. Rolfe, in the *Gardeners' Chronicle* of January 24, 1891, p. 104, the name *D. Macfarlanei* was bestowed, as far back as April, 1876 (in the *Papuan Plants*, Part II., p. 29), on another species, since also named anew by G. Reichenbach, which came to me from my friend the Rev. S. Macfarlane as one of the earliest botanic results of his important missionary travels. The name *D. niveum*, now suggested for *D. Johnsonæ*, seems thus inadmissible, unless perhaps two species have become confused. It was the particular wish of the Rev. Mr. Chalmers, that

his magnificent Orchid, sent some years prior to the earliest notice, should, if new, bear the name of Miss Johnson, the generous daughter of a Sydney divine, as this young lady had prominently interested herself in the Papuan Mission. The existence of *D. Johnsonæ* in North Queensland, announced by a Victorian traveller there several years ago, has never been confirmed, and seems unlikely. But at so apt an occasion as this, attention may further be drawn to two other Orchids, each adding a genus to the records of the Australian Flora—1, *Pachystoma* (*Apaturia*) *Holtzei*, from Arnhem's Land; and, 2, a probable *Anæctochilus*, with lovely variegated leaves, from Northern Queensland. *F. v. M.*

RAISING RHODODENDRONS FROM SEED.

RHODODENDRONS are general favourites everywhere, and when we consider the variety which they exhibit in the shape and colour of the flowers, and of its foliage, this is not to be wondered at. They are among the best town plants we have, and are capable of growing and producing their beautiful flowers in smoky districts, where many other kinds of trees and shrubs perish.

When it has been decided to raise Rhododendrons from seed, the pods should be looked after and collected when thoroughly mature in winter and early spring, placed in an airy, dry place, till wanted for sowing in the month of April.

The ground selected for the seed-bed should be peat-bog, in the recess of a Pine-wood, if it can be obtained, and sheltered by the trees on the south, west, and north sides, but quite open to the influence of the morning sun from the east. The bog should be drained and trenched during winter, but no fencing is required, as hares and rabbits will not molest the plants in the least. The surface of the ground should be dressed with decayed leaf-mould, and the Rhododendron seed sown broadcast, pods and all, in April. In due course the heat of the sun and spring showers will open the pods and allow the seeds to be scattered over the surface by the wind. When the plants begin to appear, they should be shaded by sticking into the ground a sufficient quantity of evergreen branches, which will also shield them from spring frost, as they are very tender, and easily injured at this stage. After the plants have become more woody, the branches should be removed, and sun and air admitted freely. When the plants have acquired a height of a few inches, the largest may be drawn out in the spring and planted in nursery rows on a piece of bog ground prepared for the purpose. In this way a supply of plants may be got from the same seed-bed for a series of years, so that planting may be carried out year after year. Of course the plants require to be occasionally transplanted to afford space for their development until they have attained a suitable size to be planted out for coverts or ornamental purposes. I have seen it stated that Rhododendrons made bad covert, inasmuch as game was seldom found in groups of the plants; but this is not my experience, as no part of the estate of Sir W. Verner Churchill, Verner's Bridge, where my experience was gained, and where Rhododendrons were annually raised in the manner described, was more frequented by game than the Rhododendron nursery ground. Pheasants, in particular, were to be seen lying dusting themselves between the lines of plants, and some of the hens actually hatched their young under the friendly shade of some of the bushes. A great deal depends on the planting and after-management of Rhododendrons for covert. When they are planted thickly in groups, they soon grow into each other, and form a close dense mass that prevents game, in a great measure, from finding ingress. Pheasants in particular, like open runs, as they seldom fly into the covert, but generally alight upon the ground, and run into covert. I shall only further add that in all my experiments I never found anything so attractive and fascinating as the raising and culture of these plants.

For a series of years, during the flowering season, each day brought to light the birth of some new variety, of exquisite shape and brilliant colour, so that under their spell, I often found myself riveted to the spot, as it were, admiring them.

When will cultivators emancipate themselves from artificial modes of tree and shrub culture, and take their lessons to a larger extent from the book of Nature? *J. B. Webster.*

PARASITES ON PLANTS AND ANIMALS.

THE destruction of life, animal or vegetable, by parasitism is a very extensive subject, often involving very serious results, either to animals or plants. The attacks of vegetable parasites upon plants is, of course, one of the especial objects of a journal like the *Gardeners' Chronicle*, as, in fact, in

other species which have been ascertained to be capable of destroying animal and vegetable life. Thus the so-called vegetating wasp was long regarded as a distinct creature, although now ascertained to be an ordinary specimen attacked by a fungus which has thrown out several shoots from different parts of the body.

In the *Gardeners' Chronicle*, February 28, 1873, is figured *Cordyceps capitata* in its different states, a species of fungus which is parasitic upon a rare species of Truffle, and closely resembles a Phallus, of which parasite we are told that at a most moderate computation a single plant will produce more than a million sporidia, but these sporidia are so small that little more than a quarter of an inch superficial would be sufficient resting ground for all the lot side by side.

In *Cordyceps capitata* and some other species, the parasitic plant has an independent growth above ground, and is generally of sufficient size to kill its host, but the attacked silk-worm skin is sufficiently

figured at p. 557, fig. 110, from Australia, parasitic in a large underground caterpillar, which bursts out of its victim behind the head, and branches into several stems, each terminating in branchlets, like stag's horns. Another allied species is common in China, which is collected and sold as an article of commerce tied up in small bundles like our Asparagus. It is figured at fig. 113, p. 563.

In the accompanying figure (fig. 114 n, p. 563), is represented the pupa of a small species of Cicada of the natural size, of unknown locality (Jamaica?), which is attached by a species of *Cordyceps* which has grown out of the insect behind the head, and which branches into a fork longer than the insect; it must be sufficiently common, as we possess several similar specimens.

We have lastly to describe and figure (115, p. 563), an interesting example, being the underground caterpillar of a British Noctua, or possibly *Hepialus*, of which we received specimens from E. Mawley, Esq., of Rosebank, Berkhamsted, Herts. Several similar specimens were found underground in a border of herbaceous perennials, near a good-sized Lime tree; they were all found dead, each with a profusion of filaments from the segments behind the head, which appear to have been injured or crushed. They were generally found about 1 inch below the surface, and the fungoid filaments sometimes emerge from each end of the caterpillar, one being seen in the figure near the extremity of the body. The species may be named after its discoverer, *Cordiceps Mawleyi*. *I. O. Westwood.*

P.S.—Dr. Hagen, in his *Bibliographia Entomologica*, gives a number of references to continental writers on the above subject (*Krankheiten der Insekten*).

HYDRANGEA PANICULATA.

THE accompanying illustration (fig. 109), is taken from a photograph kindly sent us by Mr. H. A. Bunyard, who says that it represents perhaps the finest plant of *Hydrangea paniculata* that there is in the United States at the present time.

It has grown in a remarkably short space of time from a cutting, in the well-known nurseries of Messrs. Sheperd & Son, Lowell, Massachusetts, to its present noble dimensions. At the time it was photographed, it bore fifteen hundred to two thousand well-formed blooms. Its dimensions may be estimated by the figure; in many instances, the panicles measured 18 inches in length and 12 inches in diameter at the base.

The *Hydrangea* is the favourite flowering shrub of the Northern States, and may be observed growing in the smallest villa garden as well as the largest park. Millions of these plants are grown every year by the nurserymen, who distribute it in all parts of the country. [*Hydrangea hortensis* and *H. paniculata* grow into beautiful shrubs in our southern and western counties, but they do not rival such gigantic specimens as our correspondent writes about, and in which the panicles have not the usual pyramidal form. In other parts of the country, the *Hydrangeas* have to be treated as greenhouse plants. Ed.]



FIG. 109.—HYDRANGEA PANICULATA.

a secondary degree, is also that of the attacks of vegetable parasites on animals. Setting aside the question of the extremely minute organisms (microbes, &c.), which, at the present time, are attracting so much attention from the lamentable results of their attacks on the human frame, we find in the lowest orders of vegetable life numberless instances of parasitic species, injurious to animal as well as vegetable life, such as mould of different kinds. *Empusa Musca*, which destroys the domestic fly; *Botrytis Bassiana*, the originator of the silkworm disease,* which has caused such disastrous results in the South of Europe, and

tender to allow the parasitic plants to develop within the body, and to burst out all over the surface, giving it a white or spotted appearance. This is also the case with the caterpillar of the common English Drinker moth, sent to us by a correspondent (see fig. 114a, p. 563), which was entirely covered with whitish efflorescence (the sporidia of the parasite) which had caused nearly all the hairs of the attacked caterpillar to fall off.

In many cases, however, the parasite plant is of large size, which has burst out of the caterpillar, often at the back of the head. This is the case with the long-known *Sphaeria* (or *Cordiceps*) *Robertsonii*, which grows sometimes to the length of 6 or 8 inches, and which is found in New Zealand, having attacked the larva of a green species of Goat Moth (*Coelus*). A still more remarkable parasite of the same kind is the *Cordiceps Taylori*, described and

HEDYCHIUMS.

THE East India *Hedychiums*, a lovely class of stove herbaceous plants, introduced, named, and described, to the number of about two dozen, since the beginning of the present century, appear to be sadly neglected. With colours ranging from white to yellow and scarlet, only solitary examples of the two former are noted in trade catalogues. Though stove plants proper, they succeed very well in a warm greenhouse, and they rest in winter. Want of success with them is mostly attributable to insufficient sunlight whilst growing, and to too limited winter rest. It is well, however, to bear one fact other than these in mind—it is, that they do not succeed thoroughly well when maintained in a temperature below 35° in winter. With these quali-

* Dean Buckland kindly sent me a silkworm killed by the *Oidium* for my examination, and in which I found the interior completely solid, resembling an Almond in texture, which consisted of one compact fungoid mass enclosed by the caterpillar skin.

fications, I will describe their culture. Rested plants should be repotted during the earlier part of the month of March, at which time as much of the old soil as possible should be removed from the old balls without injury to the base. Somewhat large pots should be provided for them, in accordance with the size and vigour of each species; for instance, *H. Gardnerianum*, a yellow-flowered species, requires pots at least one-third larger than does *H. acuminatum*, the height of whose stem is 3 feet less than those of the former. Suitable soil consists of three-parts decayed turfy loam of a stiff nature, and one part peat, and one of well-rotted manure. These ingredients should be thoroughly mixed together, and used in the rough state. Place a good layer of manure over the drainage, and then some of the compost, wherein the old base should be placed firmly, with the base just covered over, and no more. In view of placing as much new soil as possible in the pots, it may be well to add, in addition to what is stated above, that if old roots exist, it is better to remove them, provided the real base is not unduly injured. Although *Hedychiums* are somewhat gross feeders, the pots should be only just big enough to place the old base in. When potted, the best place for them is a stove, or if a warm greenhouse, then the warmer end of it, and in full sunlight; the plants being well watered directly they are potted, though only a limited supply of water should be afforded until growth becomes active, when, during hot, dry weather, they cannot well have too much.

Where convenience exists, *Hedychiums* amply repay for being half-plunged in a bottom-heat bed during the earlier stages of growth; moreover, after they have made about half their annual growth, and the warmth in ordinary conservatories and greenhouses has risen to a more favourable mean, they succeed admirably when planted out in the borders, and carry very fine spikes of bloom, and much strong foliage. A decided advantage which these plants possess over others grown in pots is, that the growths die down at the approach of winter, and they may be stored away in a comparatively dry, warm place, and require no further attention until the following month of March. Water should be withheld from them after the month of October, although at that period young growth may exist. *Hedychiums* are readily propagated by carefully parting old roots, though it is not desirable to reduce the latter to too small pieces. *William Earley*.

GALANTHUS PLICATUS.

In your interesting *résumé* of the papers on Snowdrops read to the Royal Horticultural Society, you quote Mr. Allen as saying that *Galanthus plicatus* was introduced at the time of the Crimean War. It is true that it became a popular plant at that time, but it was cultivated in Britain long before. Its Linnean name dates back to 1818, when, in his Supplement to the *Flora Taurico-Caucasica*, Marshall von Bieberstein recognised it as a distinct species, under the name *G. plicatus*. According to Schultes, however (*Syst. Veget.*, VII., part 2, p. 782), it is identical with the *Narcisso-Leucoium triflorum majus*, of Tournefort, who may have seen it as a wild flower. The *Institutiones* was issued February, 1700. Its permanence as a species, under cultivation, was shown by Dr. Fischer, who grew it in the Govenki garden at Moscow. It appears to have been first introduced to England, through Moscow, by a Mr. Griffin. It is figured in *Bot. Mag.*, t. 2162, and in *Bot. Reg.*, t. 545, where some particulars will be found of its introduction.

Mr. Stirling, a gardener at Stockbridge, Edinburgh, had it in cultivation before the Crimean War, and it had also been cultivated in the Edinburgh Botanic Garden. I recollect Mr. James McNab, the then Superintendent, remarking, when the Crimean bulbs flowered: "Why, this is the old *Galanthus plicatus*." All I knew about it was published at the time, with a figure, in the *Illustrated London News*. *George Lawson, Nova Scotia*.

DISEASES OF PLANTS.*

(Concluded from p. 525.)

The suppression of certain of the spore forms occurs to a considerable extent, although not absolutely. The suppression of the teleutospore is a feature of *Puccinia rubigo-vera*, as it occurs on Wheat and upon Barley in this country. To some extent this is dependent upon certain unrecognised climatic conditions, since it is more marked some years than others. The possible suppression of the æcidiospore has given rise to much discussion in connection with *Puccinia graminis*, as the Barberry is not an indigenous plant in many countries where the Wheat mildew causes considerable damage to the Wheat crop, as in Australia. In the United States, although the Barberry is not indigenous, yet it was, as we have seen, introduced at an early period, and soon established itself so firmly as to call for legislative suppression. Whether it be possible for *Puccinia graminis* to exist for any number of years without the intervention of the æcidial stage, is a point that has been keenly argued. On the one hand, it has been suggested, with a certain amount of weight, that the *Puccinia* can, in warm climates, reproduce itself for many generations, extending over long periods, by means of its uredospores occurring on such grasses as do not die down during the period of the year corresponding to our winter. It is the maturity of the graminaceous host which largely determines whether a given spore-bed shall produce uredo- or teleutospores. Although the parasite ends its life-cycle with the maturity of the Wheat plant, yet in warm regions there would be many perennial grasses, upon the foliage of which a continuous production of uredospores can take place. This appears to be a very feasible explanation as far as it goes, especially as, even in this country, we find stray uredospore-beds of various species on the winter foliage of certain grasses. On the other hand, it has been shown that the æcidiospores of this species occur not only on the foliage of *Berberis vulgaris* but also upon the evergreen species of *Mahonia*. Although the development of the æcidiospores rarely takes place on the foliage of the last-named plant, yet they are very abundantly produced upon the berries. Now both *Berberis* and *Mahonia* are largely grown in gardens and shrubberies not only in England but also in America, and I find upon inquiry that the same is true of Australia. Hence, although the æcidial stage may be suppressed to a large extent, yet the suppression need not be absolute.

The suppression of the uredospore occurs to a great extent though not completely in many of the rarer species, such as *P. agrostidis*, *P. extensicola*, and others, when the æcidiospores and teleutospores occur in close local proximity to each other.

As the suppression of certain spore forms occurs, we may anticipate that a compensatory increase of some other spore forms is also likely to occur. Mr. Rostrup has pointed out that such an augmentation takes place with the uredospores of *Coleosporium senecionis*. When the parasite is found upon host plants far removed from Fir trees—its proper æcidial host—it consists almost entirely of uredospores. With regard to the species we have just been discussing (*P. graminis*), a similar augmentation in point of numbers takes place with the uredospores, when it attacks Wheat in those countries in which the æcidial host (the Barberry), is rare. In Australia this disease of the Wheat is popularly spoken of as "Rust." Some years ago, I obtained specimens from New South Wales, Queensland, and from South Australia, in order to compare them with the parasite as it occurs in England. The enormous preponderance of the uredospores in these Australian specimens was most striking. The same condition occurs in this country with the allied species, *P. rubigo-vera* and *coronata*, in districts in which their respective æcidial host-plants

are rare or absent. Under these circumstances, so great is the profusion with which the uredospores are produced, that in walking through fields attacked by them, one's boots become covered with yellow or orange dust consisting of the uredospores. This apparently wasteful profusion of uredospores has to compensate for the loss of the æcidiospores, whose function it will be remembered is to disseminate the parasite in the early part of the year.

It might be thought that the peculiar habit of heterœcism would seriously handicap those species which reproduce themselves in this way, and that in the struggle for existence they would tend to become rare. This, however, is certainly not the case with such species as *Puccinia graminis*, which is found, one may say, the whole world over, and found in great abundance. *Puccinia rubigo-vera* and *coronata* are almost equally widely diffused. There are, however, several species which are rare, sometimes because one or other of the host-plants is uncommon, oftener because the proper host-plants do not grow near one another; yet many instances occur in which both the host-plants are common, but the fungus has never been implanted upon them. Such is the case with *P. phalaridis*, both the host-plants of which are abundant (*Phalaris arundinacea* and *Arum maculatum*); but the parasite as judged by the infrequency of the *Æcidium ari*, is very uncommon. As an example of the case in which one host is abundant and the other rare, *P. extensicola* may be quoted, on *Carex extensa* and *Aster tripolium*. This last-named Uredine is known to occur in one locality only—at Wells-next-the-Sea on the Norfolk coast. The two host-plants must have been growing in proximity since the time when at some remote period the parasite was implanted upon them. In like manner the *Uromyces* which I have called *U. maritima*, but which may have been the form which De Candolle had in view when he named *U. lineolatus*; on *Scirpus maritimus* and *Glaux maritima*, both common plants; yet the parasite is known to occur in only two localities—one near Hull, the other near Cleethorpes. The Hull locality is confined to a few square yards, where the parasite has survived from the time when vast tracts of estuarine land were covered with the *Scirpus* and *Glaux*.

The localisation of species is subject to great variety. Some are as widely distributed as their host-plants, more especially those whose teleutospores occur upon several grasses, such as *P. rubigo-vera*. It is, however, remarkable, considering the number of spores which these fungi produce from first to last, how limited in space is the distribution of the majority of them. In many cases a circle 10 or 15 yards in diameter will include all the individuals which have arisen from one æcidial host-plant. It is needless to quote instances of a fact so patent to anyone who has collected these fungi, especially to one who has endeavoured to work out the life-history of an unknown species.

Cultivated plants are attacked more frequently and more severely than those growing in a state of Nature. We are apt to assume that this is because the host-plants have had their vitality impaired by cultivation. This, however, by no means follows. The diseases caused by the heterœcious Uredineæ spread from plant to plant, and obviously the further the plants are apart, the greater is their chance of escaping infection; but under cultivation, they are grown in enormous numbers, in the closest proximity. When we consider how closely packed the plants are in a cornfield, the wonder is, not that they mildew, but that any one should escape. The foliage, too, of cultivated plants is broader, and they themselves are larger than uncultivated species, thus affording a larger surface-area on which the spores may fall. The rapidity with which these diseases spread is very great, but it is no greater than can be accounted for when we consider the congestion of the population of a Wheat field, and the fact that the disease once established multiplies itself by a process of geometrical progression.

* A course of lectures delivered before the Royal College of Surgeons by Professor Plowright, M.D., in February, 1891.

The period of development of the different spore-forms depends upon the condition and age of their host, being more rapid in young plants whose foliage is growing vigorously; and these plants, too, are the more easy to infect than mature plants. In plants advanced in life, infection is more difficult to affect; but being affected, their teleutospores are produced somewhat sooner than in younger plants. Typically, the æcidiospores are produced in spring, and the uredospores in summer, while the teleutospores are autumnal, so that their period of quiescence lasting through the winter is virtually a state of hibernation, which takes place while phanerogamic life is least active. Exceptions, however, exist. With many species the whole process of development occurs early in the year, *Uromyces pisi*, for instance, and is completed during the spring or early summer, proportionately increasing the period of teleutospore rest. With many the uredo stage is prolonged, and lasts well into autumn. Others, again, do not produce their æcidia until autumn, as *P. rubigo-vera*, or early winter, as *P. obscura*; while a few, such as *Puccinia poarum*, produce two crops of æcidiospores in the year—one in spring, the other in autumn.

starch granules, as in the leaves of the Pear affected with the æcidiospores of *Gymnosporangium fuscum*. This occurs to a far greater extent in the stems of the Nettle. In some parts of India, as Barclay has shown, these swollen parts of the Nettle-stems are eaten by the natives on account of the nutriment they contain.

On the chlorophyll other changes are produced; in the majority of cases it either loses its green colour, becoming bleached, or the development of xanthophyll is caused. This Bachmann considers to be almost identical with the colouring-matter of most of the phanerogamous blossoms. In the *Polygonææ*, however, its contact produces the development of a bright red or purple coloration.

Respecting the effect produced by the various spore forms upon their respective host plants, it may be observed that as a rule the æcidiospores cause but little damage. The development of the teleutospores is a much more serious drain upon the vitality of the host than that of the uredospores. This is shown by the comparative effect of *Puccinia graminis* and *rubigo-vera*; the former being regarded with dread by agriculturists, while the

NURSERY NOTES.

MESSRS. J. VEITCH & SONS.

IN the ornamental rock-house is a good display of the showy *Dendrobies* of the season, and finely-bloomed specimens of *Cymbidium Lowianum*, *Calanthe veratrifolia*, *Oncidium fuscum*, *O. phymatophilum*, many *Lycaste Skinneri* and *L. S. alba*, *Epidendrum* × *O'Brienianum*, which produces its dark crimson flowers in great profusion. Specially noteworthy is a very fine form of *Dendrobium densiflorum* with dense panicles of perfectly circular flowers, the segments also being very round, and the whole flower of a thick texture. In the warmer houses is the usual show of *Cypripediums*, which never fail; *Angraecums*, *Aërides*, *Vandas*, *Phalænopsis*, &c., in bloom.

There are many magnificent spikes of the fine broad-petalled pure white form of *Odontoglossum crispum*, and many very distinct spotted or blotched varieties. Beyond this, there are several in bloom, which seem to be of an unusual type. Their flowers are white, and of great substance, the specially attractive feature being a broad purplish band which runs up the middle of each sepal, and which examination proves to proceed from the heavy purple tint of the backs of segments showing through. Among the spotted forms there is one which seems to be better than *O. c. Bonnyanum*. Others of the blotched forms are very distinct by the contrast between the pure white flower and the reddish-brown blotches, which are distinctly marked.

There is a good display also of fine varieties of *Odontoglossum triumphans*, *O. Andersonianum*, and some distinct unnamed hybrids of *O. cirrosum* and *O. odoratum* are in bloom, filling the houses with their fragrance; and the pretty *Miltonia Phalænopsis*, *M. vexillaria*, and *M. Roetzlii*, are well represented. Among the showy *Masdevallias*, *M. Veitchii*, Williams' variety, is a noble and distinct form; *M. Arminii* and *M. Shuttleworthii* very pretty, and the various lesser species were very interesting. There are, too, some magnificent spikes of *Oncidium sarcodes*, *O. Marshallianum*, *O. macranthum*, and others, and a fine row of *O. concolor* hanging overhead.

In the *Cattleya*-house a four-flowered specimen of *C. Bluntii*, as the pure white form of *C. Mendelii* is called, was in bloom. There were also a good show of typical *Mendelii* of fine quality, *Cattleya Skinneri*, the pretty and fragrant *C. Schroderæ*, *C. Lawrenceana*, &c.

MESSRS. F. SANDER & CO.

The first houses entered were some small span-roofed ones in the old nursery in the town, which are chiefly set apart for the hybridising of Orchids. Here were found a large number of *Cypripediums*, with seed-vessels in different stages of maturity, or flowers just fading off after fertilisation, and great numbers of seedlings, in size from mere spots of vegetation, without much definiteness of form, to tiny plants of three or four summers, with well-developed, if small leaves. These seedlings are, in the majority of instances, raised in the compost in which the seed-bearing parent is growing.

Cypripediums, being popular Orchids, and their hybridisation presenting no special difficulty, the various novelties raised are readily disposed of at good prices, that is, if the flowers are distinct from others already in the trade, and handsome forms are constantly turning up. *Zygopetalum* and *Odontoglossum* have been cross-fertilised in both ways, but without success, the prepotency of the former being too great, and the result has been a crop of *Zygopetalum* not differing at all from the species employed. In one of the houses a mass of *Z. graminifolium* was observed to be growing on pieces of stems of *Lomaria Boryana*. It is a Brazilian species, with flowers having colours of deep green, chocolate, and dirty white, but which have as yet not appeared



FIG. 110.—NARCISSUS HUDIBRAS.

Perennial mycelia are not uncommon with the æcidiospores of heterœcious species. All the *Gymnosporangia* have perennial teleutospore mycelia. Several of the *Æcidia* upon the *Coniferae*, some of which cause the "hexenbesen" of the Germans, are also provided with them. They also occur with the two species which occur on *Euphorbia cyparissias* that stand specifically connected with *Uromyces pisi* and *striatus* on the *Papilionaceæ*. Why some species should have perennial mycelia, and others not, is difficult to say; but as De Bary pointed out, when mycelial hyphae are found in the perennial parts of a host plant, they are themselves perennial. The possession of a perennial mycelium must be of distinct advantage to the species possessing it, as it ensures the annual reproduction of one spore form. Its presence may cause a local hypertrophy of the host-plant, as with the *Gymnosporangia*, but frequently the hypertrophy is general, as with *Æ. cyparissias* and *punctata*.

More frequently, however, the mycelium is short-lived. Its action upon the tissues which it pervades, is often to stimulate them; hence we find local enlargement on the stems. If the hypertrophy be confined to one side, it causes the stem to be bent at a more or less acute angle.

In some cases it induces the formation of

latter (doubtless wrongly so) as beneficial rather than otherwise. The first-named species, as has been before remarked, is noticeable for the large extent to which its teleutospores are developed, while the latter is characterised by the profusion of its uredospores.

It was at one time supposed that the biological study of the *Uredineæ* would result in great reduction in the number of specific forms, since by it the *Æcidium berberidis*, the *Uredo linearis*, and the *Puccinia graminis* were shown to be but so many spore-forms of the same fungus. The opposite result has been obtained, for by this means it has become evident that the number of specific forms comprised in the heterœcious *Uredineæ* is much larger than, on morphological grounds alone, we should have in the least suspected.

NARCISSUS HUDIBRAS.

THIS is a variety of *Narcissus*, pseudo-*Narcissus* (fig. 110), raised by the late Mr. Leeds, remarkable for its widely spreading plicated cup of a deep yellow colour, and less than half the length of the paler yellow, oblong, somewhat stalked segments.

in this country. It was found to be impossible of establishment in an artificial manner, contrary to other Orchids, and the plan was hit upon by Mr. Sander to import it as found growing on the Lomaria. So far this method has been quite a success. For figure of the species, see *Bot. Mag.*, 5016, under the name of *Kefersteinia graminifolia*. Another instance of importing plants on the substances on which they are found growing, was seen in *Utricularia* (*Humboldtii* probably) from M. Koraima, British Guiana, the bladders of this plant coming over on the roots of various Bromeliads. These *Utricularias* are grown in a peculiar manner, the Bromeliad roots, now dead, are placed in baskets, which are placed above pans filled with sphagnum moss, down into which the rhizomes of the *Utricularia* descend.

Returning to *Cypripediums*, in another house we noted a cross of *C. cananthum* superbum and *calophyllum*, in which the dorsal sepal had become broader than in the latter flower. There is a good stock of *C. Morgania burfordensis* making capital growth. A new *Zygopetalum*, with an intensely blue lip, the finest specimen of which has become the property of Baron Schroder, was noticed.

We may in time, but when we should not like to say, see some novelties in *Phalaenopsis*. Scores of various species were seen with seed pods, those of *P. Ludemanniana* still having the flower hanging to the end of it, and turned to a green colour. These houses, which are a kind of laboratory to the larger nursery, are very interesting for what they can show at the present time, and more, for the fine things which may come out of them in future years.

In the large collection of glass-houses at the principal establishment, the new rock garden, through which the visitor enters the Orchid-houses, is getting well furnished with Bromeliads, Ferns, Orchids, Anthuriums, Bamboos, &c. The famous *Cymbidium Lowianum*, which form the principal objects in the main house, were a grand sight, some of the plants presenting as many as twenty flower-spikes of great size.

The *Celogynes* were mostly out of bloom. Many are very large pieces, and all are grown in loam in deep pans. *Odontoglossum citrosimum*, showing much variety in colour, hangs in great numbers from the roof. They at the present time present a lovely sight, the major portion having come into full flower. The grand mass of *Lælia anceps Sanderi*, which measures 3 feet square, and is suspended over one of the paths, seemed to be in excellent health.

Oncidium splendidum, once a very dear-priced Orchid, but now much cheaper owing to large importations, was observed to be growing with great vigour. The foliage of a bright green, and the stout pseudobulbs bespeaking perfect health.

To say that the *Vandas* of all species, especially the immense specimens of *V. Lowii*, the *Angraecums*, of which *A. Leonis*, from the Comoro Islands, was seen in considerable quantity; *Calanthes*, *Saccolabium Blumei majus*, and other species; *Lælia anceps*, *L. a. alba*, *L. a. stella*, *L. a. Sanderi*, and others of that breed; *Dendrobiums*, including *Dominy's* hybrid between *D. moniliferum* and *nobile*; the natural hybrid, *D. nobile Cooksoni*, and many others, were pictures of thrifty growth, is to repeat what every visitor to this nursery says.

The means taken to obtain constant evaporation of moisture without the slopping about of water on walls and floors, are excellent in their way, and worthy of adoption generally in Orchid-houses. Beneath the stages, beds of leaf-mould several inches thick are laid on a floor of roofing tiles laid on slight bars of T-iron, elevated several inches above the ground; and these beds are kept moist partly by the drip from the plants above, and by being watered occasionally.

In other houses, many Orchids in diverse species were in flower, including *Odontoglossum bifolium*, *Dendrobium Schroderianum*, *Cattleya Schroderæ*, *C. intermedia*, various *Phaias*, *Trichopilia suavis* in variety, *Odontoglossum polyanthum*, the finest

yellow variety; and *Miltonia vexillaria*, an immense number, with flowers showing on almost every plant.

In one house we saw about 20,000 *Odontoglossum crispum*, not in flower. A species of *Maxillaria* was noted, in which the lip is yellow-coloured, and other parts are white, the petals streaked with crimson, and the position of the flower is reversed; its flowers are 5 inches in diameter. *Cattleya Mendeli* was noticed in immense numbers, and with very fine growth upon the plants. Mention should be made of *Anthurium Sang Gaulois*, a plant of dwarf habit, with a dark crimson spathe; a good showy variety.

MESSRS. J. LAING & SONS, FOREST HILL, S.E.

This nursery, as is well-known all over the world, acquired a reputation for fine varieties of the tuberous *Begonia* and *Cliveia miniata*, as it did in years gone by for Hollyhocks. Of the first-named, which have been often described in these columns, we can but say at this early part of the season, that they fill, as pricked-off tiny plants, a great number of houses and pits at the Stanstead Park establishment; and will, before the planting-out season arrives in early June, overflow into other pits and frames. They must number several hundreds of thousands, and are kept under distinct colours, and two main divisions—single and double-flowered.

So great is becoming the demand for tuberous *Begonias* as bedding and decorative greenhouse plants, that the firm is taking up the most of the land attached to the dwelling-house—some 3 acres—for the cultivation of the tubers, and this large piece of land filled with flowering plants will present a remarkable sight in July and the two succeeding months. *Cliveias* have been obtained from the best sources, and carefully crossed amongst each other, with excellent results. John Laing remains still one of the best, a fine truss, standing out well from the foliage, with twenty-six flowers on a truss. The fine scarlet colour has a trace of bronze in it. Glow is similar to the above, but it is of dwarfer growth, and with pendent leaves and shorter flower stalk—colours, orange-scarlet, interior of the tube yellow; the flowers of these have considerable resemblance at the first glance to *Vallota purpurea*. Purity is a salmony-scarlet with a yellowish-white throat; the plant is young, yet the truss is a good one. Stanstead Beauty has broad foliage, is of medium height, flowers salmon-pink with a good deal of yellow colour interiorly. Lady Wolverton is a richly-coloured variety. Harry Laing has narrow leaves, the flowers a rich scarlet. Madame Reimers, once considered an excellent variety, scarcely holds its own against the newer seedlings. *Sulphurea* is nice as a variety, it is pale sulphur with a pink suffusion. Magnet has flowers of a rich shade of scarlet, a neat truss and grower. *Salmonia* has a large truss, and but little yellow in the inside of the flower. Vivid is one that is thought much of for its brightness. Several others under name were noted, but the above may be accepted as the pick of the collection.

The seedlings of various ages number many hundreds, and these will in time display, in some instances, desirable advances in one direction or another. We are not enabled to say with what intentions the various crosses are made, but it would appear, from the newest varieties observed, it is in the direction of dwarf growth, pendent foliage, rich-coloured flowers, with the lobes broad and round at the points, in opposition to the star-like look of the older forms.

Many gorgeous Continental novelties in *Caladiums* may be expected to emerge from Messrs. Laing's nursery this season. Two of these are exceedingly dwarf, and form nice companion plants to the old *C. argyrites*. These are *La naine rouge*, with leaves having a good deal of red colour in them; and *William Bull*, a dark leaved plant. The older plants of the collection, which is a large one, are already in very fine growth.

FLORISTS' FLOWERS.

EARLY TULIPS.

I was much pleased with what is known as the orange Tournesol double Tulip, as shown at Bath a short time since by Dr. Budd and others. It is quite of the type of the Tournesol, but instead of being deeply edged with gold, the marginal colour is deep orange, and not too dark to contrast well with the bronzy-red ground. Add the yellow Tournesol to the two above-mentioned, and in the trio we get what may truly be termed the best three double Tulips for pot culture. We want a white Tournesol, as fully double as the type, but with the snowy whiteness of the white form of the single Joost van Vondel. There are two double white Tulips, viz., *La Précoce* and *La Candeur*, the first early, the latter late, but neither a *beau idéal* white double Tulip. The latter, when bedded with Tournesol and other varieties that naturally flower earlier, should not be planted so deep in the bed by 2 inches.

Raphael, Salvator Rosa, and Murillo, are all light and very attractive varieties, the first-named is rose-coloured, and very double; Murillo had a little more colour than Raphael as seen at Bath, though generally regarded as paler; Salvator Rosa is a light variety tinted with pinkish-blush. The old *Gloria Solis*, reddish-bronzy-brown, with narrow margins of gold is still a good and useful variety that does well for pot culture, as well as being an excellent bedder. Duke of York is a fine and distinct variety, requiring to be nicely grown to be seen at its best, and it is well adapted for culture in pots. We have no self red or crimson double Tulip that compare with *Imperator rubrorum*. A good purple or mauve-coloured variety is a desideratum.

Fine and distinct forms of the early single Tulip are much more numerous than in the case of the doubles. Our finest yellow is *Ophir d'Or*, pure deep golden-yellow, large in size and finely formed. It makes an excellent pot variety. Canary Bird and Yellow Prince are both very useful yellow self Tulips; but inferior to *Ophir d'Or* for exhibition purposes. Our finest white is the white form of Joost van Vondel, because so large and so pure in colour; but has the fault known amongst the growers of late Tulips for exhibition of "quartering," that is the petals become separated at the bases when the flowers are fully expanded, leaving an opening between them. Princess Helena appears to me to be identical with the white form of Joost van Vondel. The old white Pottebakker is still a stout well-built and finely formed flower, extremely useful in any way in which early tulips can be employed. Of purple single Tulips Van der Neer and Wouvermann still retain the lead; the former where well-grown, is I think, the finest formed Tulip in the section, with perhaps the single exception of *Proserpine*. The rich dark rose-coloured *Proserpine* is one of the very finest selfs, large, showy, and of excellent form, and destined to be grown for at least half a century longer. For a rich scarlet or bright crimson, Vermilion Brilliant, with its strongly marked individuality, holds the field; when well grown it is brilliant in the extreme. Joost van Vondel is a very fine rosy-crimson self, apt to come striped with white.

Messrs. Geo. Cooling & Son exhibited at Bath a yellow variety named Little Dorrit, bright yellow, slightly flaked with pale reddish or rosy-brown, large, fine shape, and excellent for pot culture, and quite distinct. It is a great improvement upon an old variety named Duc d'Orange. Princess Mary Ann was also very good—white, slightly striped and suffused with bright pinkish rose. They also had De Keizer, a crimson self; King of Yellows, very like, if not the same, as *Ophir d'Or*; Bridesmaid, very like Princess Mary Ann; and Blanche Hatve, pure white.

As an edged Tulip, Keizer's Kroon is simply superb; we have nothing to equal it for size and majestic beauty—the crimson-scarlet ground is deeply edged with rich golden yellow. Duchess of

Parma, in the same way, is also very fine, but with a narrower edging. Other good sorts are *Fabiola*, rosy-purple, striped white; *Rouge Luisante*, fine deep rose; *Rose Aplat*, delicate rose and white; and *Cerise Gris de Lin*, purplish rose, margined with creamy white, distinct and novel.

Among those shown at the Crystal Palace, Sydenham, a few days later, were *Van Spier Dock* (single), deep cerise, and feathered with creamy-white; large, full, of fine shape, distinctly novel in character, and apparently well adapted for pot culture; and *Hector*, bronzy-orange, feathered with gold; large, fine shape, and quite distinct. These were shown by Messrs. Williams & Son, of Finchley.

At the meeting of the Royal Horticultural Society, on March 10, Mr. W. E. Gumbleton staged blooms of single early Tulip Queen of the Netherlands, delicate blush, flushed with soft pink, a variety that has acquired a great reputation on the Continent. Surely it was not seen at its best at the Drill Hall, as the flowers lacked refinement, and were much quartered. A Lancashire Tulip-grower would have turned away from it with a feeling akin to disgust. R. D.

HYBRID AURICULAS.

If not, what are they? Some seedlings from ripened pods of *Heatherbell*, and now growing in Messrs. Pope & Sons' Nurseries, King's Norton, Birmingham, are showing a variety of character as well as flower, but only a few are yet in bloom. The chief portion of the seedlings have the pure *Auricula* foliage, but amongst them are some which have the *Auricula* foliage, but are strongly toothed or serrated with a very distinct white powdered margin. One, now in flower has this strongly-marked serrated foliage, and throws a stem with two *Auricula*-like flowers, only that they bear more of a resemblance to a greatly improved *Primula marginata*, the colour a clear pleasing bluish-lavender, without any paste, the colour reaching to the eye. It has a very distinct character, and is very pretty. But what is its parentage? I asked Mr. Morris, who has been foreman here for a great number of years; and he replied that no artificial impregnation was used, and that it must have been accomplished by insects. In the same house at the present time are plants of *Primula denticulata* and others, and I inquired if similar plants had been growing by the side of *Heatherbell*—a white-edged flower—at the time the plant flowered and ripened its seed, and as the seedling I refer to bears, to a great extent, the characteristic serrated foliage of *P. denticulata*, but broader, and in the form of the *Auricula* growth, and partakes also of the colour of *P. denticulata*, we may come to the conclusion that it was the male parent. Perhaps some correspondents of the *Gardeners' Chronicle* will be able to tell me if such a cross-bred variety is common, or if much has been done in hybridising the *Auricula* and *Primulas* of the type of *denticulata*. Other seedlings with serrated foliage (quite a saw-teeth serratum) will bloom shortly; and in the same batch of seedlings, and now in flower, are two white-edged flowers, rich in colour, with charming paste and thrum, but with too little edge, and there are alpine amongst the batch. W. D.

SEEDLING AURICULAS.

It is excellent advice which the Rev. F. D. Horner occasionally gives to raisers of seedling *Auriculas*, not to be in too great a hurry to throw away the contents of their seed-pans and pots after they have removed from them the first fruits of seed-sowing. In the autumn of 1889, I sowed in shallow boxes some seeds from a collection of choice alpine *Auriculas*. Many of the seeds germinated within a few weeks of being sown; by May and June following they were large enough to prick off into stove pots; last autumn the leading plants were potted singly into small Toms, and they are now flowering. From that time until the present, seedlings are put up from the soil, and just now helped by the strengthening sunshine, quite a crop of seedlings are appearing. Mr. Horner has stated that he keeps his seed-pans

for two or three years, and his general experience is, that the finest varieties are the plants latest in point of time in appearing above the soil.

As a matter of course, there must be constant watchfulness on the part of the raiser that the tiny seedling plants are not injured by the surface

raise seed of *Auriculas* in pots, filling them to the depth of one-third of drainage, with a little cocoa-fibre or moss laid upon it to prevent the soil falling down into and choking up the outlet for moisture through it, and then stand the pots in earthenware pans, filled to the depth of 1 inch or so with water. By means of capillary attraction, the soil is kept moist, no watering overhead is needed, and there is no disturbance of the thinly-covered seeds. No shading is necessary, except in the very hottest weather; and the first crop of plants is quickly produced. It is a great advantage to get these out of the way as soon as possible, as it makes room for others. Care is necessary in removing the first crop of plants; and if the surface be thoroughly saturated, the more advanced plants can be gently pulled out without much displacement of the soil, and disturbance of the cotyledons of the tiny plants just showing through the soil. The plants taken out of the seed-pots are pricked off into others filled with a light sandy compost, composed largely of finely-sifted leaf-soil. These pots are also stood in pans of water on the shelf of a greenhouse where an abundance of sunshine falls, and there are very few failures.

It is the same with seed of gold-laced *Polyanthus*. I sowed last August some seed from very fine seedling varieties given me by Mr. James Thurstan, of Cardiff, adopting the same means as in the case of those of the *Auricula*; some soon germinated, but did not increase in size sufficiently large to prick-off, and during the winter fog and frost in combination destroyed them all. Another seedling crop is putting in appearance, no doubt from seeds which laid dormant during the winter; and probably, as in the case of the *Auricula*, the latest developed plants may prove to be the best.

I am this season flowering some seedling double *Auriculas* similarly raised. The seed is taken from semi-double flowers, and a good percentage of the seedlings come fully double. I should think I have from thirty to forty distinct varieties of double *Auriculas* at least, but they are always late in blooming. R. D.

THE BULB GARDEN.

CHOICE NARCISSUS.

THE present is the best time for amateurs and young gardeners to take notes of these beautiful hardy flowers that are now in season, and can be seen in florists' shops and on the street sellers' barrows. The trumpet varieties, such as *bicolor*, and *bicolor Horsfieldi* and *Empress*, which closely resemble the former, only with larger and finer flowers. *Emperor* and *Trumpet Major* are all desirable ones of that class. The *Incomparabilis* section contains some beautiful double and single varieties. *Incomparabilis flora-plena*, large primrose-coloured flowers; *I. alba* (the Peerless Daffodil), *I. aurantiacus-plenus* (Butter and Eggs), and *I. sulphureus-plenus* (Sulphur Crown), very double and fragrant. *Incomparabilis stella* is a good early single variety, pure white, with a yellow crown; *Incomparabilis Primrose*, with yellow crown; *N. poeticus*, or *Pheasant Eye*, section are beautiful; *P. flora-plena*, the double white *Narcissus*, are very fragrant, and almost resembling a *Gardenia*. The single *Pheasant Eye*, of pure white petals, with a red corona, and *P. ornatus*, the finest early flowering variety, with large distinct blooms; the common *Daffodils* *Telamonius plenus*, double, and the *Pseudonarcissus*; the single *Daffodil* (or *Lent Lily*), and the *Bulbocodium corbularia*; the *Hoop Petticoat* *Narcissus*, the flowers a rich golden-yellow; *N. cernuus*, creamy-white, distinct and good; and *Florod-pleno*, a double form of the above, very fine. The before-named varieties include some of the cream of the *Narcissus* family, and if the names are noted down, they will be found at most of the leading exhibitions during the spring, and the bulbs could be preserved in the autumn for planting. *Hortus*.

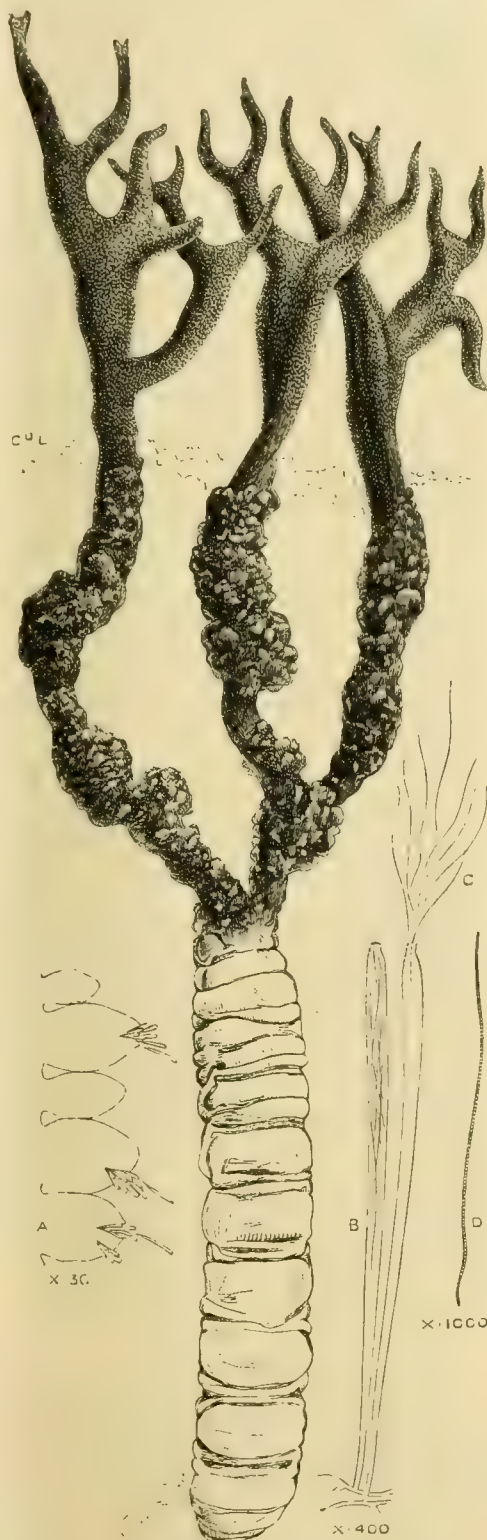


FIG. 111.—CORDICEPS TAYLORI. (SEE P. 553.)

GD L signifies the ground line, the caterpillar being buried below the soil, while the branched portion of the fungus projects above it.

becoming too dry to nourish them. Instead of a relaxation of vigilance, there should be increase, for two reasons. The seed, whose germination is retarded, appears to be more active in the spring, when there is an increase in temperature, and also of drought; the other reason, because, as stated above, the latest-developed plants are invariably the most valuable varieties. It is for this reason I prefer to

THE WEEK'S WORK.

THE APIARY.

PUTTING ON SUPERS.—By the time this is in print, in all probability the first honey-flow of 1891 will have commenced, and Gooseberries, Currants, Plums, Pears, &c., will, in favoured districts, be yielding large supplies of nectar. If the cells at the tops of the frames are being lengthened out by the bees, with new white comb, it is a certain sign, without any further examination, that honey is coming in, and supers should be placed on all stocks that are sufficiently strong. Care must be taken not to super weak ones, as the check caused by giving increased space too soon is very great, and must be deferred till the bees get sufficiently numerous to be able to keep up the necessary temperature. It is advisable, when putting on the first crate of sections, to place in it two or three containing built-out combs, as the bees are then more likely to commence work in them at once. It is good practice not to use a queen excluder when working for sections; but in the case of extracted honey it becomes almost a necessity to do so, and then frames that have never been used for brood-rearing can be kept exclusively for extracting purposes. Quoting from Mr. Simmins' book, *A Modern Bee Farm*, he states that "Mr. J. E. Pond, jun., of America, shows that stock-combs may be crammed with brood, to the almost total exclusion of honey, if the frames be spaced only a quarter of an inch apart, when sections are put on, the latter receiving the entire crop. With no honey and no drones below, the bees are less inclined to swarm." This is an excellent plan, and should be followed.

USING FULL SHEETS OF FOUNDATION IN SECTIONS.—As to using full sheets of foundation in sections, the consensus of opinion seems to be in favour of doing so, the principal advantage being that, to a certain extent, the labour of secreting wax is economised, more honey being the result, a more regular and perfect section, generally without "pop-holes," is obtained, and there is less chance of the queen being troublesome, as, when sections contain worker-comb, the cells are too deep for her majesty to lay eggs in, but drone-comb would be about right in this respect, and therefore a source of attraction to her, especially with little or none below.

A NEW SUPER-CLEARER.—A new super-clearer has lately made its appearance, and is likely to be a great boon to bee-keepers, as, by its use, the danger of getting cappings injured by the bees, when removing sections, is remedied. It consists of a flat board, in the centre of which is a trap arrangement, and is placed underneath the crate of completed sections. The bees therein, finding themselves isolated from the main body in the hive, get uneasy, and passing through the trap rejoin them, and are unable to find their way back. It is a simple piece of apparatus, cannot get out of order, and is made by Mr. Flood. *Expert.*

THE FLOWER GARDEN.

TRANSPLANTED SHRUBS.—Instead of the genial showers which we usually expect during the month of April, we have had nothing but cold and keen cutting winds, which have been most unfavourable for all newly-transplanted evergreens, and they will require vigilant care and attention to prevent them from suffering seriously, and to get them to grow. To counteract such adverse influences as these, frequent damping of any choice shrubs that have been recently moved, should be resorted to, as that will help greatly to keep the bark plump and the leaves fresh, which is a most important matter, for on their condition, success or failure in a great measure hinges, as without healthy foliage root action fails or is slow. The necessity, too, of staking or otherwise steadying the tops has made itself apparent, and the utility of it always cannot be too often insisted on when dealing with the lifting and removal of trees and shrubs, nor can that of mulching; and I would advise that both be carried out immediately any large shrubs are transplanted.

SHRUBBERY BORDERS AND THE WILD GARDEN.—It has often been a moot question with many as to what becomes of all the spare bulbs that have been forced or flowered in pots, and there can be no doubt but that numbers are thrown away or otherwise wasted; but where there are shrubby borders or a wild garden attached to a place, this waste of bulbs need not be, as even when the borders are of

moderate size, they are able to hold large numbers of Daffodils, Crocus, Scillas, &c., which always look well in such situations. Not only are the wild garden and shrubby borders fitting places for bulbs, but they are quite as much so, for any strong growing hardy plants that require divisions in borders, and they may be profitably used for the embellishment of such places, a work we have been carrying out largely by using all such plants as Funkias, Day Lilies, Spiræas, Silphiums, Doronicums, Helianthus, Anthericums, Arundo donax and A. conspicua, Iris and others. In suitable positions we have also been planting large foliaged plants, such as Gunnera scabra, Heracleum giganteum, Crambe maritima, several Rheums, and the Butter Burr, all of which associate well, and produce a striking effect in the season.

BOX EDGINGS.—The present is a good time for relaying Box edgings, and making good any that are gappy or otherwise defective, and in preparing the plants for this purpose, a good portion of the bottom should be chopped off, leaving only just sufficient roots above as are wanted to keep the tops alive. For dibbling into gaps in the lines, longer pieces are better, and the soil should be pressed closely about them, so as to make sure of filling the holes.

GRAVEL WALKS.—With the Box or other edgings put in order, the gravel will want re-surfacing, to brighten it up. To break them up annually as some do, is a mistake, if they can be freed from weeds or mossy growth without doing this, which is an easy matter where there are artificial edgings, as then any of the weed-destroyers may be safely used before any fresh gravel is put down, and all will remain clean for the summer.

LAWNS.—The extirpation of Dandelions, Plantains, and Daisies, should still be carried on, and if the weeds be removed at this season, the bare places soon get covered with grass if the roller be well plied. To keep the turf close and thick, mowing must be carried out, from now onwards, once a week, as allowing the grass to get long brings about coarseness of growth.

BEDS AND BORDERS.—In cases where Gladiolus have not been planted, they should no longer be left out of the ground, as to allow them to start first or become shrivelled, weakens them, and lessens their ability to produce fine flower spikes. The way Gladiolus look best in borders is in patches or groups of three or so of one kind, placed triangularly within 4 or 6 inches of each other. Dry roots of Dahlias may now with safety be planted out at once, but where there is convenience, it is better to start them first and plant out after the shoots get a few inches long, when they may be divided if an increase is desired. To have fine flowers, they must be planted in deep rich soil in open sunny positions.

HARDY ANNUALS.—These should be sown at once where they are to stand and bloom, and when up thinned out freely, according to the sorts, as without plenty of room they have a weedy appearance.

HALF-HARDY ANNUALS.—Such of these as Zinnias, Asters, &c., should be pricked out in light rich fine soil under glass, and so pushed on to get them strong by the middle or third week in May, when they can be lifted with plenty of roots, and go out at once in their beds without check from removal. *J. Sheppard, Woolverstone Park, Ipswich.*

THE KITCHEN GARDEN.

RUNNER BEANS.—These may now be sown in warm situations in soil which has been heavily manured and trenched. Before sowing, tread the soil to a moderate degree of firmness, and rake it to remove stones and rubbish. Make drills about 3 inches deep and 1 foot wide, and place two rows of Beans in each at 12 inches apart. I find this is quite as close as they should be, the production of pods being much greater than when planted closer. The rows may stand at 10 feet apart, and, if possible, still further, the space between the rows being cropped with Lettuce, Cauliflower, &c.—crops which will be ready for use before the rows of Runners get tall. The seed should be covered with 1½ inch of the soil, drawing the remainder to each side of the drills, to shelter the plants when they come up; also to retain water when affording it in dry weather. If the soil is heavy, put a quantity of potting-shed soil, charred rubbish, or leaf-mould, into it, and cover the seed with the same; stakes should be put to them so soon as they are well above ground, and

far enough away from the plants not to injure the roots. When the plants are 3 feet high, pinch off their tops. Runners may be grown in rows 3 feet apart without stakes, by continually pinching the tops off; but in private gardens, preference is given to the former method, because of the increased productiveness of the plants. Ne Plus Ultra, Champion Scarlet, Girtford Giant, and Sutton's Invincible, are excellent varieties of Runner Beans.

DWARF FRENCH BEANS.—These may now be sown in quantities according to the demand, sowing the seed in drills 2 inches deep, 2 feet apart, and the seed being put in at 12 inches apart from plant to plant. If Canadian Wonder be grown, it should be allowed more space than the dwarfier-growing varieties, or 2½ feet between the rows. This variety should be tied to short sticks to support them when in bearing, otherwise they fall upon the ground, and sometimes break off close to the soil.

CHICORY.—The seed of this plant may be sown now in rich soil in rows 1 foot apart, the plants being singled out to 8 inches apart in the rows. Dandelion may also be sown on light, dry soil, in rows 1 foot apart, and thinned out to 1 foot apart. The crimson-flaked Chicory and Dandelion leaves make grateful addition to winter salads when forced, in the Mushroom-house, or other dark place.

ENDIVE.—A small sowing may be made of the green curled, and the improved round-leaved Batavian, if required early, and in succession. It will be advisable to sow twice this month on rich soil in a sunny position, sowing the seeds evenly and thinly, and when the plants are from 2 to 3 inches high to plant them out on a rich light soil at 15 inches apart. The best position for planting is in the spaces between the rows of Celery. No great dependence can be put on the sowings made this month for a standing crop, the plants being apt to run to seed.

Radishes should be sown now once a fortnight on rich soil, and if dry weather continue, the beds should be frequently watered, so that quick growth may ensue. Wood's frame and the olive-shaped varieties are good for sowings at this season.

LETTUCES, ETC.—Sowings should be made of the Cos and Cabbage varieties, on a rich well-prepared soil in an open situation away from the shade of trees. Sow the seed thinly in drills at 1 foot apart and half an inch deep. So soon as large enough, transplant into rows, 1 foot apart each way, on the richest soil obtainable, leaving the plants in the seed rows 1 foot apart to complete their growth, such plants always making the best heads, and a longer succession is maintained by this method. Those sown in heat, if sufficiently hardened off, may now be planted out on a rich soil in a sunny position, the plants being carefully lifted with a trowel and planted in rows 1 foot apart each way. Spring-sown Brussels Sprouts, Cauliflowers, Cabbages, &c., raised in cold frames should be pricked out as soon as fit to handle on warm sunny borders at 4 inches apart, shaded during sunny days until established, and protected at night when frost threatens. Cauliflower plants under hand-glasses or other protectors must have plenty of water and air afforded them whenever it can be done with safety, only placing the covers over when frost threatens or cold winds prevail. *C. J. Waite, Glenhurst Gardens, Esher.*

THE HARDY FRUIT GARDEN.

PEACH AND NECTARINE TREES.—Disbudding should begin as soon as the shoots have grown to 2 inches in length. On this occasion it is better not to remove any but foreright shoots, and thin out clusters of shoots, or remove them entirely. Some gardeners disbud at one time, but it is more conformable with the teachings of Nature if the shoots be removed at three different times. One healthy shoot springing from the base of bearing shoots on the upper side, and a leader, if this be required, should always be secured; this for extension. If a tree is well furnished, many of the leaders may be stopped at the fourth joint, and the shoot from the base of the bearing shoot trained to the wall. When the fruiting shoots are of good length, say from 18 inches to 2 feet, some of the young shoots may be left at intervals, both on the upper and under side of branches if there is space which needs to be covered, but if these shoots are likely to crowd the trees if allowed to extend to their full length, pinch them at the third or fourth joint; this will cause spurs to form, and the wood of other shoots as well as their own will be strengthened. Do not allow any shoot to take an undue lead of

others, or the balance of growth will be disturbed, but stop them at an early date, and they will break again, and the shoots thus formed will ripen, and present at the end of the season numbers of fruit-buds. Green and black aphid will soon appear on the young growth, but little can be done for their destruction before the bloom sets, beyond dusting the infested parts of the trees with Pooley's tobacco powder—a tedious job when the trees are much infested, but it is the only safe and effective remedy. As soon as the bloom is set, and the young fruits out of danger, thoroughly wash the trees with weak Quassia-water, —one of the best washes that I know of, as two or three dressings will keep the trees clean for the season.

GRAFTS.—Attend to grafted plants, smearing the clay, if it crack, with fresh liquid clay. Where grafts do not grow on espaliers and wall trees, a young shoot may be trained-in to fill up the vacant space, or a bud put in at the proper season. *H. Markham, Mereworth Castle, Maidstone.*

FRUITS UNDER GLASS.

STRAWBERRIES IN POTS.—If the plants have been regularly brought into the forcing pits and house as advised, the supply of fruit will also be regular; with increased warmth of the season, red-spider increases rapidly, unless the syringe is well plied from the time the fruit has set, striking the foliage from all sides. It is a good plan to keep a small house for plants whose fruits are nearly ripe if a large number is grown, as the removal of the plants to a cooler and drier atmosphere causes an improvement in flavour, and the fruit remains for a longer time fit for table. All liquid manure must be stopped as soon as colour is noticed in the fruit on any plant, and clear water alone should be used. If the fruit has to be sent long distances by railway, so that it must be gathered before it is really quite ripe, the fruit which has ripened in a cool house will be found to bear the transit better than that which has ripened in heat. Abundance of water and liquid-manure should be afforded the plants which have set their blooms; and sods or a layer of moss placed under the pots when standing on airy shelves, saves the use of the watering-pot greatly, and checks the increase of red-spider. Never employ saucers for the same purpose, as the flavour of the fruit is not very good. At this season, Strawberry plants may be placed in frames that were occupied until lately with bedding plants, and these will produce fruit of excellent flavour, and keep up the supply till fruit may be picked from plants outside. I have often made use of such frames for a late supply, and when pot-plants were scarce, lifted last year's plants for the purpose, potted them or planted them in beds of soil or boxes near the glass, and had quantities of fruit in this way. Plants which have fruited and are sufficiently hardened off should now be planted out.

MELONS.—The earliest Melons now, when grown in pots, set their fruits erratically, and any fruits which are too much in advance of the majority may be cut off if an even crop is desired, for if these are retained, it will mean loss of fruit to some extent. As the fruits increase in size and need support, lose no time in affording it. Maintain a high day temperature, with abundance of moisture and liquid-manure (for pot plants), while the fruits are swelling, and a night temperature of 70° to 75°, with plenty of moisture in the air until the fruit ceases to swell any more, when liquid-manure must be withheld, and clear water only sparingly afforded, the latter being also withheld as soon as colouring begins on the fruit. Should large fruits be desired, allow but few fruits to swell; but medium-sized Melons are often the best-flavoured. Succession plants should be encouraged to fill their allotted space before the blossoms are fertilised, and it is not necessary to catch the first blooms that appear, but endeavour first to get plenty of strong foliage and a well-covered trellis with an even and abundant set. Should stem canker appear, apply a little quick lime and wood-ashes about the affected spot, and keep the plants drier when in bloom; also top-dressing with turfy loam, adding bone-meal.

CAPSICUMS.—There are numerous varieties of these, but the best are the Chilies, Long Red and Long Yellow, and seeds may still be sown, but much depends upon the space at the command of the cultivator, it being much better to sow late than starve the seedlings in small pots whilst waiting for a place to put them in. If pods are required early, seeds should

have been sown accordingly, but as Capsicums are largely used green, it is best to make two or three sowings, using the mild-flavoured large kinds for using green. For early and late fruiting, pots are best, but the middle-season crop may be planted on a spent hot-bed, with protection till a good growth is secured. Piy the syringe morning and evening whilst growing, but omitting overhead syringing when the plants are in bloom. Late plants will do very well on a shelf in a warm house. Plants raised from seed sown at the present time may be grown in cold-frames through the summer months, and transferred to shelves in the houses in early autumn. *G. Wythes, Syon Gardens, Brentford.*

THE ORCHID HOUSES.

CATTLEYS.—*C. Schroderiana*, a species that follows the *C. Trianas*, and remains in flower till a good show of the earliest flowering Mossias and varieties of *C. Mendeli* are well in flower, is a free grower, and those who have not added it to their collections of spring-flowering plants should not fail to do so. I do not know if the fact has been noticed by others this season, but generally our Cattleyas and Dendrobiums are a fortnight earlier than usual, which I attribute to the closeness with which the houses were kept during the winter. Some Dendrobiums which were pushed on last year with the idea of having them in flower for Christmas and the New Year, have at the present time more than half finished their growth. Amongst these are *D. nobile*, *D. heterocarpum*, a few *D. Wardianum*, and a fine plant of *D. Schroderianum*, which yearly flowers with us at the end of January, but was this year in flower at the middle of the same month. Many of these plants will be left in heat to complete the second growth, and should a warm autumn favour us, it will get well matured. *Cymbidium eburneum* plants which have passed out of flower should be repotted, if this operation is thought to be necessary, in a compost of three-quarters good turfy loam and one of peat, with some clean coarse silver-sand added, to promote good drainage. *Lælia anceps*, white and red varieties, should be shaded from the full glare of the sun, or the foliage may get browned, the long season of dull weather having made the leaves very susceptible to injury from strong sunshine. The position the Cattleyas occupy in a house should always be a matter for consideration, and one place in a house where one plant grows and flowers well if all other details are right, may be quite unfitted for another; for instance, *Cattleya Percivaliana* requires full sun to thoroughly mature its strong-flowering bulbs, while *C. Gaskelliana* may be placed in the shadiest part of the house and will do the same thing, hence the necessity for young men who have Orchids under their care, to remark when looking around nurseries and gardens, the positions that different species of Orchids occupy, and note the surroundings of all such plants as are doing well, with the idea of putting the knowledge thus gained to practical use. At the time of writing, the weather-signs indicate rainy weather, and should this prove correct, the syringe should not be too freely used; still, walls and stages must be damped down in the morning and early in the afternoon. A temperature of 65° at night will be sufficient for the present time. *A.G. Cult, Parkfield, Hallow.*

PLANTS UNDER GLASS.

CAMELLIAS.—Now that Camellias have finished flowering, they should be examined, and, if necessary, repotted, making sure that this operation is really required, for few plants suffer more from over-potting than do these. The best times to repot Camellias are when the shoots are commencing to start from the old wood, and when the new shoots have become nearly mature, and the bloom-buds hardly begun to form, visibly; any check given to the plants between these periods leads to late growth, and failure to set the bloom-buds in any great numbers. A good compost for the Camellia consists of two parts rich loam, two parts peat, and sufficient sand to keep the soil open; and two very essential points in the cultivation of the plants are good drainage and firm potting, so that there is no danger of the water passing away through the new soil too rapidly, and not moistening the central mass of roots. After repotting, freedom of growth should be encouraged by closing the house just before the sun passes off, syringing the plants at the same time, and also making damp the walls and paths, thereby creating a genial growing atmosphere; no artificial heat is required. In very bright weather a slight amount of shade is beneficial. Camellias in large tubs and pots will continue in good health, and bloom freely

for a great many years, if care is taken to keep the drainage in good order, and suitable soil is made use of. Plants that are not repotted should be surfaced with fresh soil, after removing as much as possible of the old; and invigorated by the use of liquid-manure containing a little soot whilst they are growing. Keep such plants in a genial growing temperature, but afford them plenty of air in the middle of the day, and do not close the house before 5 p.m.

CORONILLA GLAUCA.—Cuttings of the young wood of this useful winter and spring flowering greenhouse plant taken at the present time, and inserted in light sandy soil in small pots, and placed in a propagating frame, will soon take root, and after they are struck, and have commenced to grow, shift them singly into small 60's, using a compost consisting of three parts sandy loam, and one of leaf-soil, afterwards placing them in a cold frame and watering them. Should the weather be bright, use a light shading till they are established, afterwards gradually hardening them off. Stop the leading growths occasionally, so as to form the basis of the future plant.

PENTAS CARNEA.—Cuttings of this, which was started early in the season, should now be potted into 4-inch pots, and later on into a larger size, as growth proceeds, using a mixture of equal parts of good loam and leaf-mould, and sufficient sand to keep it open, afterwards placing them on a shelf, near the glass to ensure sturdy growth. As growth proceeds, stop the shoots occasionally. It is a plant easy of culture in an ordinary stove, and by striking a few cuttings in the spring and autumn, this plant may be had in flower almost all the year round.

ACALYPHAS.—To keep up a supply of these showy plants for decorative purposes, it will be advisable to put in cuttings at different seasons. Old plants which have got bare of foliage at the bottom may have the tops taken off, and made into cuttings, which make the best plants, the foliage being larger and of finer colours than from other parts of the plants. Put the cuttings singly into small pots of light soil, and place in bottom-heat. When rooted, pot them off into 48's, a useful size for many decorative purposes. Place them in a light position, in a temperature from 60° to 70°; and the beautiful rich colouring of the foliage, which is always so much admired, will be well brought out. Before taking them to the dwelling, carefully harden them off, they will then continue in good condition for a considerable time. *Acalypha tricolor*, *marginata*, *Macafeana*, and *macrophylla*, are all worthy of cultivation; the latter variety has handsome leaves, 12 to 14 inches in diameter. The stove-heat may be now increased several degrees by day, and may stand at 60° by night. In bright weather the syringe must be plied early in the morning, and again about 3 p.m., the floors and stages being damped down. Plants with woolly foliage, such as *Gloxinias*, *Gesneras*, *Achimenes*, and others, which may be in flower, should not be wetted, and it is better if they can be kept by themselves. Keep a careful watch for thrips, mealy-bug, and red-spider, on fine foliage plants, especially *Marantas*, *Dracenas* of all species, on which thrips and spider commit great havoc in a short space of time. Keep growing *Stephanotis*, *Hoyas*, *Passifloras*, *Allamandas*, *Franciscas*, and other flowering plants, free from mealy-bug, and well exposed to sunlight. Watering must be done with judgment, so many of the inmates having been recently shifted into new soil.

Tree Ferns and Palms in tubs will require especial care at this season, and those which are not re-tubbed, may need to be surfaced with sound loam and peat, and not allowed to suffer for want of water, especial care being taken of Tree Ferns. See that shadings are in position for use when required.

If the plants of the greenhouse, which are in flower, can be kept in a show-house by themselves, those which have been shifted, both young stock and old, may be slightly syringed towards the end of the afternoon on bright days, and the house closed. In the morning, damping of paths and wetting the outside of the pots will suffice. Air should be afforded at the top of the houses by 9.30 a.m., and side ventilation, when the wind is not harsh or cold, two hours later. The night temperature need not exceed 50°, or the day 65°.

Fuchsias now making growth should be kept a few degrees higher, and syringed night and morning. Where herbaceous *Calceolarias* are grown, great care must be taken in affording them plenty of space to grow, in keeping them free from aphid, and in abundantly watering them. These plants do best in a pit by themselves. *R. Milner, Penrice Castle, Swansea.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY, MAY 7—Linnean Society.

SATURDAY, MAY 9—Royal Botanic Society: General Meeting.

SHOWS.

THURSDAY, MAY 7—Eastbourne Horticultural Society (two days).

FRIDAY, MAY 8—Scottish Primula and Auricula Society at Dundee (two days).

SATURDAY, MAY 9—Crystal Palace.

SALES.

TUESDAY, MAY 5—Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, MAY 6—Border Plants, &c., at Stevens' Rooms. Lilies, and other Plants, at Protheroe & Morris' Rooms.

THURSDAY, MAY 7—Orchids in Flower, &c., at Stevens' Rooms.

FRIDAY, MAY 8—Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—52°·2.

Conifers. The proposed Conifer Congress to be held on an early date at Chiswick, should prove one of the most important of the series of similar gatherings held under the auspices of the Royal Horticultural Society. The exhibition of living specimens, cones, &c., is likely to be very large and interesting, as the prizes offered are numerous and important. The Congress is well timed, as many of the trees introduced by DOUGLAS and HARTWEG in the early part of the century have now attained such a size, that a sound opinion as to their value, either for decorative or utilitarian purposes, can be formed. Information will doubtless be forthcoming as to the hardiness and rate of growth of many species, their value for timber or for shelter, and as to the circumstances of soil and aspect, either favourable or prejudicial.

We already know so much of the value of the Araucaria and the Lebanon Cedar, introduced at an earlier period, to know how ill we could afford to lose either from our pleasure-grounds, and it will be interesting to note what verdict will be given as to the more recently-introduced Atlas Cedar and Deodar.

Then there are the Corsican and Austrian pines, the noble Douglas Fir, the Nordmann Fir, and the numerous Pines and Firs introduced from California, among which may be noted several of the most ornamental and useful species, such as the Lawson Cypress, the Nootka Sound Cypress (*Thuopsis borealis*), the Monterey Cypress (*Cupressus macrocarpa*); *Pinus ponderosa*, *Abies nobilis*, *grandis*, *Lowiana*, and very many others. Very promising, also, on the score of hardihood, beauty, and utility, are the numerous Japanese species, introduced by FORTUNE, JOHN GOULD VEITCH, and others, and described and figured in these columns. Some of the species that we have mentioned are likely to supplant the larch, or at least to thrive where that tree at present fails.

The coloured and variegated forms, as well as the dwarf varieties suitable for rockwork will also receive attention. We need not now enter into detail on these subjects, as we shall have to recur to them again as the season advances; our object at present is merely to call the attention of our readers to the matter, and to urge upon them the desirability of taking part in the exhibition, and of communicating such information as they may be able to give.

In connection with the conifers, we may also call attention to the recently-published work of Mr. BEISSNER, which does for Germany what Messrs. VEITCH's Manual has done for this country.*

Mr. BEISSNER's volume, being published ten years later than that of Messrs. VEITCH, is necessarily somewhat fuller, and contains descriptive notices of a larger number of the named varieties now so numerous. Mr. BEISSNER's work will be valuable, as furnishing not only a complete account of the Conifers, hardy in Germany and Central Europe generally, but also by reason of the great help it will prove to the cultivator in the matter of nomenclature. Mr. BEISSNER brings to his task a long-tested practical experience, and he has carefully availed himself of the literature of the subject, and has profited by the labours of his predecessors and fellow-workers among his own countrymen. He adopts the following six tribes—the true *Cupressus* (*Cupressineæ*), the *Taxodieæ*, the Yews (*Taxeeæ*), the *Podocarpeæ*, the *Araucarieæ*, and the *Abietineæ*, including the Pines and Firs. The genus *Chamaecyparis* including the Lawson Cypress, the Nootka Sound Cypress, and many of the so-called *Retinosporas*, is adopted, though it is open to question whether it might not be well to consider it as a mere section of *Cupressus*, but for garden purposes the retention of the flat-branched *Cupresses* as a distinct genus has many advantages. The *Wellingtonia* of gardens is rightly referred to *Sequoia gigantea*. *Pseudolarix* is acknowledged as a separate genus, as after the figures given in our columns of the male flowers from Sig. Rovelli, could hardly be longer doubted. CARRIÈRE's genus *Keteleeria* stands in the same position as *Pseudolarix*, and must be accepted as a distinct genus in spite of the opinion of BENTHAM and others, founded on insufficient evidence. The true Spruces are placed in the genus *Picea*, the silver Firs in *Abies*, as is now universally done by botanists all over the world, and it is to be hoped that our English nurserymen will, as there is no principle involved, no longer consent to be isolated in the matter, but for the sake of general convenience and uniformity conform to the practice of the majority.

The very remarkable variety of form in different stages of growth, as witnessed in the so-called *Retinosporas*, is properly co-related with the similar growth-stages observable in Pines and Firs, and Mr. BEISSNER himself has done much to show that *Retinospora*, as a distinct genus, has no real existence. The plants so called, are simply stages of growth of certain species of *Thuja* and *Juniperus*, more or less permanent and more or less capable of perpetuation by the art of the gardener, as explained by Mr. BEISSNER. This has been long ago proved by CARRIÈRE, MEEHAN, and others, and has been abundantly illustrated in our own columns. Mr. BEISSNER's work is copiously and well illustrated; but his statement on the title-page might lead to the inference that they were all original illustrations, while, in point of fact,

* *Handbuch der Nadelholzkunde*, Bearbeitet von L. Beissner; Berlin, Paul Parey, 1891.
Veitch's *Manual of the Conifera*, 1881.

several are copies, or direct reproductions from other sources. Thus, we find figs. 20 (partly), 22, 24, 25, 79, 102, 124, 125, 127, and perhaps some others are taken or modified from those given in our own columns, whilst others appear to be copies from well-known works. We have no objection to this, but should have preferred that the usual courtesy of acknowledgment should have been made. Indeed, throughout the volume, the labours of English and American, and non-German writers generally, though not entirely ignored, receive but scanty notice. In a nursery catalogue we do not expect such references, but a work of the pretensions of that of Mr. BEISSNER gains distinctly by adequate references to the literature of the subject.

For those who read German, the chapter on the cultivation of Conifers will be read with much interest, whilst all readers will be grateful to the author for the excellent illustrations and the copious index of species and synonyms he has provided. Owing to the arrangement, the typography, the illustrations, and the index, the book will prove valuable to gardeners and others, even if not conversant with the language in which it is written, and we heartily commend it to their notice as the most recent, and in some particulars, the most complete work on garden Conifers hitherto published.

SUPPLEMENTARY ILLUSTRATION.—The upper portion of our supplementary sheet represents part of the interior of the Horticultural Hall, Philadelphia. The buildings set apart for horticultural exhibitions, *conversaciones* and *fêtes*, formed the central part of the exhibition buildings of some years ago, and are furnished in a suitable manner, as shown in the figure. It is something of this kind which the Royal Horticultural Society is desirous of obtaining in the metropolis, and which in a wealthy country like England should be readily secured. Perhaps Baron SCHRODER's proposals will in time bear fruit, but for the present the "krach" in the City has placed the scheme in the background, and the gardening fraternity must needs wait, and with it also much useful work. The lower portion of the ink-photograph depicts a scene in Colonel Heyward's grounds at Crosswood, Welchpool. Beyond the park fence are seen some gigantic Oaks, and within the garden proper, two beds of the Colonel's pretty Violet-scented, yellowish white Primroses. The Oak nearest the right-hand corner is 16 feet in girth, the second is 12 feet 6 inches, the third, of which only a few sprigs are seen on the left, is 15 feet. Besides these are others, 15 feet 2 inches, and 16 feet 5 inches; and a tall Ash tree, 13 feet 5 inches in girth. It stands behind a Holly tree, and rather to the left side of the middle Oak.

KEW.—Fifty years ago, says *Garden and Forest*, the British Government, principally at the solicitation of the then Duke of BEDFORD, a man famous in his time for his enlightened enthusiasm in gardening, which made Woburn Abbey one of the great gardens of England, determined to convert the old gardens and pleasure-grounds surrounding the royal palace at Kew into a public botanical establishment. Sir WILLIAM HOOKER was invited from Glasgow to manage it. He brought with him a European reputation as a botanist, unflagging zeal, industry, and enthusiasm, a fund of sound Scotch common sense, the friendship and confidence of all naturalists, and the largest botanical library and herbarium which had at that time been made. His reputation and the importance of his collections at once attracted botanists to Kew from all parts of the world. Their visits benefited the establishment, and plants, specimens and books poured into it from all sides. The scientific character of Kew was thus established, and it is this high character that has given it the lead it has long held among the gardens of the world. Sir



HORTICULTURAL HALL, PHILADELPHIA.



BED OF PRIMROSES, CROSSWOOD, WELSHPOOL.

WILLIAM HOOKER gave the remainder of his long life to Kew, and devoted all his energies and resources to its welfare. His son, a man more famous than the father, succeeded him, and under his administration Kew gained wonderfully in every direction, especially in popular favour. The second HOOKER retired from Kew a few years ago full of honours, handing down the administration of the garden and all the family traditions to a connection by marriage, under whose wise and broad management it is growing now still more rapidly than ever before in usefulness and beauty. In no other spot in the world can so many different plants be seen growing; the museums of economic botany are unequalled, the herbarium is the most extensive that men have ever made, and the library is unsurpassed. This is the work of fifty years, carried on by men of extraordinary ability and world-wide reputation, working under the most exceptionally favourable circumstances, and with the whole British nation behind them. Kew has received many gifts of great value, and it receives such gifts every week. It costs, however, to carry on the establishment, 75,000 or 80,000 mds. a-year. The cost of all sorts of garden labour in England is not more than half what is paid for such labour in the States, and everything connected with a garden costs less there than it does here. If, then, Kew furnishes the ideal at which the promoters or the projectors of the new garden aim, they must realise that this can be reached only by the expenditure of a great deal of money, and that even with all money needed, such results as the people of New York have the right to expect, can only be brought about slowly, and with the aid of unusually favourable conditions. Something can be accomplished with 250,000 dols., but this amount is only a beginning, if New York expects to rival London, or St. Louis, or Boston in its Botanic Garden.

LINNEAN SOCIETY.—An evening meeting will be held, May 7, at 8 P.M., when the following papers will be read:—1, "On the Anatomy of the Genera *Pteryogotus* and *Slimonia*, and their relationship to the recent *Arachnida*," by MALCOLM LAURIE, F.L.S.; 2, "Observation on the Diseases of the Coconut, *Cocos nucifera*, L.," by M. CRESSE POTTER, F.L.S.

SULPHATE OF COPPER AND POTATO DISEASE.—There is no question that the disease may be controlled by the use of copper solutions, but, judging from the prevalent apathy in such matters, it is questionable whether our growers will think it worth their while to take any steps in the matter. In the Reports of the Connecticut Agricultural Experiment Station we find a report of an experiment, in which five rows were treated on August 10, other rows remaining untreated. The sprayed rows remained green, whilst the others were dead and black. On September 24, when the tubers were lifted, those which had been treated were practically free from disease, while the others were considerably decayed. The untreated rows yielded $2\frac{3}{4}$ bushels per row those sprayed supplied 6 bushels.

ROYAL BOTANIC SOCIETY.—At a meeting of this Society, held on Saturday, April 25, J. BELL SEDGWICK, Esq., in the chair, the following were elected Fellows of the Society, and the names of several others read for ballot at the next meeting:—The Earl of RAVENSWORTH, Mr. C. B. MARLAY, Mr. WALTER DERHAM, and Miss HEMPLEMAN. Among the collection of Orchids and other interesting plants in flower shown at the meeting and explained by the Secretary, was a species of *Drimys*, having snow-white flower-buds, which, however, change to a vivid green as they open, thus forming an exception at once curious and interesting to the ordinary rule in Nature, of green buds and white or coloured flowers. Mr. H. SMITH exhibited a specimen of *Calla aethiopica*, in which a leaf remaining attached to the flower-stalk had become perfectly white as the flower itself, while retaining its own shape and consistency.

THE ORCHIDÉENNE.—We are requested to state that this Society of Amateur and Professional Orchidists will hold, on May 17 next, a supplementary meeting, at which there will be special competition for Cattleyas and *Odontoglossums*. A large general exhibition will be open to the public in the winter garden of the Horticulture Internationale at Brussels from May 17 to 19.

GARDENERS' ORPHAN FUND.—The monthly meeting of the Committee took place at the Hotel Windsor on the 24th ult., Mr. WILLIAM MARSHALL in the chair. The balance at the bank in favour of the Fund was £496 13s. A special donation through the Leeds Paxton Society from Mr. Alderman B. WATSON, J.P., of £10, was announced. Mr. STEVENSON, of the Bournemouth and District Gardeners' Mutual Improvement Association, was appointed Honorary Local Secretary for that district. Mr. ALFRED WEEKS, King's Road, Chelsea, was elected a member of the committee in the place of Mr. WILLIAM RICHARDS, deceased.

ANTWERP.—We have received the programme of an international exhibition of vegetable products, and objects relating to the geographical distribution of plants, and commercial and industrial botany, in connection with the exhibition of microscopes and microscopic appliances, in August and September next, the precise dates not yet being fixed. The president is M. Ch. DE BOSSCHÈRE; the vice-president, Dr. VAN HEURCK; and the secretary, M. CHARLES VAN GEERT. Collections, illustrative of the tropical and temperate vegetation of the globe, will be exhibited. The schedules will be issued shortly. Meanwhile, further information may be had from M. Ch. VAN GEERT, 11, Rue de la Province Nord, Antwerp.

KEW GARDENERS ON THE NIGER.—The last number of the *Kew Bulletin* contains an account of the British Protectorate on the Niger, and the efforts made to develop the natural resources of the district. To this end, two Kew men, GEORGE WOODRUFF and H. E. BARTLETT, were appointed to take charge of the Botanical Station. Both men unhappily died, but amid the numerous formal and official letters which occupy so much space in the *Bulletin* are interesting extracts from private letters sent home by the two pioneers above named, and which give a good idea of the state of affairs at Sierra Leone, and of the appearance of the country. The *esprit de corps* manifest in these letters is very pleasant, and so are the hopefulness and sense of duty. These, however, were not sufficient to ward off remittent fever, to which both these young men unfortunately succumbed.

THE GRAPE: AN ORIENTAL LEGEND.—Four travellers, an Arab, a Turk, a Greek, and a Persian, says *The Canadian Horticulturist*, met at a city's gate; it was decided that one of them should take the combined moneys of the four, and purchase for the common stock the food which they needed; but they differed each from the other as to what food should be chosen: the Arab insisted that no food was so sweet and nourishing as the agub, while anghar was the food the Persian desired; the Turk said that azum was the only thing which they should eat, while the Greek contended that symphalion was the choicest of all the foods which men could eat. As they thus quarrelled one with the other, before their eyes a gardener passed with Grapes. "See, agub!" cried the Arab. "No, it is anghar," said the Persian. "This is azum," said the Turk. "That is my symphalion," cried the Greek, and so they ate their Grapes in peace.

M. ALEX. DALLIERE'S ANTHURIUM-HOUSE AT GHENT.—Our Belgian correspondent writes:—"We paid, in early April, a visit to the Horticultural establishment of M. ALEX. DALLIERE, where we were surprised to see a house full of varieties of Anthurium Scherzerianum, some large specimens, others seedlings, two years old all, indistinctly seen through quantities of flowers, the spathe

shining brightly, and of most unusual dimensions. Taken singly, the bloom of this curious Aroid from Guatemala, is not very beautiful; it lacks elegance, and is like some immoderately long and pendent tongue, but when hundreds of flowers hang like so many flags above a forest of dark-green leaves, one cannot but admire the effect they produce. The Anthuriums are in a house 65 feet long by 16 wide; a central stage is devoted to large specimens, two side stages are filled, the one to the left with seedlings two years old, planted in the open ground; that to the right with seedlings of the same age, but grown in pots. Among the seedlings in the open ground there are varieties remarkable for the colour and size of the spathe. These are all varieties of the type called Bertrand; the flowers of some of the young plants are enormous. What size will the blooms be when the plants have grown to their full extent? Among the novelties we were struck by a peculiarly-shaped spathe, which in form was exactly like a nutshell, but larger in size; certainly this was a new variety. Among the specimen plants staged on the centre table, is a group more than 3 feet across, and forming a sort of gigantic bouquet. Among the fine specimens of novelties which are here found, we must draw the attention of appreciative amateurs to the following:—*Massangeana*, with the spathe bent round, twisting partly round the base, and with much-marked veins. It is spotted with purplish or blood-red, and the variety promises well. There is a species with enormous spathe, transparent at the edge, exceedingly pretty. A new variety, dedicated to Prince ALBERT of Belgium; this handsome plant has a spathe less thick than those of some other varieties. The colouring is a peculiar shade of red, unusual with Anthuriums, with tones of violet in it; the edges are wavy. The fact that the plant is also a free bloomer will help to secure its success. The variety Madame Charles De Bosschère bears finer spathe, pendent, and hanging nearly 9 inches below the stem, which measures about 2 feet long. They are veritable flags, which flutter in the wind, hanging down quite straight at the end of the stem. The colour is a peculiar shade of dark red; the plant is sturdy. On the right hand stage are many other remarkable varieties, whose beauties will not appear until they have grown a little more. A handsome novelty, placed near the greenhouse door is A. Scherz. Alice Dallière, a spotted variety—very beautiful. M. DALLIERE has in this and other houses about 10,000 plants of Anthurium. At the time of our visit we estimated the number of blooms at 6000. We admired in the houses of the same horticulturist the splendid *Azalea indica*, Comte Oswald de Kerchove; this variety, which is very strong and free-blooming, bearing double flowers of a salmon-pink colour, bordered with white. Certainly it is one of the most beautiful *Azalea indica* known."

THE LONDON COUNTY COUNCIL.—At one of the recent weekly meetings of the London County Council, the Report of the General Purposes Committee contained the following paragraph:—"Mr. DYER, the Director of Kew Gardens, has mentioned to the Chairman of the Council that there is at Kew a marble tablet, on which is inscribed an account of the British operations in Egypt in 1793-1802. This tablet is stated to have been originally fixed on the base of the Egyptian obelisk which was brought from Egypt to this country and set up on the Thames Embankment in the year 1878. Mr. DYER thought that the Council, having the care and control of the obelisk, would be a more fitting custodian of the tablet than the authorities of Kew Gardens. Feeling that the Council would concur in this view, we accepted with thanks Mr. DYER's courteous offer, and have given directions for the tablet to be removed from Kew to the office of the Council."

THE PHYLLOXERA.—There is a certain amount of grim satisfaction to be derived from the fulfilment of predictions even under the most unfortunate

circumstances. We have pointed out repeatedly the absurdity and futility of many of the Phylloxera laws enacted by continental Governments, and by our own colonies, and our opinion is surely borne out by the fact, that in spite of the restrictions, Spain has 137,332 hectares, Portugal 68,000 hectares, Italy 140,000 hectares either destroyed or affected; while Hungary, the Rhine vineyards, Switzerland, Bessarabia, Southern Russia, the Cape of Good Hope, New Zealand, and South Australia are all more or less affected. The regulations have, as we said they would do, caused the greatest loss and inconvenience, while they have been impotent to prevent the march of the insect. When the next International Court of Arbitration meets, it should decide upon the amount to be reimbursed to those horticulturists who have had to suffer from the stupidity of these well-meant but utterly ineffectual regulations!

DOUBLE NARCISSUS CYCLAMINEUS.—The flower of this shown at the last meeting of the Narcissus Committee proves to be structurally interesting. There is no ovary beneath the flower. The perianth segments are normal, but the corona or cup is divided into numerous segments, arranged in rows, one within the other; modified traces of stamens and pistils are visible in the centre of the flower.

APRIL HORTICULTURAL MEETING AT GHENT.

—This, writes our Belgian correspondent, was one of the finest and most interesting shows that we have yet chronicled. Among forty-eight plants which were exhibited we counted thirty-four Orchids, eighteen of which obtained a certificate of merit, and fourteen other plants, to eight of which the same award was made. The following certificates of merit for novelty were awarded for Orchids:—1. *Cattleya Trianae alba* from M.M. Vervae et Cie., one of the most beautiful white specimens we have yet seen. 2. A species of *Odontoglossum* (var. of *Wilckeanum*), from the same firm; a large flower, the background creamy-white with spots of pale brown, the lip very fine—a very distinct variety. 3. *Laelia elegans alba*, a pretty and fine flower from M.M. Vervae et Cie. 4. *Epidendrum Wallisii* from M. A. Van Imshoot, which we have already described in the *Gardeners' Chronicle*. 5. *Odontoglossum triumphans*, a very beautifully coloured variety, with dark spots. 6. *Miltonia Warszewiczii albens*, most distinct-looking; the white lip bears a pink blotch surrounded with yellow, the sepals and petals are of a creamy-white shade very difficult to describe. 7. *Maxillaria Sanderiana* from Brazil, a rare and beautiful variety, with spreading spots of the darkest carmine. 8. *Odontoglossum ramosissimum*, rather a rare variety; the parts of the flower are elegantly waved in the centre and round the edges, and spotted with small rosy marks—very pretty flowers. 9. *Eriopsis rutidobulbon*, from Columbia; the award was unanimously conferred; raceme covered with curious and most beautiful blooms of a peculiar shade of brown the lip, having a white tip, has a most elegant appearance. All these fine Orchids were from an amateur remarkable for enthusiasm and perseverance, M. A. Van Imshoot. 10. An unanimous award for *Odontoglossum ornatum*, a pretty and admirable variety from M. Ch. Vuylsteke, of Loochristy. 11. *O. Wilckeanum*, from M. Jules Hye, a well-grown plant, with exceedingly beautiful flowers. 12. *O. triumphans*, from the same orchidist; the lip is more recurved than in the common type, and of a peculiar yellow colour. 13. *O. Alexandrae*, T. Wallanti, from M. Vincke, of Bruges, a very pretty variety, which attracted considerable attention last year at the Bruges exhibition. 14. *O. Serinza*, a most deserving novelty, from M. Ch. Vuylsteke, shown for the first time. 15. *O. President Zaldua*, from the same horticulturist, a novelty quite unequalled, which carried off the certificate of merit by unanimous consent. 16. Also from the same exhibitor, *O. picturatum*, a very pretty and distinctive novelty. Certificates for good cultivation and blooming were awarded for—17. *Epidendrum Stamfordianum*, to M. A. Van Imshoot;

bulbs of an unusual size, bearing two flower-stems, covered with one hundred and fifty blooms. 18. *Cypripedium Leeaenum*, to M. Ch. Vuylsteke; a splendid specimen, with wonderful blooms, the dorsal sepal was unusually fine. Miscellaneous plants. Certificates of merit for novelty were awarded for—1. *Primula obconica*, to Mme. la Comtesse de Kerchove, of Denterghem, showed for the first time at a Ghent exhibition. 2. *Rhododendron Marchioness*, a hybrid from a Sikkim variety, to M. Bauman, who obtained the certificate with unanimous consent; a remarkable plant, an abundant bloomer, the colour delicate rosy white, buds deep pink, the general effect very charming. 3. *Azalea indica*, Mdle. Marie Vervae, to M. Jos. Vervae; an elegant variety, with white blooms, streaked with pale red. 4. *A. indica*, *Perle de Ledebourg*, to the same exhibitor; large white flowers, spotted with pale red, and irregularly marked with the same. 5. *Camellia japonica*, Noble Belgique, also to M. Jos. Vervae; a large and beautiful flower, pale flesh-coloured in hue. 6. *C. japonica*, *Vervaeana*, from the same exhibitor, a large flower streaked with pink. Certificates for good cultivation and blooming were awarded for:—1. *Eriostemon intermedium*, to M. L. de Smet-Duvivier, a pretty and carefully-grown specimen, full of bloom. 2. *Epiphyllum Gaertneri*, to M. Ed. Pynaert Van Geert, a very pretty specimen bearing many fine blooms; M. Pynaert had staged besides *E. Gaertneri*, a well-bloomed plant of *E. Makoyanum*, which Mr. Watson believes to be identical with it. Botanically speaking, the flowers of *Gaertneri* and those of *Makoyanum* are identical, the only difference being in the colour; the variation consists in the stem—the joints of *Makoyanum* are all in one plane, but this is not the case with *Gaertneri*. Also in this variety the ends of the joints are furnished with a tuft of stiff hairs, about one-third of an inch long; these are not found in *Makoyanum*. Are these two varieties true *Epiphyllums*? This remains to be proved. Honourable mention was awarded for:—1. *Vanda suavis Lindenii*, to M. Aug. Van Geert, for good cultivation; 2. *Odontoglossum sceptum*, to M. Van Imshoot, a pretty dark-coloured variety; the indentations in the lip are very finely cut. 3. *Zygopetalum Burkei*, also to M. Van Imshoot. 4. *Ada aurantiaca*, to M. Jules Hye. 5. *Cliveia*, Mme. de Ghellinck de Walle, to M. de Ghellinck de Walle. 6. *Cymbidium Lowi*, to M. L. Halkin; the lip is very dark purple.

GUAIACUM OFFICINALE, L.—Opposite the Herbarium of the Royal Botanic Gardens, Trinidad, grow two small trees of *Lignum vitae*, the common or local name for *Guaiacum officinale, L.* The trees seldom attain a large size in Trinidad, the specimens under notice being between 15 and 20 feet in height. Their pretty blue flowers, not unlike the small English periwinkle in colour and size, can now be seen opening daily in clusters amongst the leaves. They come in for a good share of praise from European and American visitors, who visit the colony on tour, and naturally the Botanic Gardens at this time of year. Their numerous branches are utilized by hanging established Orchids, principally *Cattleya Gaskelliana* (which are on blocks), upon them. A few Orchids are established also on the trees themselves, such as *Oncidium luridum*, *Cattleya superba*, and *Epidendrum cochleatum*. GRISEBACH, in his *Flora of the West Indies*, records the *Lignum vitae*, as being a native of Trinidad, but it is said to be much more uncommon here than in most of the other West Indian Islands.

ACTON HORTICULTURAL SOCIETY.—On Wednesday, April 22, a company of amateurs from London, under the direction of Mr. ARNOLD DAWSON, gave a representation of T. W. ROBERTSON'S popular comedy, "Caste." Additional interest was attached to the event, as the performance was in aid of the Acton Horticultural Society. Established now for close on a quarter of a century, this excellent society has proved itself worthy of support, and a large and distinguished company were present to manifest the interest taken in it.

THE GLOBE OF FIRE IN ONE OF RAPHAEL'S PICTURES.—In a well-known picture of RAPHAEL'S, now in the Vatican, there is represented beneath the feet of the Virgin a ball of fire which, like the rainbow in the same picture, has probably an allegorical signification. Various explanations have been offered as to the meaning of this ball, but the most probable is that of M. DAUBRÉE, who considers it to represent a meteorite. In 1511, the approximate date at which the picture was executed, there was a shower of meteorites near Milan, which, as contemporary records show, excited great interest, and was looked on as a sign of divine intervention in the wars in which Pope JULIUS II. was a principal actor at that time.

WEED-KILLERS: CAUTION!—Dr. THOM records in the *Lancet* of the 18th inst., the circumstance that over a hundred persons near Crief were lately attacked with marked symptoms of arsenical poisoning. Of the total number two died. On enquiry it was found that all those affected had taken sugar from a particular shop, whilst others in the same family who took no sugar escaped. The sugar had been stored in a sack. The presence of arsenic was proved, and on communicating with the wholesale house, the merchant was informed that over a hundred bags of the same sugar had been despatched at the same time to various customers, and that there were no other complaints. It was impossible, therefore, to avoid the conclusion that in transit this particular sack had got part of its contents infiltrated with the poison. The police and the sugar refiners, acting together, traced the course of the sugar during its transit, and are of opinion that they have discovered the source of the poison—viz., some leaking tins of a liquid weed-killer, with which it is said the sacks were in contact. Samples of this material containing arsenic, and also the stained sack, are in the hands of the public analyst for the county, and the whole matter is engaging the attention of the authorities.

EXHIBITION PRIZES.—Mr. J. P. HUDSON, son of our old correspondent Mr. J. HUDSON, gardener to Messrs. ROTHSCHILD, Gannersbury House, has secured a scholarship, worth £50 per annum, at the Oxford examination recently held. He has been under tuition at St. Paul's School, London.

BEGONIA BICOLOR S. WATSON.—A new Begonia, originally described by Mr. SERENO WATSON in the *Proceedings of the American Academy of Arts and Sciences*, vol. xxii., Boston, 1887. It was discovered by Dr. PALMER in Mexico, at an elevation of 5167 feet. It is a fibrous-rooted species, with channelled leaf-stalks bearing rounded glabrous leaves marbled with white on the upper surface. The flowers are borne on erect rather cymose inflorescences, each flower about 1½ inches in diameter, pale rose. A coloured figure is given in the April number of the *Illustrirte Garten Zeitung*.

HOW TO GROW SALADS RAPIDLY.—The following paragraph is going the round of the Press, although "a little previous," as the big Gooseberry season is not yet in. In Berlin, a new experiment, that of serving a dinner-party with salad grown under the guests' own eyes, was successfully tried at the house of Prince and Princess BLUCHER the other day. Here is the recipe:—"Take good germinating Lettuce seed and soak it in alcohol for about six hours; sow it in an equal mixture of rich soil and unslacked lime, and place it on the table. After the soup, water it with lukewarm water, whereupon it commences to sprout immediately." At the Prince's party the thing worked like a charm, and the Lettuces, when plucked and prepared for eating, were the size of Barcelona Nuts!

DISEASES OF PLANTS.—A journal especially devoted to the elucidation of plant diseases is to be published monthly at Stuttgart, by ENGEL ULMER; Dr. SORAUER is the Editor, and will have as collaborators most of the leading physiological botanists

of Europe. We wonder how many subscribers could be found for such a journal in England? The first number contains, among other things, an article by Dr. RITZEMA BOS, on the eel-worm affecting the Strawberry.

THE ARROW POISON OF THE PYGMIES OF AFRICA.—Surgeon PARKE and Mr. E. M. HOLMES have ascertained that the poisonous ingredients are erythrophloine and strychnine. The former is yielded by the bark of *Erythrophlæum guineense*, the latter by a species of *Strychnos*.

"KEW BULLETIN."—The April number contains an article on Persian or Shiraz Tobacco, at one time attributed to *Nicotiana alata* (= *persica* of Lindley), but now found to be ordinary *N. Tabacum*. The *N. affinis* of gardens is probably a form of *N. alata*.

ARBORICULTURE IN JERSEY.—M. C. B. SAUNDERS has published in the *Nouvelle Chronique de Jersey* an interesting essay on the planting of trees, and their subsequent management. The special requirements of the island receive, of course, full consideration.

M. ACHILLE RAMÉ.—The French papers announce the decease of this gentleman on April 15. He was well known alike as an entomologist and horticulturist.

DR. A. SCHENK, Professor of Botany in the University of Leipzig, died on March 30, after a long illness.

NEW YORK.—Steps are being taken to provide a botanical garden for this city, and it is pointed out



FIG. 112.—CORDYCEPS SPECIES. (SEE P. 553.)

that only a beginning can be made with 250,000 dols., and that time and large expenditure are required before New York can expect to rival London, St. Louis, or Boston.

A NEW PRITZEL.—The index of botanical plates published by PRITZEL does not extend beyond 1865. We are now informed that M. G. MALLOIZEL, of the Library of the Museum of Natural History at Paris, has in preparation a supplement which will bring the list down to 1891. Such a promise makes us eager for its fulfilment.

SOME NEW SPECIES OF ODONTOGLOSSUM.—M. CH. VUYLSTÈKE, of Loochristy-lez-Gand, showed on April 5, at a meeting of the Ghent Royal Agricultural and Botanical Society, and of the Syndical Chamber of Belgian Horticulturists, five new *Odontoglossums*, the first four of which have not yet been described:—1. *Odontoglossum President Zaldúa* (*Wilkeanum atropurpureum*), named after the President of the United States of Colombia. This is one of the handsomest and most distinct-looking *Odontoglossums* yet known; we may safely say that there is no species at all like it. The flower, which is particularly fine and well-formed, is all red, with a light bordering of yellow round the sepals and petals. The unusually long truss of splendid blooms has a most beautiful effect, and is quite unequalled by any other *Odontoglossum*. This remarkable species was introduced in 1881; it was sent to M. VUYLSTÈKE by travellers who, for scientific purposes, were traversing unknown tracts in Colombia. Other beautiful and new *Odontoglossums* were

shown with President Zaldúa, to which a Certificate of Merit was unanimously awarded; 2. *Odontoglossum ornatum*: this is a fine and uncommon variety, possessing valuable properties. The flower, of regular and beautiful shape, is of the palest cream-white in the centre, and all covered with little red spots. The plant is a native of Chiquingairain, Colombia. Certificate of Merit unanimously awarded. 3. *O. Serinza*, a distinct-looking novelty, now flowering for the first time,

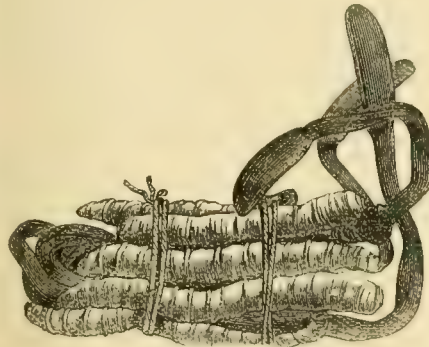


FIG. 113.—CORDYCEPS SPECIES. (SEE P. 553.)

and showing a marked difference to other *Odontoglossums*; the beautiful round flower is regular in form, and perhaps rather smaller than the usual size of *O. Alexandræ*; the lip is also round, the sepals and petals bordered with yellow; the centre of the flower is white, and the whole blossom flecked with irregular blotches, some large, some small, of brown and red. The plant was sent to M. VUYLSTÈKE in 1888 by his traveller from the neighbourhood of Serinza, Colombia. Certificate of Merit. 4. *O. pictaturum*, a new variety, which is available for collections; the flower is very distinctive, but possesses few very beautiful characteristics. The blossom is like those of the section *O. gloriosum*, sepals, petals, and lip being very long; the foundation is yellow, but plentifully sprinkled with small brown blotches. Certificate of Merit. 5. *O. Wilkeanum sulphureum*, a distinct-looking variety of the Wilkeanum class; the sulphur-coloured flower has

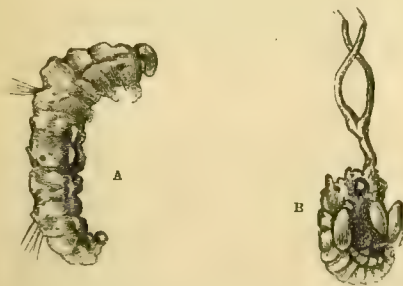


FIG. 114.—CORDYCEPS SPECIES ON DRINKER MOTH, B. CORDYCEPS ONICADA. (SEE P. 553.)

some large brown markings on the sepals. It was described in the *Gardeners' Chronicle*, March 8, 1884, p. 306, by M. REICHENBACH.

GARDENING FOR WOMEN.—Miss HARRIMAN contributes to the current issue of the *Strand Magazine* an account of the fruit and salad gardens at Sawley, near Derby, which were started with the object of providing pleasant homes and remunerative employment for ladies who have a taste for gardening, and wish to add to their income

or, as is often the case, earn a living, and seem to have proved a success. The writer thinks wisely, that it would be a mistake for any woman to expect to make, single-handed, a living out of one isolated garden, but declares, on the other hand, that it is not desirable for more than six owners of gardens to live in one house, owing to the difficulties attendant on the book-keeping. Each lady has her own half-acre absolutely under her personal supervision, and keeps a strict account of everything sold off her portion. After all expenses have been paid, the profits are divided exclusively among the lady gardeners, in proportion as each may, by diligence and constant attention, have produced abundant crops or otherwise. One hundred pounds is the capital required; a little, capital being an absolute necessity in market gardening. Autumn, winter, and early spring flowers are those most cultivated, as they are found to pay best in the long run, and fruit plays a large part in the gardens. Miss HARRIMAN is constantly receiving applications from would-be lady gardeners, and there is some question of starting a private limited liability company, of course composed exclusively of lady shareholders, and which will make the industry possible on a large scale. We have not sufficient faith in the physical capacity of ladies to induce us to advise our lady friends to take shares.

THE DUTCH HORTICULTURAL SOCIETY.—At the meeting held at Amsterdam on April 11, 1891, the Floral Committee awarded the following first-



FIG. 115.—CORDYCEPS SPECIES ON CATERPILLAR OF MOTH. (SEE P. 553.)

class Certificates:—To Messrs. E. H. Krelage & Son, at Haarlem, for *Chionodoxa gigantea*, Hort. (newly introduced plant); to Mr. H. J. van Heijst, at Wijk bij Duurstede, for *Arum palæstinum* (newly introduced plant), *Veltheimia curvifolia* (insufficiently known plant), *V. latifolia* (insufficiently known plant); to De Graaff Brothers, at Leiden, for *Hippeastrum hybr. Koningin Wilhelmina* (new plant), *H. hybr. Conqueror* (new plant), *Tulipa Kaufmanni* (newly introduced plant); to Mr. C. G. van Tubergen, jun., at Haarlem, for *Chionodoxa gigantea*, Hort. (newly introduced plant), *Iris Rosenbachiana*, Rgl. (newly introduced plant); to Mr. J. Dibbets, at Uitgeest, for the *Tulip Pink Beauty* (new plant).

Second-class Certificates.—To E. H. Krelage & Son at Haarlem, for *Fritillaria Walujewi*, Rgl. (newly introduced plant); to De Graaff Brothers, at Leiden, for *Hippeastrum hybr. Hercules* (new plant); *H. hybr. Shakespeare* (new plant); to Mr. J. C. De Lange, at Rotterdam, for *Odontoglossum crispum* var.; to Dr. J. Th. W. Neeb, at Nijkerk, for *Cymbidium ensifolium* (seldom flowering plant); to Mr. C. G. Van Tubergen, jun., at Haarlem, for *Iris reticulata*, Sw. var. *major* (new plant).

Botanical Certificates.—To Messrs. E. H. Krelage & Son, at Haarlem, for *Allium Regelianum* (new plant), *Chionodoxa cretica* var. *albiflora* Hort. (new plant), *Ornithogalum exscapum* (insufficiently known plant), *O. Kotschianum*, Hort. Petrop. (insufficiently known plant); to Messrs. De Graaff Brothers, at Leyden, for

Tulipa turkestanica (newly introduced plant); to Mr. H. J. Van Heijst, at Wijk bij Duurstede, for *Primula Palinurii* (insufficiently known plant), and *P. frondosa* (insufficiently known plant); to Mr. C. G. Van Tubergen, jun., at Haarlem, for *Cyrtanthus angustifolius*.

ODONTOGLOSSUM CRISPUM ROSEFIELDI VAR.—A flower of this handsomely blotched variety of *Odontoglossum crispum* comes from De B. CRAWSHAY, Esq., Rosefield, Sevenoaks. It has very heavy brown blotches on the sepals and lip, two or three lesser spots, and many small crimson dots on the petals, and a rose flush over the whole flower.

HIBBERD FUND.—Since the publication of the last list, further subscriptions have been received from Mrs. LEE, W. EARLEY, and JOHN PAYNE of Oxford. The Committee, we learn, is now desirous of bringing the matter to a termination, and it is requested that those who have not yet paid their subscriptions, will kindly do so at once to the Treasurer of the Fund, Dr. MASTERS, at the Royal Horticultural Society, 117, Victoria Street, Westminster, S.W.

NINETEENTH-CENTURY ART SOCIETY.—Saturday, May 9, has been appointed for the Private View of the Summer Exhibition (the Twenty-fourth), of the 19th Century Art Society, at the Conduit Street Galleries, and the Exhibition will open to the public on Monday, May 11.

PUBLICATION RECEIVED.—*Bees and Bee-keeping*, By F. R. CHESHIRE.

PLANT PORTRAITS.

CARNATION, Mrs. Ernest Bergmann, *Moniteur d'Horticulture*, April 10.

† **DOLICHANDRA CYNANCHOIDES.**—A Bignoniaceous climber, with compound leaves, and dull lilac flowers on long slender stalks. Each flower is about 3 inches long, with a dilated calyx and a dull violet corolla with a slender cylindrical tube and an oblique five-parted limb. *Bullet. A. R. Soc. Toscana di Orticolt.*, April, 1891.

EUCALYPTUS LEUCOXYLON, *Garden*, April 4.

IRIS SUSIANA, *Garden*, April 11, 1891.

PLEIONE LAGENARIA, *Gartenflora*, t. 1343.

STANHOPEA GRAVEOLENS var. LIETZEL, *Gartenflora*, April, t. 1345.

STANHOPEA SPINDLERIANA X.—A hybrid between *S. oculata* and *S. tigrina*, *Westnik*, St. Petersburg, April.

TILLANDSIA PUNCTULATA, *Gartenflora*, April, p. 208.

VRIESIA CARDINALIS X., a hybrid between *V. brachystachys* and *V. Krameri*. Leaves tufted, entire; flowers in two ranks, with bright crimson bracts. *Illustration Horticole*, t. 125.

WISTARIA MULTIJUGA, *Revue Horticole*, April 16.

HOME CORRESPONDENCE.

THE DOUGLAS FIR.—The remarks of Mr. Sheppard in the issue for April 18, concerning the above has caused me to refer to the number of the *Gardeners' Chronicle* containing Mr. Leech's note, where I find with surprise that Mr. L. refers to the Albury trees as growing in marshy places—a remark which requires considerable qualification. The finest specimens at Albury Park are growing in what is termed "the rough," and are, no doubt, the trees to which his note applies. Now, these trees are growing in a thoroughly well-drained soil, of a strong loamy character, the shrubbery being elevated several feet above the level of the Tillingbourne stream; and this brook has a fall from the point where it enters the gardens to its exit of at least 10 feet in 450 yards, consequently the very best of drainage is secured; moreover, the portion of ground abutting on the stream was deeply drained many years ago, even air shafts being connected with the drains at intervals, to secure perfect amelioration of the soil. Mr. Leech's predecessor, who planted these trees, and many other equally fine specimens of diverse species, was gardener at Albury Park for upwards of thirty years, and his name, as a practical horticulturist, was known

throughout the country; and the present venerable Duke of Northumberland appreciated his experience in planting matters, whilst the late Earl of Carnarvon invited him periodically to advise him on planting his Highclere estates. Possibly Dr. Lindley and this good old gardener were on excellent terms with each other years before Mr. Leech's gardening career commenced, consequently his disparaging remarks might well have been left out. We have here *Abies Douglasi* growing vigorously at 750 feet above sea-level, in company with *Wellingtonia gigantea*, *Sequoia sempervirens*, *Abies Nordmanniana*, *Abies nobilis*, *Abies pectinata*, *Lebanon Cedar*, *Thuja gigantea*, *Aracaria imbricata*, &c. Our soil is a rich unctuous loam, but somewhat light in places; broken boulders of volcanic rock are numerous, the solid rock often cropping through the ground, our average depth of soil ranging from 1 to 3 feet.—*S. S., Welfield Gardens, BUILTH.*

POA NEMORALIS, PERENNIAL GRASS.—This most useful variety of lawn grass is not so well known as it deserves to be. It is one of the very best of the fine grasses to sow for giving an emerald green sward under trees during the spring and autumn season; and as the roots are permanent, it naturally throws up its green blades early in the season. The grass is dwarf and of the finest texture, and there is no rule to apply that this useful variety should not be more extensively sown than the very coarse-bladed and strong-growing Rye-grasses too often seen growing under trees in many of the parks, squares, gardens, &c., of the metropolis, and in private gardens in the country, although several of the leading seedsmen offer special mixtures that more or less answer the purpose, and in some instances more varieties are given than is absolutely necessary. Most practical gardeners are acquainted with *Poa trivialis argentea*, the pretty variegated variety that is so much used for the edgings of borders and beds during summer, and also how easily it is propagated by dividing the roots in the spring. The *P. nemoralis* can be treated in just the same manner if a small reserve patch is sown in the autumn. This can be taken up and transplanted in any bare patches under the trees or on the lawns at this season, or much earlier, say, in March. I would strongly advise those who might have had any difficulty in getting the grass to grow in certain spots or under the trees, to procure at once some seed of the *Poa nemoralis*. The ground should be first made rough on the surface with a rake, some fine soil thrown over, and the seeds then sown thinly, and slightly covered with more fine soil, and protected from the ravages of the birds. *B.* [We employ Italian Rye-grass in lawn mixtures, because it grows rapidly, covering up the bare soil, faster than the perennial species are able to do, and it affords these the necessary shelter to their roots, without which their progress is slow. In three years the Rye-grass has disappeared, and the Poas, *Cynosurus cristata*, *Festuca ovina*, &c., have grown sufficiently to take its place. In some subtropical countries, which are very cold in winter and very hot in summer, Rye-grass is commonly made sole use of for summer lawns, the land being dug and sown anew each year, usually in April. *En.*]

VIOLETS.—It may be interesting to "S." to know that I used to divide the old plants of Violets, and transplant them on to a border of warm light soil, and while I could never speak of having a full crop of blooms in July, I always managed to get plenty of red-spider, no matter how well they were attended to in the summer months; but since I have raised my plants at an early period from healthy runners or cuttings, and planted them out carefully with a trowel on thoroughly worked soil, with a good dressing of decayed hotbed manure, and the soil trodden to a moderate degree of firmness before planting them. The plants are now not much injured by red-spider, but grow robust, and produce far larger blossoms. I have also planted them direct from the parent plants to their summer quarters, with first-rate results; but in such cases they were always well furnished with roots. If "S." so far, has never tried the cutting plan, or both plans side by side, I would strongly advise him to do so, and give us the results of the experiment. Turning to heat for winter-flowering plants, it is, as "S." says, still recommended, and I for one adopt the plan; but there is a great difference between a hotbed and a slight warmth, such as that afforded by a Melon or Cucumber bed after the crop is cleared, or a bed made up chiefly of tree leaves, and allowed to decline in heat to a safe point before putting in

the cuttings or plants. That slight warmth does assist the latter to bloom freely, I have ample proof, as I grow them both with and without warmth; and while those without any heat have always good crops of flowers, I can assure "S." that those grown with it produce the largest blooms, and some that I have gathered this season measured 1½ to 2 inches across. I have never got such large blooms from plants in soil resting on 6 inches of short dung, and a depth of 15 inches of drainage. *H. Markham.*

THE ROYAL HORTICULTURAL SOCIETY'S JOURNAL.—The latest issue of that journal should prove of special interest to Grape growers, not only because it contains a full account, including the papers read, of the Grape Conference of last autumn, but specially that the *Journal* includes that humorous, and yet eminently practical paper by that celebrated novelist, Mr. R. D. Blackmore, on the "Enemy of the Vine." That Mr. R. D. Blackmore is a master in the art of fictional writing, there can be no doubt. It is equally certain that he is an eminently practical fruitist. His tale of insect persecution would have, from the pen of only a gardener, proved to be a very uninteresting story indeed. In the hands of Mr. Blackmore, the story read like an epic. The readers of the *Journal* will find some solace from not having heard the author read the paper, in its quiet perusal. It will be a pity none the less if the genial humour found in it be allowed to over-ride the undoubted practical knowledge of Vine enemies displayed. The same book includes Mr. W. Thompson's admirable paper on "Vine Manures," an essay eminently solid and practical, yet commendably brief, which all young gardeners should peruse with special care, as it presents the experience of a grand master of the art of Vine culture. The *Journal* would be worth much to any one interested in Grape culture, did it contain these excellent papers only. But special, and indeed very pathetic interest attaches to Mr. Hibberd's paper, which might be said, so far as the author was concerned, to have been his "swan's song" to the Fellows of the Royal Horticultural Society, we allude to the remarkable, instructive, and interesting paper on the origin of the florists' Dahlia, read at the Dahlia Conference by the late Mr. Shirley Hibberd. At a moment when renewed attention is being drawn to the memorial to that versatile writer, whose loss to horticulture we all so much deplore, the publication of his latest address to the Royal Horticultural Society comes with exceeding fitness. Perhaps the reading may induce many Fellows, who owe so much to the departed writer, to feel that a subscription to the memorial is specially fitting. Apart from these conference reminiscences, are capital papers on the "Chinese Primula," by Mr. A. W. Sutton, read at the Drill Hall last November; on Trees and Shrubs for Large Towns, by Dr. Masters last October; the report on the Effects by Urban Fog on cultivated Plants, by Professor F. Oliver, of Kew; and other topics. Presented in book form, but in paper covers, these journals come remarkably cheap to Guinea Fellows, and should ensure a wide circle of readers. Just now, when young gardeners societies and libraries are so much in vogue, it seems a pity that such institutions cannot have copies of these *Journals* furnished to them at moderate charges. The non-member price of 5s. per number is practically prohibitory. It is just possible that Messrs. Smith & Sons would sell them by thousands at a much lower figure. In any case, the information contained in these *Journals* cannot be too widely disseminated. *A. D.*

THE CULTIVATION OF ALPINES IN SPHAGNUM MOSS.—The communication by Mr. H. Correvon on p. 455, in reference to the above is both novel and valuable, and will give those who are interested in the cultivation of alpine much room for study before taking action; for sphagnum as we know it in England, at so much per bushel, would prove a costly item indeed, if used to any great extent, or in the same dense cushions as those employed at Pavia. To attempt its use other than in a dense mass would obviously mean ruin, unless the surroundings were such as to keep the whole sufficiently moist. It is quite clear that sphagnum moss grows freely at Pavia, since Mr. Correvon informs us that M. Traverso placed a dense cushion in a given spot "without even depriving it of life." Exclusive of using it for tropical or sub-tropical Orchids, I may say that I have more than once employed it in the artificial bog for growing *Cypripedium*, *Trillium*,

Gentiana verna, *Patnassia*, *Swertia*, and similar things, but then the bog has been supplied with water, which favoured the existence of the sphagnum. *Droseras*, *Cephalotus*, and *Pinguiculas* in sphagnum and about one-third of peat added, will do splendidly, provided abundant moisture be given them. I have also grown many of the Himalayan *Rhododendrons* in peat freely mixed with finely-chopped sphagnum, and with good results. Alpines, however, in this material is quite a novel idea [at Florence many years ago we saw the plants so growing with Sig. Fenzl. Ed.], and I doubt not will come as a surprise to many, particularly to those who have so long clung to the belief that the rocky soil on which they are found naturally, is indispensable in their cultivation generally; for upon Mr. Correvo's testimony, these alpine are growing in a dense cushion of sphagnum without "an atom of earth," and surely no substance is more foreign to many of the alpine named than sphagnum moss. But when we hear of the luxuriance of the plants, one's interest is greatly increased. Some of the plants, named, however, and in particular *Draba aizoides*, *Edelweiss*, and *Arnica montana*, I have grown well under ordinary treatment; the latter, however, Mr. Correvo appears to have given up almost in despair. Taking them in order, the *Draba* here grows, flowers, and seeds freely, sufficiently so that we might easily make the edging to flower-beds of it. The *Edelweiss* I do not grow, but when I have grown it elsewhere, I have never had anything equalling the grand tufts which Mr. Arthur Brown, the gardener at Pusey, in Berkshire, obtained by treating it as a biennial, and who grew it in quantity, and with no special preparation of the soil it was planted in; which was loam, overlying sandstone. With regard to *Arnica*, I have never had any difficulty either in growing or flowering it since some sixteen years ago I began to deluge it with water, and placed the smaller ones in pots, standing in saucers kept full of water. But, notwithstanding all this, the fact that these plants do grow, and put on exceptional vigour when grown in sphagnum, proves what I have many times asserted, that some plants are indifferent as regards the soil they grow in; and if Mr. Correvo finds that, with the aid of sphagnum moss he can grow plants, whose wants he had never before been able to supply, the result is very gratifying. English cultivators of alpine will also do well to collect their troublesome and fastidious species together into a snug bed of sphagnum moss, and note the result; but if we still fail with sphagnum, as we have done in all kinds of soil, it will point clearly, I think, to the influence that altitude has on the well-being of these plants. Whether *Eritrichium* may in this find a home it is difficult to say; one can hardly imagine such a plant with its evident dislike to the lowlands, damp and fog, doing well, though what it may do in the same material at several thousand feet elevation may be quite different. The idea is excellent for *Soldanellas*, for in very few gardens do we see these charming plants in a presentable condition. Mr. Correvo's interesting communication has brought the following to my mind. Several years since, the remnants of a large imputation of *Adonis vernalis*, which on coming to hand were not considered worthy of planting, were laid-in in cocoa-nut fibre, and therefore remained in the boxes. I was not a little surprised to note the remarkable top-growth the plants made during that season, and as a natural result the following autumn revealed plenty of roots, while similar ones planted in soil had hitherto always perished. The fibre was clearly what suited the plants at the time, and many similar lots that I have since tried have been equally successful; whilst today I have a fine bed of handsome tufts just flowering, and with roots fully 2 feet deep in the soil. These plants were planted three years ago. I mention this fact in the hope that cocoa-nut fibre may in some degree form a fitting substitute for sphagnum moss. *E. Jenkins, Hampton.*

CROSSING OF DIFFERENT SPECIES.—The mention in last week's *Gardeners' Chronicle* of a supposed cross between a Canterbury Bell and a Foxglove, recalls to my memory a remarkable Foxglove spike that appeared in my garden some years ago, of a nature that I have never seen anywhere noticed. The bells on one side the spike were wholly purple, the other side white, one side of each bell in the centre row being purple, the other white, there being thus a sharply divided line of purple and white from top to bottom of the spike, having the appearance of a purple and

white spike split up longitudinally and stuck together. It was evidently a natural fusion of the two varieties [or more probably a disjunction of hybrid or crossed plants. Ed.] Probably the same result would be produced artificially by the skilful manipulation of young plants. I should like to know if such an occurrence has been noticed by others. Unfortunately, I had no opportunity of saving seed, as one of my children pulled the spike, and brought it to me as a curiosity. *P. Neill Fraser, Murrayfield, Midlothian.*

ROYLE'S PATENT WEBBER.—I wish to call the attention of my fellow readers of the *Gardeners' Chronicle* to a very serviceable little apparatus, known as Royle's Webber. This is an ingenious little machine, consisting of a shuttle or "cop" of fine untwisted cotton, set in a long wooden handle. By setting up some small sticks among the Crocuses or grass-seed to be protected from the birds, or working the webber round and among these sticks, the cotton is gradually pulled out, and forms a fine, and by no means unsightly, network, much more speedily and neatly then could done by hand-work alone. *Leirion.*

THE PROMISE OF MAY.—No more successful example of afforesting during the last three decades, than that which is to be seen on either side of the

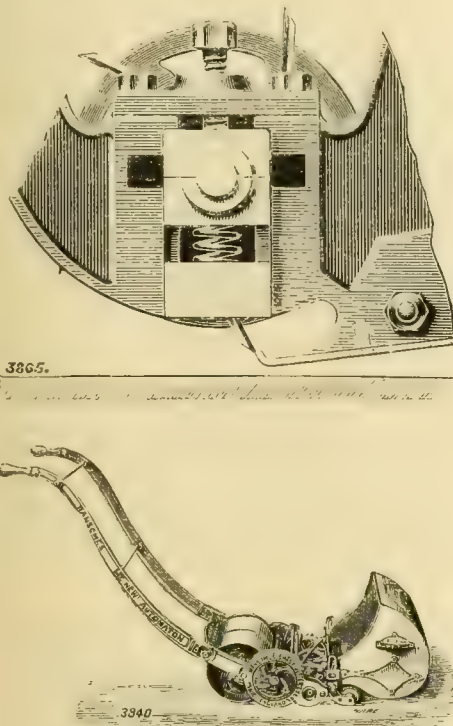


FIG. 116.—IMPROVED REGULATOR FOR MOWING MACHINES.

drive from Wolverton Station to Sandringham, could well be possible. The road originally lay across a brown wind-swept upland, only brightened by the purple of the Ling, and the green of the bracken. Now the ground is covered with plantations, already grown to a height of 20 or 30 feet of Scotch Firs, Larch, and Birch. If the planting had been done expressly for spring effect, it could not have been designed in a happier manner. The contrast between the darkling green of the Scotch Fir and the vivid emerald tints of the opening Larch foliage was most striking. Both contrasted again with the beautiful tracery of the leafless Birches which show so gracefully against the sky. A Birch is really almost as pretty without foliage as with it. Here and there vistas are open in the woods showing sketches of the undulating heather-clad moor; the dark brown of the heather, and the sepia tints of the decayed bracken also serving to set off the brilliant greens of the Pines and Larches. They were indeed "woodways sweet for vagrants feet." In the background, the view ranges over flat meadows to the gleaming blue of the sea, and loses itself in the misty opalescent haze. The plantations have only been formed about twenty-five years, and show conclusively that even in a short life-time it is possible to change a dreary thriftless moor into a

sylvan paradise. Where the road skirts the park wall, there is a splendid line of old Scotch Firs on the one side, while under the trees on the park side, single Daffodils have been naturalised, which, instead of dying, are rejoicing "of their own dear loveliness." In fact, no walk could make one's heart more responsive to the call of spring. *Vagabond.*

THE JUDGING OF MELONS.—It is not a novel idea for judges to award prizes to Melons by sight only, as Mr. Claydon suggests. If a fruit have fine appearance, good aroma, and is of fair weight, and these were the only points desired, there would be no difficulty whatever in judging in this manner; but depth of flesh and texture, thinness of skin, and above all flavour, are other points in a Melon which have to be carefully considered, these being of far greater importance than the three first mentioned. I have never, when judging or testing flavour privately, been able to form my judgment by the aroma alone; and often the best scented Melons are in a state of semi-decay and worthless, and unless they are cut, how is one to know that this is so, or what is the colour of the flesh. Over and over again I have seen one colour exhibited for another; and last November I cut from the plants a number of Melons, and kept some of them in fair condition till Christmas, and those without aroma proved to be the best flavoured. There are many varieties of Melons, as well as of other things, which are only fit for exhibition purposes; but those who desire Melons for the dessert ask for the best-flavoured productions. *A. Evans, Lythe Hill.*

KAURI PINE.—I have been a collector of specimens of various kinds of woods for forty years, and find it a most interesting study, and am still a learner, and was quite taken by surprise the other day when I saw a magnificent specimen of the Kauri Pine of New Zealand cut up in the timber-yard. The stem was 40 feet long without a knot, and the timber positively more like Ash than any other wood I can compare it to. I understand it is allied to the *Araucaria*, but not very like it in appearance. What I want to know is, has it ever been planted out in this country, and with what success? *J. Rust.* [There are many species of *Podocarpus* distributed over Japan, China, New Guinea, Australia, Tasmania, Peru, Chili, and New Zealand; but what is usually understood in this country by Kauri Pine is *Podocarpus Totara*, a native of the mountainous region of the northern island. Few of the *Podocarps* are hardy in this country, and those that are must have the warmest and most sheltered places in the southern counties. Ed.]

SOUVENIR DE LA MALMAISON.—There is a fine collection of the above Carnations at Canford Manor, Dorset; and what a lovely show of bloom those 1500 plants will make in due season. Many of them have twelve to fourteen dark-green vigorous shoots almost bursting with sap. The plants are arranged upon side and centre staging in a span-roofed house. When a visitor interested in the cultivation of plants comes across a well-grown lot like this, enquiries as to the treatment the plants receive soon follow. On fine days the house is ventilated at the top and sides, and a small amount of top ventilation is always left on at night. But to begin at the commencement, the plants were layered in July and August last, and having been potted on, they are now in their flowering-pots, 32's, in a mixture of good fibrous loam very coarse sharp silver sand, and dried cow-manure, rubbed to a fine state, and intimately mixed with the other ingredients. Watering during the winter is very carefully done, allowing the soil to become dry, and then giving enough to wet the ball of earth right through. If the soil at this season is kept constantly wet, the plants soon have a sickly look. The manures most in favour are *Le Fruitier* and soot, which are afforded occasionally. Tobacco paper is used for fumigation in preference to either of the new articles lately introduced for this purpose. *Visitor.*

IMPROVEMENT IN LAWN-MOWING MACHINES.

EVERYONE who has had to do with these machines knows how much time is spent in getting the knives to cut evenly, and fix the roller so as to carry the cutting parts at the proper height. In the old mode of doing this, screws were fixed above, and under the bearings of the spindles, and these were not easy of

adjustment; moreover, the machine had to be turned over to get at the heads of the lower screws. The improvement of Messrs. Ransome, Sims, & Jeffries consists of two strong spiral springs in place of these lower screws, so that the only ones which require to be handled are the upper screws. The alteration has the merit of simplicity and of easy access; and in practice it is said to work admirably.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 21.—Present: Mr. Morris, in the chair; Mr. McLachlan, Dr. Müller, Mr. Blandford, Prof. Church, Mr. Wilson, and Rev. G. Henslow, Hon. Sec.

Primroses.—Col. Clarke forwarded flowers of a cross, showing the effect of a "blue" (female parent) with a very dark purple (male). The colour was a blueish purple. He reports that it is a first attempt to form a blue tint with a yellow eye. Mr. Wilson also exhibited a number of flowers showing new shades of light and dark blue, varying to purple. In some the red circle round the yellow eye had quite disappeared.

Auricula hybrid (?).—Rev. A. Rawson, of Tallbarrow, Windermere, sent two umbels. One was of the typical yellow form, the other being striped with crimson. The latter is a presumed hybrid by intercrossing with a crimson Polyanthus. Upon division of the plant, in order to propagate it, the stripe disappears, and the plant reverts to yellow. No plant taken from the yellow ever produces a striped flower.

Grapes Grown in the Dark.—Messrs. T. Rivers & Son sent a portion of a Vine bearing a well-shaped and good-sized bunch of white Grapes. They were very pale-coloured, and apparently unable to ripen. The rod appeared to have formed no leaves, the whole shoot having been developed in total darkness.

Foliage Injured by Sulphuric Acid.—Professor Church exhibited leaves of various plants which were dried, shrivelled, and blotched or streaked with red. They were taken from plants in a hot-house, and also from a second house, the door of which faced that of the first. The injury resulted from the presence of free sulphuric acid, which, there was little doubt, arose from some small leakage in the flue. The subject of injury by gases will be found discussed by Herr L. Just and H. Heine (*Landwirthsch. Versuchsstat.*, xxxvi., 1889). See also *Bot. Centralbl.*, xl., 1889, p. 296. The authors consider sulphurous acid to be the most injurious. When taken into the tissues, it is oxidised into sulphuric acid, which destroys the protoplasm, and ultimately causes the death of the plant.

Kämpferia Tubers.—Mr. Morris exhibited specimens of tuberous roots produced by a species of *Kämpferia* at Trinidad, and used as food under the name of Toppee Tambo. Mr. J. H. Hart, F.L.S., the sender of the specimens, stated that the small tubers are preferred, and these are boiled and eaten like a Potato, with suet and butter. They have an agreeably nutty flavour, and are much liked by the people. Similar tuberous roots are used at Dominica under the name of Tokkee Tambo. Mr. Morris added, that this was an interesting record of the use of the swollen roots of a Scitaminea for purposes of food, and he suggested that they might be carefully investigated. Professor Church was good enough to undertake an examination of the specimens, and report the results at a subsequent meeting.

MANCHESTER ROYAL BOTANICAL.

APRIL 28.—A show of spring flowers, consisting of Auriculas, Polyanthuses, Daffodils, Rhododendrons, and some superb Orchids, took place in the Town Hall. Mr. Bruce Findlay did not bring up any large plants from the gardens, and there are few trade exhibitors who support the show at this time, so that the hall was rather thinly filled, and the congregation of plants, although all choice enough in themselves, had not that appearance which characterises these shows, when Palms, Tree Ferns, specimen Azaleas, and the like abound. The groups of Rhododendrons from the gardens presented a fine blaze of colour on either side, as the visitor entered the hall, and the great quantities of Daffodils from a variety of sources, mixed with the hardy spring

border flowers, added desirable tints to the groups. The show Auriculas were beautiful in their way, but the groups of them looked poor by contrast. On the contrary, the posies sent by Mr. Joseph Broome from his seat at Llandudno, all grown out-of-doors, were remarkably fine, notwithstanding the severe weather which has been experienced in North Wales, being as clear and as distinct as if they had all been grown under glass, so different to the similar articles that are allowed to exist in all our Lancashire gardens. The beautiful groups of Primroses in variety, together with Polyanthuses, all nestling in a bed of moss, made a most captivating whole. Nothing in the general way was finer than the Belvoir Castle variety of Wallflowers. Every flower is as large as to cover a crown-piece, and the yellow is very decided in hue. This variety contrasted well with the double yellow, and with the large red, and grouped among Doronicums and the stemless Gentian as blue as indigo itself; and Aubretias and Alyssum, show how rich we are in hardy spring flowers.

Auriculas, &c.—The Auricula growers were there in force, very few new competitors swelling the list, and almost the same names taking positions. Among these we noted Rev. F. D. Horner, who was well up in the prize-list with sorts, chiefly too of his own raising; his next competitor being Miss Woodhead, closely following in the show classes with capital blooms or umbels of Rachael, Acme, Mrs. Potts, Mrs. Dodwell, and George Lightbody. Mr. Henry Wilson beat Rev. Mr. Horner in the small-r class, having excellent plants of Miranda and Col. Taylor. Mr. G. Shaw, Mostyn, Mr. H. Nixon, Mr. Sam. Barber, and others, took leading positions. It takes, however, a large lot of show Auriculas to make a pretty display. The best among the alpine Auriculas were chiefly seedlings, and the grower, Mr. John Beswick, Middleton, beat Mr. Chas. Turner, Slough, in this class; Mr. Clements taking third position. The best named sorts were Mr. Watts, Elith Wynne, Sensation, and Sunrise. Polyanthuses were a poor display in point of numbers, variety, and culture. It was so last year, and the Polyanthus growers seem to have given the matter up.

Daffodils, &c.—Dicksons, Chester, had a grand assortment of Daffodils, beautifully put up, and skillfully arranged, their back rows of dressed spikes about 15 inches long, and their second and third rows 12 inches and 9 inches respectively. After all, a little bit of handling makes even Empress and Emperor, Sir Watkin and Horsfieldii, and similar fine varieties that have not yet been rivalled upon the competition table, look better. A variety in this group called Princess Mary were much admired. Its cup and its perianth segments are broad and well-defined, and of a soft lemon-colour, very distinct and well worthy of general cultivation.

Messrs. Barr & Son showed excellently, after the same style as they have been doing in the south, but their mode of putting up flowers is not so pleasing to many as those we have above commented upon. There were about 300 hyacinth-glasses filled with this contribution, which shows how well the Daffodil is taking with the people. Maximus is very deep yellow and very distinct, and so is C. J. Backhouse, with its prominent vermilion corona.

Dickson, Brown & Tait had a good display of these flowers and Hyacinths, as well as of the scarlet and the pure white Anemone, which is well named The Bride, from its purity of colouring, and but for the finely cut leafage a tyro might mistake it for a Christmas Rose. Dickson & Robinson had a quantity of cut flowers of similar character. Ryder & Son, Sale, showed a fine group of the beautiful Primula cortusoides in varied colours, and in well-grown dwarf plants set in moss and mixed with Adiantum.

Mr. Upjohn, gr. to Lord Ellesmere, exhibited a good flowered plant of *Dendrobium devonianum*, and two poor-looking *Ansellia africana*, with stems not a foot long, and yet bearing the yellow and brown blotched flowers. This exhibitor had also a good dish of President Strawberry of fine colour.

Last, but not least, was the group of Orchids from Mr. George Hardy, Timperley, which filled the orchestra end of the hall. They both showed culture and excellence of variety. The *Dendrobiums* consisted of the handsome noble nobilius, with nodding flowers, which should be held above the eye to be seen to advantage. This is twice the size of the normal form, and is a decided gain. *D. Wardianum* was fully as dwarf and floriferous as we have seen it, and it consequently grouped well with the above, and also with *D. crassinode*. With *D. Jamesianum* the singular frayed-lipped *Brymeri-*

anum made a fine contrast. These, along with some good *Cattleya Mendeli* and *C. Mossiae*, and the bright-coloured *C. Lawrenceanum*, always show well in collections. Then the *Odontoglossums*, particularly the natural hybrids, were well on exhibit, a particularly fine form of *O. Andersonianum* taking front rank. A lot of others, bearing specific names of the same character, we passed by as unworthy of that distinction. A pretty little plant for a cool-house is *O. polyanthum*. It bears short racemes of yellowish flowers, not unlike *O. triumphans* in the segments, but having a decided boat-shaped lip, concave, with brownish-yellow base, margined with white. *O. Roezlii* is a charming plant, but it is a pity it does not grow more freely; its great white flowers, with a pair of sanguineous eyes, always command attention. Cut spikes of *Phalaenopsis* were presented, and also of that peerless Orchid, *Cattleya Skinneri alba*; the one set too risky to bring out during frosty weather, the other too rare. The whole group was in fine condition, and a meed of praise is due to Mr. Wm. Holmes, the gardener, for his cultural skill. It well deserved the Gold Medal which was awarded it.

FLOWER SHOW IN NORWICH.

We learn from the *Norwich Argus* that the spring flower show of the Norfolk and Norwich Horticultural Society was held in St. Andrew's Hall on Thursday, April 23. A prominent feature of the show was the exhibit of eight varieties of foliage or greenhouse plants, for which Mr. H. Trevor and Mr. S. G. Buxton divided the honours; and the six varieties of the same, in which the positions of these exhibitors were reversed.

Orchids were a rather poor show—accounted for by adverse atmospheric conditions, exhibitors being unable to get their plants to bloom. The Rev. Canon Ripley was a prominent exhibitor, and took two 1sts, his *Odontoglossum triumphans* and *Dendrobium devonianum* being especially noticeable. Mr. S. G. Buxton was a good 2nd.

Azaleas were neither so good or numerous as in previous years, and Mr. Trevor was the only exhibitor.

Cinerarias made a nice display—better than in former years; while the double varieties (now shown for the first time in Norwich) were a decided attraction. Mr. Snelling was 1st for singles, and gained an extra prize for his doubles.

The 1st prize for *Gloxinias*—handsome, shapely blooms, of grand colour—and *Calceolarias*, not so good as previously, were secured by Mr. H. Trevor.

The display of bulbous and tuberos-rooted plants was a good one, and here again Mr. Trevor scored, his *Paucratium fragrans* being a distinct feature.

ROYAL AQUARIUM, WESTMINSTER.

APRIL 29 AND 30.—The second spring show took place at the Royal Aquarium on the above date, and proved very interesting in several particulars. Auriculas were well represented, the alpine varieties especially being very fine—much finer than at the show at the Drill Hall, the plants having developed in a better manner.

The 1st prize for the collection of Auriculas was taken by Mr. J. Douglas, gr. to Mrs. Whitbourn, Great Gearies, Ilford; Mr. C. Turner was 2nd. With twelve varieties, Mr. T. E. Henwood, Reading, was 1st, with a very fine lot of plants, similar to those shown by him a week previously at the Drill Hall; and Mr. J. Douglas was 2nd. With six varieties, Mr. W. L. Walker, Reading, was 1st, and Mr. R. Dean 2nd. With four varieties, one of each class, Mr. T. E. Henwood was again 1st, and Mr. James Douglas 2nd.

The alpine varieties, as already stated, were superb. Mr. C. Turner was 1st, with the following fine varieties:—Alarm, T. Knighton, Charles Turner, D-fiance, Dash, Orion, Oriole, Brightness, Lothair, Florrie, and Countess; 2nd, Mr. T. E. Henwood, with a very fine lot also. With six alpine, Mr. W. L. Walker was 1st; and Mr. R. Dean, 2nd. With four varieties, Mr. Turner was again 1st; and Mr. Henwood, 2nd. In this class, as also in that for six varieties, some very fine specimens were staged. Fancy Auriculas were shown in sixes by Messrs. Douglas and Dean.

Fancy Polyanthuses were brighter and better than at the Drill Hall, time having admitted of a fuller development, so also with Primroses. Mr. R. Dean was 1st in both classes, with twelve pots of each;

Mr. J. Douglas being 2nd. With a basket of Primroses, Mr. Douglas was 1st, and Mr. R. Dean 2nd.

Groups of flowering and foliage plants made a very fine feature. Messrs. J. Laing & Son, Nurserymen, Forest Hill, were placed 1st, and Mr. H. James, Nurseryman, Lower Norwood, 2nd. Messrs. Laing & Sons were the only exhibitors of a collection of Cliveias, staging a very fine collection indeed, covering a large area of table space. *Spiraea japonica* in groups of twenty-four and sixes, *Cytisus* in twelves, *Amaryllis* in sixes (Mr. Douglas being 1st, and Mr. C. Ings, the Gardens, Golder's Hall, Hampstead, 2nd) were also shown.

The only exhibitors of a collection of Narcissus were Messrs. Barr & Son, King Street, Covent Garden, who filled a large table with a fine assortment; and they were 1st with thirty-six bunches. Mr. C. May, gr. to H. J. Adams, Esq., Roseneath, was 2nd. In the amateurs' class for eighteen bunches of Narcissus, Mr. C. May was 1st; and C. W. Cowan, Esq., Penicuik, Mid Lothian, 2nd. The first prize for a stand or vase of flowers and foliage for table decoration, went to Mr. J. Lambert, gr. to H. W. Segelcke, Esq., Herne Hill, and Mr. Chadwick, gr. to E. M. Nelson, Esq., J.P., Ealing, was 2nd.

Miscellaneous exhibits included a very fine group of Roses in pots, *Amaryllis*, herbaceous plants, &c., from Messrs. Paul & Son, Old Nurseries, Cheshunt, who was awarded a Silver Medal. Table decorations from Messrs. Millifiori & Co., Hampstead, and Mr. C. Williams, 70, King Street, Hammersmith, representing new designs, were highly commended, as was also a box of Cucumbers from Mr. Thomas Lockie, Oakley Court, Windsor. A Bronze Medal was awarded to Messrs. Cutbush & Son, Highgate, for a collection of cut Daffodils.

VEGETABLES.

WITLOOF.

"Barbe de Capucine," or the blanched leaves of the Wild Chicory, is not much known to untravelled gardeners, though it may be seen occasionally in Covent Garden Market; still less familiar is the Whiteleaf or Witloof of our Flemish neighbours. With the view of making better known these delicious vegetables, which may be used either as salads or cooked, we condense the following account from a recent number of the *Bulletin d'Arboriculture*. The statement is interesting from a physiological point of view, as showing how differences in growth may be brought about by differences in conditions. The general impression is, that Witloof is a distinct variety from that producing Barbe de Capucine, but here we have a distinct statement that the two are produced by the same plant in accordance with different methods of treatment. "This plant," says M. Rodigas, "is not a distinct species, but a variety of the Wild Chicory, *Cichorium Intybus*, and the secret of producing it was discovered by chance. Thirty years ago the Botanic garden of Brussels, now a public institution, was the property of the Royal Horticultural Society of Brussels. The vaults attached to it were used chiefly for Mushroom-beds. In 1850-55 the head-gardener, M. Bresiers, used these Mushroom-beds for the purpose of blanching Chicory for winter salads, and for producing Barbe de Capucine. Some roots of this having been stacked upright and very close together on the Mushroom-beds, were covered with fine earth, and watered occasionally. After some time, M. Bresiers noticed that his Chicory, instead of forming as usual long, narrow leaves, had produced 'hearts,' looking something like the hard white heart of a Lettuce. The experiment being tried again, the next year showed that those parts of the plant most deeply covered with earth produced most hearts, while those left uncovered grew in the usual way. The secret of the production of Whiteleaf was not made public until after the death of M. Bresiers. It is now well known how it is raised, and it need only be added that Chicory seed germinates best if sown in April and May; and that in October, when the crop is ready, the largest roots should not be chosen for Whiteleaf, but those which are most slender, as the latter produce the finest hearts."

NEW VARIETIES OF RUNNER BEANS.

What is the opinion of gardeners respecting the new Scarlet Running Beans? Of late years we have had a number of new kinds—Mammoth Champion, Chelsea Giant, Ne plus Ultra, &c., introduced by the seedsmen. These are all tall-growing, and bear very long and large pods, of superior quality, and excellent for those who exhibit; but I am sorry to say that I cannot get our cook to use them, or only when they are picked in a very young state, about half-grown. Owing to the great size of the pods, the cook supposes them to be old, and therefore unfit for consumption, although they really are young and tender. I find the Painted Lady gives most satisfaction, and it begins to come into use seven or eight days earlier than the large kinds, and bears pods very abundantly. *Wm. Smythe, Gardens, Basing Park.*

TEA AND COFFEE SUBSTITUTES.

(Continued from p. 497.)

LAURINEÆ.

67. *Sassafras officinale*, Nees.—A large tree of North America, well-known for its aromatic bark, which is used in medicine as a tonic. A decoction of the root is used in America under the name of Sassafras tea, as a warm, mucilaginous, aromatic drink, especially in fevers, bronchitis, catarrh, &c. In military encampments in America, Sassafras tea is said to have been at one time in almost daily use both by officers and men as a favourite substitute for green tea. It has a reputation as a blood purifier, and was, many years ago, used in this country for the same purpose, and as a warm aromatic drink, being sold in the early morning at the temporary coffee-stalls which then existed at the corners of the streets in the southern and eastern parts of London.

PROTEACEÆ.

68. *Brabejum stellatum*, R. Br.—A shrub 8 to 10 feet high, growing in thickets and woody ravines on the east side of Table Mountain, and in many other localities at the Cape of Good Hope. It is known as the wild Almond, in consequence of the fruit and seed being Almond-shaped, the latter, after being soaked for some days in water, are eaten by the natives, who also roast and grind them, and use them as coffee.

SANTALACEÆ.

69. *Osyris arborea*, Wall.—This plant is described as being very common around Simla. In Kumaon it is known as Bakardharra, bakarja; in Belgaum, as Popli; and in Nepal, as Jhuri. The use of the leaves as a substitute for tea in India is said to have been noticed as far back as 1821. Dr. Watt says the leaves are used, here and there throughout the Himalayas, from Almora to Sikkim, in place of tea. When specially prepared they have a strong tea-like smell, but the infusion has powerful emetic properties which require long usage to overcome. Dr. Royle suggested that experiments should be made in the cultivation of the plant in order to discover if this emetic property could be removed by careful cultivation. The discovery of tea proper in Assam, and the greatly extended cultivation of that plant, have left the matter of *Osyris* tea in the position in which it was at the beginning of the present century, when it first attracted the attention of the public." There is a good sample of this tea in the Kew Museum.

URTICACEÆ.

70. *Ulmus campestris*, Sm.—The common Elm. Johnson, in his *Useful Plants of Great Britain*, a book published many years ago by Hardwick, without date, says:—"Some years ago an immense quantity of dried Elm leaves were used for adulterating tea, and for manufacturing a substitute for it. They are astringent, but contain a considerable quantity of mucilaginous matter."

71. *Mississia corymbulosa*, Wedd.—This plant, which is now sunk under the genus *Leucosyke*, is a

straggling shrub from 6 to 8 feet high, growing in Fiji, where it is known as Matadra. Seemann, in his *Flora Vitiensis*, says:—"Some of the white residents in Viti have drunk a decoction of the leaves without perceiving it to be different from Chinese tea. The natives do not seem to use the plant in this way."

72. *Pilea argentea*, DC.—The leaves of this plant are stated in Rosenthal's *Synopsis Plantarum Diaphoricarum*, to be used in Greece as a substitute for tea, though nothing is said about the extent of its consumption or of its peculiar properties.

MYRICACEÆ.

73. *Myrica asplenifolia*, Eadl.—An American plant, native of the mountainous parts of N. Carolina, and extending northwards. It is known as Fern Bush or Sweet Fern, and from the plant a pleasant aromatic astringent drink is made, and generally used in the summer complaints of children. The dried leaves are said to make an excellent tea. The plant is frequently known as *Comptonia asplenifolia*. There is a good sample in the Kew Museum.

CUPULIFERÆ.

74. *Betula alba*, L.—The white Birch. Among the uses to which this valuable tree has been put, is the adaptation of the dried leaves for tea, a use to which it is said they are commonly put in Finland.

ORCHIDEÆ.

75. *Anthus fragrans*, Rehb.—This Orchid is perhaps better known as *Angræcum fragrans*, Thouars. A native of Mauritius and Bourbon, where it is known as Faham. It was first brought to notice as a tea in this country in 1866, having been brought from Paris, where it had been sold for some time. The leaves are simply dried and packed in small boxes, and from the label it would seem not to have been introduced for the purpose of supplanting Chinese tea, but to afford an opportunity of choosing between two beverages equally beneficial and useful.

The following notes are from an account of Faham tea which I gave in the *Gardeners' Chronicle* for April 7, 1866, p. 315. It is a translation of a circular which accompanies each packet:—"Faham is not a new production. From time immemorial, the natives of the Islands of Réunion and Mauritius, situated as it were at the very gates of China, have preferred it to tea; every traveller has partaken of their preference. One of our most illustrious writers, Georges Sand, eulogises it in the midst of the fine description which she gives of the Isle of Bourbon, a eulogy which cannot be suspected of puffery, inasmuch as it was written thirty years before the introduction of Faham into France was thought of. Every work on botany of any importance similarly places it in the foremost rank of the beneficial productions of this favoured clime. The difficulties experienced in the gathering and manufacture of Faham on a large scale, and consequently the almost impossibility of procuring a sufficient quantity to recompense the labour of obtaining it for consumption, and also its very high price, have alone prevented until now this valuable article of diet from being imported into France. After many fruitless attempts, these obstacles have been overcome.

"Faham tea possesses a taste differing greatly from that of true tea, and is preferred by the majority of persons who have tasted it. It can be used as a substitute for tea on all occasions, as it combines its tonic and digestive qualities, free from the sleepless effect. It possesses an aroma of great delicacy, capable of being rendered more or less pungent, according to the quantity used, and it gives forth a most agreeable perfume. After being drunk, it leaves a lasting fragrance in the mouth, and in a closed room the odour of it can be recognised long after. This beverage has the further advantage over tea, which requires to be drunk at the time of making, that it can be reserved for a future occasion, if required, and may be either taken cold or made hot again. Milk or spirits in small quantities, especially rum, serve to develop its aroma, and, lending it additional delicacy or greater strength, render it

a delicious drink. Lastly, this valuable plant is made use of to flavour custards and ices, to which it communicates its delicate fragrance.

"To be taken as a warm beverage, the leaves and stalks should be placed in cold water in about the proportion of 1 gramme to a tea-cup, more or less, as the consumer may desire it of a greater or lesser degree of strength. The water should be immediately made to boil for about 10 minutes in the tea-kettle or other closed vessel. It should then be emptied into the tea-pot or tea-cups, and sweetened accordingly."

In the so-called tea, the leaves are simply dried without being curled or roasted, and in their dried state, as well as in infusion, they emit a strong fragrance, resembling that of the Tonquin Bean. There is a good sample of this tea in the Kew Museum. J. R. J.

(To be continued.)

FOREIGN CORRESPONDENCE.

ROSA GIGANTEA.

It will certainly interest amateurs and horticulturists, as well as commercial growers, to learn that *R. gigantea* is likely to prove quite as hardy as the numerous varieties of *Bengalensis*, *borbonica* and *hybrida*, and to be even hardier than they are. I had planted a young plant on an east wall, and its shoots at the end of last season had grown to 2 mètres. I had a Fir branch hung lightly on the wall to protect the branches from sudden changes of temperature, and gave a slight covering of about 1 inch thick of leaves round the stool. The winter was the severest I have ever witnessed; the continuous frost from November to March went into the soil to a depth of from $\frac{1}{2}$ to 1 mètre, causing more Roses to die than were ever known before. The branches were killed from the continual changes of bright sunny days and cold nights, but the stool remained good and is now shooting up on all sides. *Max Leichtlin, Baden-Baden.*

LAW NOTES.

A DISPUTED ACCOUNT.

DUKE OF MARLBOROUGH v. A. E. MAYO.

THIS was a case tried before His Honour Judge Snagge on April 23, at the Oxford County Court, in which the plaintiff sought to recover £12 4s. 2d. for goods supplied to the defendant, who had paid into Court £5 12s. 6d., and 15s. costs. Mr. H. B. Dain, of Messrs. Milward & Co., Birmingham, appeared in support of the claim, and Mr. George Mallam, jun., for the defence. Mr. Thomas Whillans, head gardener to the Duke, stated that he supplied the defendant with flowers. Mr. Mallam remarked, that the price for the articles sent to the defendant was not fixed at the time they were sent, but determined at the time of the settlement of the account. Witness said he had charged the market price for the things, which was a reasonable charge. He supplied an account to Mr. Mayo at the end of each month. Defendant's bill amounted to £22 4s. 2d., and he had paid £10 on account.

Cross-examined—He had allowed deductions on defendant's account.

Defendant was sworn, and stated that when he sent the first cheque to Mr. Whillans he claimed certain deductions. He did not deny receiving the goods, but objected to the charges as being unreasonable.

Mr. Dain handed up a letter to Mr. Mayo, in which the defendant wrote that he was sorry he had not settled the account, which he asked plaintiff to leave over for a time. There was nothing in the letter about deductions, although it contained a request that no more flowers should be sent, unless plaintiff received cash order on the following day.

His Honour intimated that this was in reply to a letter received by defendant from Mr. Whillans, in which he said, "If you send me cheque in the course of this week, I will take the thing into consideration." The defendant did not, however, send the cheque, but said that trade was bad, and asked that the account should be allowed to stand over for a time.

Mr. Mallam called Mr. Joseph Bates, a florist, of Oxford Market, who deposed that he had dealings with the Duke of Marlborough. Mr. Mallam asked witness to produce an account, when his Honour interposed.

Judgment was given for the plaintiff for the difference between the sum due and the amount paid into court, his Honour intimating that probably the plaintiff would act on defendant's advice, and not send him any more flowers. *Oxford Chronicle, April 25, 1891.*

ANDERSON versus THE HAMPSHIRE VESTRY.

THIS case, which has been repeatedly before the Courts, and was brought by the plaintiff, a nurseryman at Hampstead, N., for injury done to his stock of plants by an escape of sewage from the vestry's sewers. £200 was the amount originally asked as compensation; but, after several attempts at an amicable settlement had failed, legal proceedings were commenced. Last December the case was tried in the Court of Queen's Bench, before Mr. Justice Denman and a special jury, when the damages claimed were fixed at £2000, with the result that a verdict was given for Mr. Anderson, and the amount of damages ordered to be fixed by an arbitrator. Mr. C. Tyrrell Giles was the gentleman chosen to fill this office, and, sitting and hearing the evidence for seven days, he made his award, on which the present application was based.

On Saturday, April 25, this case came up before Mr. Justice Denman in the Queen's Bench Division, for judgment on the award of the arbitrator, who fixed the amount to be paid by the Hampstead Vestry at £354 9s. 6d., the plaintiff being allowed his costs.

Obituary.

THOMAS GILBERT.—Many of our readers will learn with regret of the death of Thomas Gilbert, Springfield Nursery, Hastings, which took place on February 15 at that place. Gilbert will be best remembered in the profession for his beautifully-grown hard-wooded plants, which he exhibited at metropolitan and provincial shows during the last thirty years.

TREES AND SHRUBS.

DESFONTAINEA SPINOSA.

ALTHOUGH this plant has been in our gardens for upwards of forty years, it still seems to be rather scarce. For the conservatory or cool greenhouse it is well worth a place, its foliage being distinct from the generality of plants found in such structures. Its thick Holly-like evergreen leaves are opposite, and deeply cleft, and of a rich glossy-green above, while the under sides are of a beautiful glaucous colour. The flowers are pendent, about 2 inches long, of a fine scarlet colour, tipped with yellow. As regards soil, the plant grows best in loam and peat, about equally divided, with some sharp sand to keep it open, but particular attention must be paid to drainage when grown in pots or tubs. In the south and south-west of England it is quite hardy, and makes a splendid bush; and its waxy blossoms make a very pretty show. It may also be planted against a south wall in the London districts, but the greatest care must be taken against exposing it to east winds, or the plant will not thrive. It is not a rapid grower, and the knife need be used sparingly. Propagation is carried on by means of

cuttings made 4 or 5 inches long, and dibbled into sandy soil in September in 32's, plunged in a gentle bottom-heat; or cuttings may be rooted in cold frames placed on a sheltered border, and by the following spring they will have rooted sufficiently either to be potted and grown on for indoor purposes, or planted out in nursery rows. *H.*

DAPHNIPHYLLUM GLAUDESCENS.

THIS is a handsome evergreen shrub, introduced from Japan, perfectly hardy, plants of it having withstood the past winter, without injury of any kind, or any protection whatever; in fact, the buds have swollen very much this last week, and in a few days new leaves will be developed. On the contrary, other species of plants standing close by, and reputed to be hardy, were cut with the frost, and present a pitiable appearance. This shrub should always be planted in well-drained land, in a mixture of peat, loam, and leaf-mould, the foliage being richer in colour than when it is planted in loam only. Great care should be taken in pressing the soil firmly round the roots, and when the planting is completed, in affording a good watering to the soil about the roots. It is a free-growing plant, in habit very much resembling a *Rhododendron*. Its fine bold leaves measure 6 to 7 inches in length and 2 inches in breadth, of a beautiful light green colour above, with a rich glaucescence beneath. An occasional watering should be afforded during growth. *H.*

ARAUCARIA IMBRICATA.

THERE are two of these trees standing on the lawn at Chaddlewood, which are about forty years old. They were bought as seedling plants, and planted when about five years old. One of them is now bearing cones for the first time (at all events there has never been any cones noticed on it before), about twenty in number, all on the top of the tree. This tree is not so tall as the other one by 18 or 20 feet. The other is considered to be a male, and is about 50 feet in height; but the sex of the tree is not ascertained, as it has never borne either cones or catkins. Although these trees are of the same age, and were planted at the same time, in the same kind of soil, their aspect is very different. The soil here consists of a subsoil of clay, resting on a bed of "shellet" rock, and it is a wet stiff clay, yet these trees are healthy looking. The branches of the cone-bearing tree are more pendulous and slender than those of the other, also, as I have stated above, it is not so large. The assumed male is the faster grower, and larger. It did not suffer by the late severe gale, but the female plant lost a few of its lower branches; 22° of frost this winter did not harm either of them. Are the seeds of the *Araucaria* edible? because it says, in the *Gardeners' Chronicle*, November 22, 1890, p. 588, "that Menzies was dining with some official in Chile, when seeds were brought in at the dessert." [Yes]. *H. G., Plympton, South Devon.*

CONIFEROUS TREES ON CHALKY SOIL.

THE following is a list of Conifers which are doing well here on the chalky soil:—*Picea pungens glauca*, *P. Menziesii*, *Abies Pinsapo*, *A. excelsa*, *Pinus austriaca*, *P. sylvestris*, *Cupressus Lawsoniana*, *C. Lawsoniana erecta viridis*, *Juniperus virginiana*, *C. chinensis*, *Taxus baccata*, *T. baccata aurea*, *T. erecta*, *Thuia gigantea*, *T. occidentalis*, and *Thuiopsis borealis*. Two plants of *Thuia gigantea* are quite golden, but at the same time healthy, although the soil where they are growing is but 6 inches thick. It is, I should imagine, the chalky soil which has had something to do with their bright golden colour. Where the trees and shrubs are planted, a small amount of soil was added, but it is the natural soil of the place. The chalk below the trees was in all cases broken up 2 feet deep, and I find the roots are running into it. The planting of the place was begun six years ago, and there is now a large collection of trees and shrubs planted, and therefore a good chance of noting which are the most suitable for our chalky land. *Pinus Cembra* is a tree that does not keep healthy here. *R. Edwards, Beechy Lees, Otford, Kent.*

VARIORUM.

CULTIVATED FRUITS OF AFGHANISTAN AND PERSIA.—The Afghans, Persians, and Turkomans, says Dr. Aitchison, in his *Notes on the Products of West Afghanistan and Persia*, live largely on fruit, which, either fresh or dried, in one form or other, is usually added to their ordinary diet; when travelling, they always carry with them a small supply of dried fruits, to be eaten as they proceed on their journeys. The portion of the Hari-rud Valley that I visited produces little fruit, but around Herat itself, and eastward from it, the country is said to be prolific in fruit, as is Khorasan. There is at present none grown in the Badghis, yet Maimana is famed for its fruits, especially its Walnuts. The gardens of Herat are celebrated for the fine and numerous varieties of Grapes produced in them; Turbat-i-haidri and Meshad in Khorasan are equally so. Melons are grown everywhere; the variety sarda, collected late in the season, is a fruit very largely exported to India from Herat; and the Water Melon, cultivated in the open fields, may be looked upon as one of the chief food crops of the country. Apples are chiefly grown in Persia, and thence imported into Herat for further exportation. The town of Anar-dara, fully a degree and a half south of Herat, is famous for its Pomegranates, which are largely exported to India; those produced in Herat itself are few, and, comparatively speaking, poor in quality. The Peach, Nectarine, and Almond are said to attain their greatest perfection in Persia; certainly those I saw and ate at Meshad were of very superior quality. Owing to the great abundance of all kinds of fruit, and the climate being one suitable for it, most of these are dried for consumption locally during the rest of the year, or for exportation. Hence, in all bazaars Raisins, Prunes, dried Apricots, dried Mulberries, dried Cherries, Jujubes (Zizyphus), Elæagnus, and the dried flesh of Melons, are ordinarily met with on sale; less frequently, dried Peaches and dried Apples. Currants, or Corinths (Zirikh-shirin), are a product of Kafiristan and of Eastern Afghanistan. Maimana, as already stated, is famed for its Walnuts, which it exports largely; at Herat they are said to be plentiful, but the only place where I saw the tree growing in perfection was at Bezd, where the trees equalled the grand groves of Shalizan in the Kuram Valley.

THE WEATHER.

By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	Above 42° or below 42° the mean for the week ending April 25.	ACCUMULATED.				More (—) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration on 430° Jan. 4, 1891.
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	In.					
1	3	22	29	+ 39	5	7.3	15.3	19	28	
2	3	22	29	+ 28	7	4.3	5.6	39	31	
3	3	16	20	+ 42	9	3	4.8	29	28	
4	5	29	19	+ 41	12	4	4.3	35	30	
5	5	32	20	+ 36	10	3	4.8	27	28	
6	3	39	13	+ 64	15	5	6.0	43	31	
7	3	35	18	+ 15	33	6	9.0	56	31	
8	5	28	1	+ 5	35	4	4.9	33	29	
9	3	33	10	+ 38	112	4	7.2	40	36	
10	3	35	16	+ 8	23	5	6.0	49	31	
11	3	38	9	+ 14	26	6	6.2	46	35	
12	2	42	0	+ 29	41	3	6.5	65	40	

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 25, is furnished from the Meteorological Office:—

"The weather has been cold and dry generally, with fair bright days and clear cold nights. Sharp frost has occurred on the ground at inland stations almost every night, and occasionally in the shade also. A little rain fell at some of the south-western stations on the 21st and 22nd, and small amounts occasionally in the north and east.

"The temperature has continued below the mean, the deficit having ranged from 2° in the 'Channel Islands' and 3° in nearly all other districts, to 5° in 'England, E.,' the 'Midland Counties,' and 'England, N.W.' The highest of the maxima, which were recorded on the 19th in Ireland, and on the 23rd in most parts of Great Britain, varied from 61° in the 'Channel Islands,' and 60° in the south and south-west of England, the north of Ireland, and west of Scotland, to 55° in 'England, N.E.,' and 'N.W.,' as well as in 'Scotland, N.' The lowest of the minima were registered on rather irregular dates, and ranged from 24° in 'England, N.W.' to 31° in 'Ireland, S.,' and to 41° in the 'Channel Islands.'

"The rainfall has been much less than the mean in all districts; in most places there has been but little more than a trace observable.

"Bright sunshine has been fairly prevalent over the kingdom generally; in Ireland and Scotland it has been more, in most parts of England rather less than the mean. The percentage of the possible duration ranged from 65 in the 'Channel Islands,' and from 56 in 'Scotland, W.,' and from 49 in 'Scotland, N.,' and 'Ireland, N.,' to 27 in the 'Midland Counties.'

MARKETS.

COVENT GARDEN, April 9.

A STEADY business doing for all classes of goods. James Webber, Wholesale Apple Market.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4 0 6	Lettuces, per dozen	3 0
Beans, French, lb.	1 6 2 0	Mushrooms, punnet	2 0
Beet, red, per dozen	2 0 3 0	Mustard and Cress, punnet	0 4
Brussels Sprouts, lb.	0 6	Parsley, per bunch	0 4
Carrots, per bunch	0 6	Seakale, per basket	2 0 2 6
Cauliflowers, each	0 6	Shallots, per lb.	0 6
Celery, per bundle	2 6 3 6	Spinach, per bushel	7 0
Cucumbers, each	0 9 1 0	Tomatoes, per lb.	2 6 3 6
Endive, per dozen	4 0	Turnips, per bunch	0 6
Herbs, per bunch	0 4		

OLD POTATOS.—Market weak, many samples being quoted at from 5s. to 10s. per ton less than last week.

NEW POTATOS.—Demand increasing, and for fresh arrivals. Best Kidney, 18s. to 22s. Best Rounds, 12s. to 15s. J. B. Thomas.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 6 6 0	Lemons, per case	15 0 25 0
— Nova Scotia, brl.	15 0 25 0	Pine-apples, St. Michael, each	2 0 8 0
— Tasmanian, cask	12 0 16 6	Strawberries, p. lb.	3 6 8 0
Cobs, Kent, 100 lb.	45 0 50 0		
Grapes, new	5 0 9 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, 12 blms.	2 0 4 0	Narcissus (paper white), 12 sprays	0 9 1 6
Azalea, 12 sprays	0 6 0 8	— French, 12 bun.	2 0 6 0
Bouvardias, per bun.	1 0 1 6	Narcissus (yellow), 12 bun.	2 0 4 0
Callaethiopica, 12 fl.	3 0 6 0	— Poeticus (Pheasant Eye) 12 bun	4 0 6 0
Camellias, white, 12 blooms	2 0 4 0	Pelargoniums, scarlet, 12 spr.	0 4 0 6
— coldr., 12 blms.	0 9 1 6	Poinsettias, 12 blms.	0 6
Carnations, 12 blms.	1 0 2 0	Primroses 12 bun.	0 4 0 9
Cineraria, 12 bchs.	6 0 9 0	Primulas, double, 12 sprays	0 6 1 0
Cyclamens, per doz.	0 3 0 6	— single, 12 sprays	0 4 0 6
Daffodils, various, 12 blooms	0 3 0 9	Ranunculus (Fren.), 12 bun.	1 0 2 0
— (Foreign), 12 bun.	2 0 6 0	Roses, Tea, per doz.	1 0 3 0
Eucharis, per dozen	3 0 6 0	— coloured, dozen	2 0 4 0
Gardenias, per doz.	2 0 4 0	— yellow (Mare-chals), per doz.	3 0 6 0
Heliotropes, 12 spr.	0 6 1 0	— red, per dozen	3 0 6 0
Hyacinths, Rom., 12 bunches	1 0 2 0	— do., French, doz.	1 0 3 0
— spikes	3 0 6 0	Snowdrops doz. bun.	1 0 3 0
Lilium Harrisii, doz.	3 0 4 0	Spiraea, per bunch	0 6 0 9
Lily of the Valley, 12 sprays	0 6 1 0	Tuberose, 12 blms.	1 0 1 6
Maiden Hair Fern, 12 bunches	4 0 9 0	Tulips, various, 12 bl.	0 9 1 6
Marguerites, 12 bun.	3 0 6 0	Violets, 12 bun.	0 9 1 6
Mignonette, Fr., bu.	1 6 2 6	— Parma, Fr., bun.	3 0 3 6
Mimosa (French) 12 bun.	12 0 18 0	— dark, Fr., bun.	2 6
— (French) basket	4 0 6 0	Wallflower (Fren.), 12 bun.	1 0 2 0
Myosotis, 12 bun.	4 0		

ORCHID-BLOOM in variety.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0 18 0	Ficus elastica, each	1 6 7 0
Aspidistra, doz.	18 0 42 0	Foliage plants, various, each	2 0 10 0
— spec. plants, each	7 6 10 6	Genista, per dozen	6 0 10 0
Azalea, per dozen	24 0 42 0	Hyacinths, per doz.	6 0 9 0
Bedding plants, variety, per doz.	1 0 2 0	Lily of the Valley, per dozen pots	9 0 18 0
Bouvardias, p. doz.	9 0 18 0	Marguerites, doz.	6 0 12 0
Cineraria, per dozen	5 0	Mignonette, per doz.	6 0 9 0
Cyclamens, dozen	9 0 18 0	Myrtle, per doz. pots	6 0 12 0
Cyperus, per dozen	4 0 12 0	Palms in variety, each	2 6 21 0
Dielytra, per dozen	8 0 12 0	Pelargoniums, doz. 12 0 18 0	
Dracena terminalis, per dozen	30 0 60 0	— scarlet p. doz.	4 0 9 0
— viridis, per doz.	12 0 24 0	Primula sinensis, doz.	4 0 6 0
Euonymus, in var., per dozen	6 0 18 0	Roots for bedding, in boxes, each, from	1 0 3 0
Ericas, various, doz.	8 0 18 0	Spiraea, per dozen	6 0 9 0
Evergreens, in var., per dozen	6 0 24 0	Solanums, per doz.	9 0 15 0
Ferns, in var., doz.	4 0 18 0	Tulips, per doz. pots	6 0 9 0

SEEDS.

LONDON: April 29. — Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that a steady stream of consumptive orders is coming to hand. These are executed on the moderate terms now accepted. Perennial and Italian Rye-grasses keep steady. For Tares there is more inquiry, English Vetches in particular being wanted. Sanfoin, Lucerne, and Timothy continue remarkably cheap. Of blue boiling Peas, available stocks have never been so low as at present. In Haricot Beans the tendency is upwards. For Mustard and Rape seed there is an increasing sale. Canary, Hemp, and Millet seeds are firm.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure, for the week ending April 25, and for the corresponding period last year:—1891, Wheat, 40s. 1d.; Barley, 27s. 11d.; Oats, 20s. 3d. 1890, Wheat, 30s. 4d.; Barley, 23s. 2d.; Oats, 18s. 6d. Difference:—Wheat, +9s. 9d.; Barley, +1s. 3d.; Oats, +1s. 9d.

FRUIT AND VEGETABLES.

STRATFORD: April 28. — There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the under-mentioned quotations:—Cabbages, 3s. to 5s. per tally; Cauliflowers, 2s. to 2s. 6d. per dozen; do. 9s. to 12s. per tally; Turnips, 20s. to 40s. per ton; Carrots, household, 120s. to 140s. do.; Mangels, 21s. to 26s. do.; Swedes, 25s. to 30s. do; Onions, English, 120s. to 140s. do.; do., Dutch, 2s. 6d. to 3s. 6d. per bag; Apples, English, 3s. to 7s. 6d. per bushel; spring Onions, 4s. to 6s. per dozen bunches; Radishes, 9d. to 1s. per dozen bundles; Watercress, 7d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: April 28. — Quotations:—Hebrons, 120s. to 130s.; Magnums, 120s. to 140s.; Dunbars, best, 150s. to 160s.; Imperators, 120s. to 155s.; Regents, 120s. to 140s.; Champions, 110s.; New Canary, 16s. to 18s. per cwt.

SPITALFIELDS: April 29. — Quotations:—Dunbars, 140s. to 160s.; Imperators, 120s. to 145s.; Regents, 120s. to 130s.; Hebrons, 120s. to 130s.; Magnums, 120s. to 140s.; and Champions, 110s. per ton.

STRATFORD: April 28. — Quotations:—English Magnums, 120s. to 140s.; Hebrons, 120s. to 130s.; Elephants, 120s. to 130s.; Scotch Magnums, 120s. to 140s. per ton.

HAY.

Averages. — The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 102s. 6d.; inferior do., 40s. to 75s.; hay, best, 60s. to 75s.; inferior do., 25s. to 50s.; and straw, 20s. to 35s. per load.

NOTICES TO CORRESPONDENTS.

ASPARAGUS: J. M. F. Both.

BOOKS: *Bark, Tropical Agriculture* by P. L. Simmonds, would afford the information required. (London, E. & F. N. Spon, 48, Charing Cross.) The above-named book for Cinchona in Ceylon. For India-rubber and other tropical products, see *Colonial and Indian Exhibition Reports on the Colonial Sections*. (W. Clowes & Sons, Limited, 13, Charing Cross, S.W.) — *W. E. Lindley's Practice and Theory of Horticulture* is a book long since out of print. Try the old book shops.

CINERARIAS: B. S. W. Fine blooms and fine strains, but not the finest that we have seen.

CODLIN MOTH: J. M. F. The grease bands should be on the trees early in October.

DEAD NETTLE: Student. *Lamium album*, *Labiata*.

ENTRY INTO KEW: *Botanist*. There is an examination of a slight character on entering, but you cannot do better than apply in the ordinary way, when a form will be sent you to fill up.

FIGS: *Bruno*. "Eleme" means in Turkish, hand-picked. When the Fig will bear pressing flat without bursting, it is dried enough. Natural Figs are dried, but not flattened. "Hanging bunches of wild Figs over the cultivated Figs to allow hymenopterous insects to drop into the cultivated trees, and puncture the fruits, and thus aid in the distribution of pollen and fertilisation, is a process that is going out of use, and seems quite unnecessary. The same effect is gained by a curious old French plan. A fine straw is dipped in olive-oil, and applied to the centre of the eye at the base of the fruit. This is usually done after sunset. The effect is to swell and ripen the fruit, which may be picked four days afterwards. The flavour of the fruit is much improved by this singular process." R. C. Haldane, in *Subtropical Cultivations and Climates*.

HYACINTHS: *G. & W. V.* See answers to correspondents in our last number, p. 537.

MALFORMED MUSHROOMS. These freaks of nature are very common amongst fungi. At the best they are no improvement on the normal forms.

MUSHROOM SPAWN. *H.* Put pieces into the pasture-land when the latter has become warmed by the June suns; to put it into the soil now, whilst the latter is at a low temperature, might kill "running" spawn. In a hot-bed of 80° Mushrooms do not appear till four or five weeks after spawning the bed, and out of doors two months would not be too long to wait for them.

NAMES OF PLANTS: *G. W. C.* *Sanguinaria canadensis* (Bloodwort).—*W. S. 1.* *Pyrus japonica*; 2, *Choisya ternata*.—*C. B. 1.* *Russelia juncea*; 2, *Aubrietia deltoidea* var.; 3, not recognised, no flowers; 4, *Begonia Sutherlandii*.—*B.-A. C. G. 1.* *Asplenium viviparum*; 2, *Asplenium flabellifolium*; 3, *Asplenium Belangeri*; 4, *Onychium japonicum*; 5, *Hibiscus Cooperi*; 6, *Acalypha Macfeeana*; 7 or 8, *Pellionia Davourana*; Box, much broken.—*J. D. B. 1.* *Restrepia antennifera*; 2, *Oncidium Papilio*; 3, *Vanda suavis*.—*G. P.* *Cerinthe* sp., next week.—*R. H. S.* *Dendrobium suavisimum*.—*J. M. 1.* *Nuttallia cerasiformis*; 2, *Ornithogalum umbellatum*; 3, *Symphytum tuberosum*; 4, *Serapi s Lingua*; 5, *Ophrys*, withered, resembles *O. Lingua*; *J. S. C.* *Prunus cerasifera*, the cherry Plum, or Myrobalan.—*J. Lambert.* *Schizanthus pinnatus*.

NEWCASTLE SHOW. *J. Wood.* The matter has been brought to the notice of our reporter; but as a matter of fact we do not undertake to publish an account of everything which may have taken a prize. There was a full list of the awards in one at least, of the Newcastle dailies, which are widely read newspapers in your district.

ODONTOGLOSSUM CRISFUM: *Constant Reader.* The form sent is good in shape, and of a very clear white.

OLEANDER: *D. J.* It can be flowered out-of-doors, if placed in a warm spot in this country, after being in the greenhouse up to the time the colour shows in the flower-buds. Two points to make sure of, are the perfect ripening of the wood, and not too much space for the roots. Provided the drainage can be kept in a good state, an Oleander may be kept in health for years without re-tubbing or potting, simply by putting a rich mulch on the surface, and supplying the plant with plenty of water whilst the warm weather lasts. When growth is finished, and the nights begin to grow cool, remove the plant to the greenhouse. Give very seldom any water during the late autumn months, and none during the three winter months. Do not stand the plant near the hotwater-pipes at that season; a cellar or shed, with or without light, would suit it better, provided it is frost proof.

PELARGONIUMS SPOTTED: *A. Beck.* The result probably of some artificial manure. The plants will outgrow the malady.

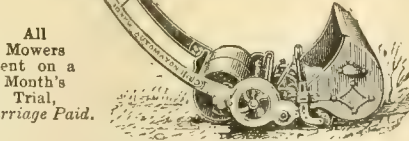
QUASSIA CHIPS: *H. J. B.* See "Notices to Correspondents" in our last issue, p. 537.

COMMUNICATIONS RECEIVED.—*G. P.*—*F. Maers.*—*J. D.*—*G. P.*—*H. E.*—*A. H. B.*—*J. P.*—*J. D. S.*, Baltimore.—*W. S.*, Whitinsville, Mass.—*A. M.*—*J. B.*—*L. L.*, Brussels.—*C. W. D.*—*Ch. de B.*, Antwerp.—*H. C. & Co.*—*R. D.*—*The Manager of the Horticultural College.*—*Capt. Oliver.*—*J. J. W.*—*O. A. M. C.*—*R. E.*—*J. W.*—*J. H.*—*J. R. J.*—*J. Dingwall.*—*W. D.*—*A. D. W.*—*Pro.*—*J. O'B.*—*J. A.*—*J. Currey* (many thanks; the photo is not sufficiently good for our purpose).—*H. E.*—*C. W. D.*—*R. D.*—*W. S.*

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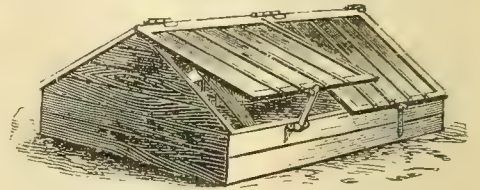
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See large Advertisement for April 25, page 544.

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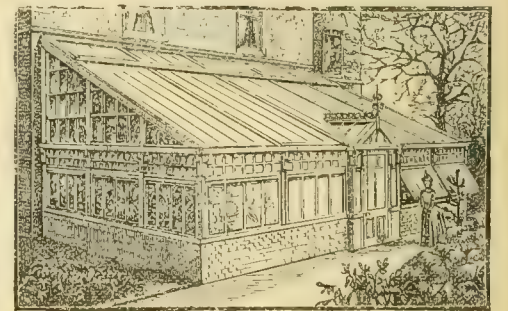
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6 feet " 4 feet "		2	5	0
12 feet " 4 feet "	PRICES,	4	0	0
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COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack; 10 for 12s., 20 for 20s., 30 for 28s. ORCHID PEAT, special, 8s. per sack. SPHAGNUM MOSS, 7s. 6d. per sack. Horticultural CHARCOAL, 8s. per sack. BONES, 1/2-inch, 10s. per cwt.; DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER, 10d. per lb.; 28 lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 26s.; CORD, 6d. per lb., 28 lb. for 12s. 6d. Brown FIBROUS PEAT, 5s. per sack, 5 for 22s. 6d.; Black, 4s. 6d. per sack, 5 for 20s. Coarse SILVER SAND, 1s. 6d. per bushel, 14s. per 1/2 ton, 25s. per ton. LEAF MOULDED, PEAT MOULDED, FIBROUS LOAM, each 3s. per sack. Prepared POTTING COMPOSTS, 5s. per sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches by 4 feet 6 inches, 18s. per dozen. PETERSBURG MATS, 12s. and 10s. per dozen. BAMBOO CANES, STICKS, and SUNDRIES. List free.—W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

THE "PERFECT" SUMMER SHADING

Supersedes all Others.



Without which none is genuine.

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Is the Cheapest. Goes four times as far as the old preparations. Note its merits described below.

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Without which none is genuine.

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Saves many times its cost in labour, and will keep Walks, etc., clear of Weeds for a year or more.

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THE BEST TESTIMONIAL IS
A GUARANTEE OF COMPLETE EFFICIENCY.

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SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

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CAUTION.—Please carefully note our name, address, and trade mark, and do not be deceived by imitations.

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MANURE for Garden use, NATIVE GUANO. Price
£3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt.
1 cwt. sample bag sent, carriage paid, to any station in
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BEESON'S MANURE.—The Best and

Cheapest Fertiliser for all purposes. Write for Circular
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Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each,
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W. H. BEESON, Carbrook Bone Mills, Sheffield.

SLUGICIDE (Registered).—CERTAIN

DEATH to SLUGS. Harmless to Plant, Vegetable, and
Animal Life. Delicate seedlings are absolutely secure when
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To Grape and Tomato Growers.

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WITH THE PATENT

SILICATE MANURE.

It has been abundantly proved that our
Manure promotes rich colouring and early
ripening, and is highly valuable in cloudy
weather and lack of sunshine.

Specifically distinct from all other Manures

The Gardens, Buckhurst Park.—The Grapes where I used
your manure certainly colour better and shank less; in fact,
the Vines look better altogether. I think it very good for
Vines, and also Tomatos.—Signed, JOHN F. HEWITT, Gar-
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The Gardens, Bifrons Park.—Your Silicate on the Vines
when I used it has greatly improved the colouring of the
Grapes, and with less shanking.—Signed, JAMES HOSSACK,
Gardener to the Marquis Conyngham.

The Gardens, Rushton Hall, Kettering, Nov. 10, 1890.—
Dear Sirs,—I regret I had not an opportunity of testing your
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excellent results. It is certainly the best artificial manure I
have tried. Gros Colmar, which have lacked colour in
previous years, are as black as Sloes; other varieties equally
benefited.—I remain, yours respectfully, JOHN CRICK-
SHANK, Gardener to E. C. C. Thornhill, Esq.

Prices in Sacks, Free on Rail:—

10s. per cwt.; £2 per 1/4 ton;
£3 15s. per 1/2 ton; £7 per ton.

Chemical Works,
Hemel Hempsted, Herts.



FOR PLANTS.

QUICK. LASTING. ECONOMICAL.

LOWER EDMONTON, MIDDLESEX, November 18, 1890.

Dear Sir,—We have used your "INVIGORATOR"
on all kinds of plants, and have much pleasure in
telling you it has answered in every way to our
great satisfaction. We look upon your "INVIGORA-
TOR" as the highest class manure now being sent
out to the public.—We remain, yours truly,

To Mr. S. C. Clay.

J. & J. HAYES, F.R.H.S.

Sold by Seedsmen, Florists, and Nurserymen, or direct from the
Works, in 6d. and 18. Packets, and SEALED BAGS:—

7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2s. 6d.	4s. 6d.	7s. 6d.	12s. 6d.	20s.

The above Trade Mark is printed on every Packet and Bag,
and also impressed on the Lead Seal attached to the mouth
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A SAMPLE PACKET will be sent post-free on receipt of
ONE SHILLING by the MANUFACTURER—

S. C. CLAY,

Marsh Island, Stratford New Town, London, E.
NO CONNECTION WITH ANY OTHER FIRM.

100,000 yards to select from.

EXTRA STOUT strong-tanned NET, 2 yards
wide, 1 1/2 yard; 4 yards wide, 3d. yard; or 2 yards wide.
10s. per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE
NETTING, 1 yard wide, 2d. yard; 2 yards wide, 4d. yard;
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THE GARDENERS' CHRONICLE

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NOTICE TO ADVERTISERS.—In many instances Remittances in Payment of Repeat Advertisements are received without name, address, or anything beyond the postmark on envelope by which to identify the sender; this in all cases causes a very great deal of trouble, and frequently the sender cannot be identified at all. Advertisers are requested when Remitting to give their Names and Addresses, and also a Reference to the Advertisements which they wish repeated.

All Advertisements should be addressed to the PUBLISHER.

Publishing Office and Office for Advertisements, 41, WELLINGTON ST., STRAND, W.C.

Bonâ Fide BENTLEY'S Fide WEED DESTROYER.

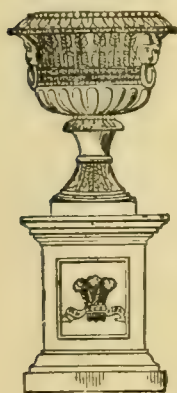
Mr. J. HUDSON, Gunnersbury House Gardens, writes:—"I am glad to say that the Weed Destroyer has given us every satisfaction; it proved most effectual, and is a great saving of time and labour."

Mr. A. WARD, Stoke Edith Park Gardens, writes:—"I am pleased to tell you that I am exceedingly gratified with the results of your Weed Destroyer, as it destroys both Weeds and Moss on the walks most effectually, and gives the gravel a bright appearance."

In the following sizes, carriage paid:—
3 Gallon Drums, 5s. 6d. | 12 Gallon Casks, 19s. 0d.
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(LATE MATTHEWS)
CELEBRATED WESTON
FLOWER POTS
AND
HORTICULTURAL
POTTERY.

CONWAY G. WARNE,

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C O C O A
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Land Agents, Estate Managers, and all having Farms to Let would do well to advertise in the "WORCESTER HERALD," the Leading County Paper. Specially adapted for bringing such notices before Tenant Farmers. Large circulation. Moderate charge.

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"Early to bed," and arise with the dawn;
Sponge and rub well, either bed-time or morn.
Ope wide your windows to spring sun and air,
Cleanse out your dwellings with scrupulous care.
Keep your blood pure, 'twill save numberless ills;
And for spring medicine—Take Holloway's Pills.

Make a good breakfast—good porridge, brown bread,
Fish, milk, or eggs, if you'd have your cheeks red.
Work with a will, but on no account worry;
"Steady and Sure" gets on better than "Flurry."
Fretting and worry cause half of our ills;
Keep a calm mind, and—Take Holloway's Pills.

Shun the rich dishes that gourmands delight;
Eat but light suppers, and sleep well at night.
Clothe yourselves well, and keep feet dry and warm.
Then you may safely defy wind and storm.
Climb when you can over moorlands and hills;
If you need medicine—Take Holloway's Pills.

Bask in the sunshine and fear not the rain;
Clothes that are wet can be soon dried again.
Take a walk daily in sunshine or shower;
Welcome with gladness each fresh-opening flower.
List to the murmur of long 'prisoned rills;
And for spring medicine—Take Holloway's Pills.

CHEAPEST W. PEN DENNIS & CO. BEST
GARDENERS' POTTERIES, RUABON.

GARDENING APPOINTMENTS.

Mr. THOMAS PHILLIPS, late Foreman at Gredington Gardens, Whitchurch, as Head Gardener to Colonel CORNWALLIS WEST, M.P., Ruthin Castle, Ruthin, North Wales.

Mr. F. DELLER, as Gardener to EDWARD BEANES, Esq., Moatlands, Paddock Wood, Kent.

Mr. T. E. MORANT, as Gardener to E. H. BUCKLAND, Esq., Kingsmead, Winchester.

Mr. W. TUCK, as Head Gardener to Sir W. H. MARLING, Bart., Stanley Park, Stroud.

Mr. A. MAULDEN, formerly Gardener at Smallwood, Fallowfield, as Head Gardener to Sir THOS. S. BAYLEY, Bart., Heatherop Castle, Fairford, Gloucestershire.

Mr. J. DEACON, as Head Gardener to HERBERT J. HARRIS, Esq., Bowden Hill, Chippenham, Wilts.

PARTNERSHIP.—Advertiser, with capital at command, and desirous of embarking in business of GROWING FRUIT and FLOWERS for MARKET, is wanting to meet with an energetic Man with small Capital to put into the business, and to take the responsible part. Reference given and required.—C. P. J., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Partnership.—To Florists and Nurserymen.
WANTED, a practical FLORIST, to TAKE the PLACE of a RETIRING PARTNER in an old-established Nursery in the Southern Counties. Capital from £500 to £1000 required. No agent need apply.—Apply to J. G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To the Trade.
PARTNERSHIP WANTED by a practical Seedsman, Nurseryman, and Florist. Could take the management of any department. About £500 to invest. Address, with full particulars, to ALPHA, 1, Camden Terrace, Chiswick.

PARTNERSHIP.—Would like to meet with a PARTNER, active or otherwise, with about £1500.—All particulars to CULTURE, 41, Wellington Street, Strand, W.C.

Traveller.
WANTED, AT ONCE, a thoroughly reliable MAN, well up in ORCHIDS and General Nursery Stock. One with a knowledge of French and German preferred. State age, experience, and where previously employed, with terms, &c. None but experienced men need apply to S. U. N., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, London, W.C.

WANTED AT ONCE, a HEAD WORKING GARDENER, where two other good men are kept—He must be strong, active, and willing, about 35. A good Propagator and Grower of Stove and Greenhouse Plants, Grapes, Tomatoes, Strawberries, Mushrooms, and must understand the cultivation and pruning of hardy Fruit Trees (of which there are about 4000). Wages about 24s. a week, with a good percentage.—Apply stating previous experience to T. AMALL, Oxford.

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WANTED, a young MAN, for growing Tomatoes, Cucumbers, Grapes, and Strawberries. Wages 18s. per week, and overtime paid. Only those accustomed to the above need apply, and with good character.—**E. RYDER**, Northumberland Nursery, Orpington, Kent.

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WANTED, in a Market Nursery, a single MAN, not under 25, to take charge of Stove Department under Principal. Must have good knowledge of Growing Enchirid and other Stove Plants for Cut Flowers; also Palms. Situation permanent to a man who knows his work.—State age, wages required, and where last employed, to **TURNER BROS.**, Nurserymen and Florists, Garston, Liverpool.

WANTED, JOBBING GARDENERS.—Apply, **ROBERT GREEN'S** Floral Establishment, Crawford Street, W.

WANTED, an active and energetic young MAN, to take charge of Houses. Must be a thorough good Plantsman. Bothy, light, and firing provided. State wages, &c., to **E. WHEELER**, Moray Lodge Gardens, Campden Hill, Kensington, W.

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WANTED AT ONCE, a JOURNEYMAN; age between 25 and 30; Inside or Out; who has been used to grow Cut Flowers for market. One from a nursery preferred, who is steady, honest, energetic, and reliable. State wages and references.—Apply, Station Nurseries, Whitechurch, Salop.

WANTED, in a Market Nursery, a young MAN, used to Fern Growing.—Apply at Fountain Nursery, Angel Road, Edmonton.

Nursery.
WANTED, a young MAN, who has had some experience in Growing for Market (Soft-wooded Plants, &c.). Total abstainer—Write, stating terms, length of character, &c., **BATUP AND BAREFIELD**, Camden Park Nursery, Tunbridge Wells.

WANTED, TWO young MEN, principally for the Houses. Wages are 18s. per week, with Bothy, Vegetables, and Milk when to spare. **JOURNEYMAN**, 11s. per week, Bothy, &c. Seven employed. State experience to **V. Z.**, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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WANTED, at ONCE, a young Man, quick at Potting, Watering, &c. Apply, stating wages and reference, to **G. E. NASH**, Manor Nursery, Bexley Heath.

WANTED, for Hazlewood Gardens, a YOUTH, with some experience, to work in the Houses, attend to Fires, and live in Bothy.—Apply to **THOS. CONATY**, Nut Hill Farm, Hazlewood, Tadcaster, Yorkshire.

WANTED.—Young MAN for Palms and Ferns under Foreman.—State experience and wages required by letter, **H. BROWNHILL**, Nurseryman, Sale.

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Improver in the Houses.

WANTED, a young MAN as above, in the Plant House.—**G. COOKE**, Estate Office, Quorndon, Loughborough.

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WANTED, WORKMEN, for Planting, Digging, Watering, Packing, &c., in First-class Nursery in South-West of England. Hours, 6 to 6 in summer, 7 to 7 in winter. 12s. per week, with further encouragement to good workers requiring permanent employment. **STERLING, Gardeners' Chronicle Office**, 41, Wellington Street, Strand, W.C.

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WANTED, for a Branch Establishment, in a rising town, an experienced **SHOPMAN** in Seeds, Bulbs, and Flowers. State age, service, and wages expected.—**JAMES BACKHOUSE AND SON**, York.

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WANTED, as COWMAN, an industrious respectable young Man, to look after three Cows and Poultry and help in Garden. Must be a good Milker, and thoroughly understand the management of Cows, and have excellent testimonials, both as to character and ability.—State full particulars as to experience, age, and wages required, to **W. H.**, Warkworth House, Isleworth.

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DICKSONS, Royal Nurseries, Chester (Limited), are always in a position to RECOMMEND MEN of the highest respectability, and thoroughly practical at their business. All particulars on application. Telegraphic and Postal Address—"DICKSONS, CHESTER."

SCOTCH GARDENERS.—I have at present several very superior MEN on my Register, whose character and ability will bear the strictest investigation.—**JOHN DOWNIE**, Seedsman, 144, Princes Street, Edinburgh.

B. S. WILLIAMS AND SON beg to intimate that they have at present in their Nursery and upon their Register some excellent Men, competent either to fill the situation of **HEAD GARDENER**, **BAILIFF**, **FOREMAN**, or **JOURNEYMAN**. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—**Victoria and Paradise Nurseries**, Upper Holloway, N.

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JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—**St. John's Nurseries**, Worcester.

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Exhibition Lawn Grass.
DICKSON AND ROBINSON offer their Superb Mixture of DWARF EVERGREEN LAWN GRASS SEED. Of the same quality as that supplied by them for the Grounds of the Royal Jubilee Exhibition, Manchester. Per lb., 1s., post-free, 1s. 3d.; per cwt., 100s. Carriage Paid. Seed Warehouse, 12, Old Millgate, Manchester.

Trade Offer of Large Kentias and Cocos.
W. ICETON begs to offer some extra fine BELMORIANA, FOSTERIANA, MOOREANA, and RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on application. Inspection invited. Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

Primula—Primula—Primula.
B. S. WILLIAMS AND SON'S world-renowned PRIMULA—Gold Medal Strain. Per Packet, 1s. 6d. and 2s. 6d. Victoria and Paradise Nurseries, Upper Holloway, London, N.

MAIDENHAIR FERNS.—We have a large Stock of Grand Stuff in 5-inch, 6s. per dozen; 7-inch, 10s. per dozen, and large specimens up to 10s. 6d. each. Also, good 5-inch pots of ADIANTUM ELEGANS, the best Fern for decorations and cutting, at 9s. per dozen. COLLINS AND COLLINS, Cumberland Park Nursery, Willesden Junction.

CUT MAIDENHAIR FERN.—200 large Fronds for 2s. 9d. Post-free for cash. Stamps objected to. W. BRUNSWICK, Church Passage Nursery, Lee, S.E.

FERNS! FERNS!! FERNS!!!—Trade offer. Twenty most saleable sorts, 12s. per 100; Adiantum cuneatum, for potting on large stuff in 2½ pots, 16s. per 100; fine stuff in large 60's, 20s. per 100; in 48 pots, full of top, 50s. per 100. Large Ferns, in 48's, 45s. per 100, in 6 sorts. Packed free. Cash with order. J. SMITH, London Fern Nurseries, Loughboro' Junction, S.W.

ORCHIDS A SPECIALTY.—Please write for our New Illustrated PRICE LIST of well-established, healthy plants, at unusually low prices. W. L. LEWIS AND CO., F.R.H.S., Chase Side, Southgate, London, N. Nursery, Orchid Road.

Mangel Wurzel and Turnip Seeds.
H. AND F. SHARPE are prepared to give Special quotations for their fine selected Stocks of Home-grown TURNIP and MANGEL WURZEL SEEDS of 1890 growth, and raised on their own farms from picked Bulbs. The quality is fine, and the prices will be found exceptionally low. Seed Growing Establishment, Wisbech.

Verbenas—Verbenas—Lobelias.
WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Pink VERBENAS, well-rooted cuttings, hardened off fit for potting, 6s. per 100, 50s. per 1000. LOBELIAS, Brighton Bluestone, Emperor William, and Snowball, all true from cuttings, 3s. per 100, 21s. per 1000. Packing included. Terms cash. Cemetery Nursery, Gravesend.

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the manufacturers.—CHADBORN AND COLDWELL, M'g. Co., 223, Upper Thames Street, London, E.C. See large Advertisement for April 25, page 544.

SALES BY AUCTION.

Monday, May 11.—East Dulwich.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Seeger & Tropp, to **SELL** by AUCTION, on their premises at 112, Lordship Lane, East Dulwich, on MONDAY, May 11, commencing at half-past 12 o'clock, a large and well selected COLLECTION of healthy ORCHIDS. The following form a portion of the many rare and choice species and varieties catalogued, and the whole will be sold, with very few exceptions, ENTIRELY WITHOUT RESERVE.

A Grand COLLECTION, including many New and Rare SPECIES, such as:—

Masdevallia Schroderei	Masdevallia Fraseri
„ Armini	„ Morreana
„ torta	„ Winniana
„ hieroglyphica	„ astuta
„ Lauchiana	„ radiosa
„ minuta (only two plants of this are in existence)	„ macrura
„ Hinciana	„ Wendlandi &c.

CYPRIPEDIUMS

among which will be found the most select and beautiful species and varieties, embracing the following:—

Cypripedium amabilis	Cypripedium Siebertianum
„ Argus Moenii	„ o-nanthum
„ Schroderei	„ Arthuriannum
„ Leeannum	„ Hornianum
„ Frederico nobile	„ Schleswigerianum
„ nitens magnificum	„ orphanum
„ Sallieri	„ Argus Morreianum
„ Sedeni candidulum	„ grande
„ Lawrenceanum var.	„ Lindleyanum
„ Hyeanum	„ nitidissimum, &c., &c.

Sobralia leucoxantha, grand form

Cattleya hybrida intricata

„ maculata

„ Fausta

„ Sanderiana, some very fine specimens

Sarcocochilus unguiculatus, a very beautiful Orchid with ivory - white flowers, often spotted with brownish-purple, and produced on long racemes

Trichopilia suavis alba

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Harlesden, N.W.

CLEARANCE SALE. PLANTS, GREENHOUSES, &c., the Land being required for Building.

MESSRS. PROTHEROE AND MORRIS will

SELL by AUCTION, on the Premises, The Harlesden Park Nursery, St. Mary's Road, Harlesden, near Willesden Junction, on TUESDAY, May 12, at 12 o'clock, the whole of the GREENHOUSE and BEDDING PLANTS, 1000 FERNS, 200 White AZALEAS and CAMELLIAS, a few ORCHIDS, the

Erections of 10 Span-roof GREENHOUSES, HOT-WATER PIPING, mostly 4-inch; 4 BOILERS, BRICKWORK, PITS, SLATE STAGING, GARDEN ROLLERS, and Effects.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 & 68, Cheapside, E.C.

Wednesday Next.

LILIES, GLADIOLUS, and PLANTS.

MESSRS. PROTHEROE AND MORRIS will

SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY, May 13, at half-past 12 o'clock, Japanese LILIES in great variety; GLADIOLUS, ANEMONES, very fine; PEARL TUBEROSES, TIGRIDIAS, and a consignment of Californian LILIES, and Japanese IRIS, STOVE and GREENHOUSE FERNS, &c.

On view morning of Sale, and Catalogues had.

Friday Next.

1000 ODONTOGLOSSUM ALEXANDRE.

(The veritable Pacho variety.)

MESSRS. PROTHEROE AND MORRIS will

SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, May 15, at half-past 12 o'clock precisely, by order of Messrs. F. Horsman & Co., Colchester, a magnificent consignment of imported ODONTOGLOSSUM ALEXANDRE, in grand condition, and superb plants.

On view morning of Sale, and Catalogues had.

The Gardens, Harefield Grove, Uxbridge.

Two-and-a-half Miles from Rickmansworth Station.

FIRST PORTION of the extensive collection of ESTABLISHED

ORCHIDS, STOVE, GREENHOUSE, and BEDDING

PLANTS, the Greenhouses being required for other

purposes.

MESSRS. PROTHEROE AND MORRIS are

favoured with instructions to **SELL** by AUCTION, on the premises as above, on WEDNESDAY, May 27, at 12 o'clock, the extensive collection of well-grown ESTABLISHED

ORCHIDS, including 250 Cypripedium insigne specimens, half specimens, and smaller plants; 130 Cologne cristata, and others; 300 Cattleya Mendelii in 48-pots, and many others; 200 Azalea indica, embracing several very fine specimens; 250 CAMELLIAS ALBA PLENA, 1 to 10 ft. high, the greater portion in 16, 24, 32, and 48-pots, and many of them large plants; 250 KENTIA BELMOREANA, 400 LATANIAS, SEAFORTHIA, and other PALMS in 48-pots, DRACENAS, CYCLAMEN, 150 very choice AMARYLLIS, 5400 GERANIUMS of sorts, and many other plants.

May be viewed three days prior to the Sale. Catalogues may be had of Mr. E. Bennett, on the premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will

SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, May 15, at half-past 12 o'clock, ESTABLISHED ORCHIDS, from various Collections; also several plants of CYPRIPEDIUM SEAGERIANUM.

On view morning of Sale, and Catalogues had.

Thursday Next.

SPECIAL SALE OF ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS will **SELL** by AUC-

TION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 14, at half-past 12 o'clock precisely, a fine collection of ORCHIDS in FLOWER

and BUD, comprising some grand specimens and varieties of Cattleyas, Dendrobiums, Oncidiums, Odontoglossums, Masdevallias, &c. Also 50,000 fresh seeds of COCOS WEDDELIANA, KENTIA FOSTERIANA, and K. BELMORIANA, LILIIUM, &c.

On view morning of Sale, and Catalogues had.

City of Peterborough and Woodstone.

VALUABLE and IMPORTANT FREEHOLD and TITHE-

FREE BUILDING ESTATE, known as WESTWOOD

GRANGE, situate within half-a-mile of the centre of the city of Peterborough, and close to the Great Northern and

Midland railway stations, comprising an excellent private residence, with large Seed and Onion sheds, and commodious Farm Buildings, with Garden and Accommodation

Land, containing 10a. 2r. 0p., large and well-planted Orchard, containing 4a. 0r. 30p., thirty-one plots of

valuable Freehold Building Land, in close proximity to Mayor's Walk and Westwood Road, giving good access to the City Cattle Market, &c., and avoids the double railway

crossings; six closes of accommodation Pasture Land, and five inclosures of Freehold Arable and Pasture Land; also 1a 2r. 0p. of Building Land, in the parish of Woodstone, adjoining Jubilee Street, the whole comprising a total area of about 64a. 2r. 0p.

MESSRS. BIDWELL are instructed by

H. H. ENGLISH, Esq., to **SELL** the above VALUABLE

ESTATE by AUCTION, in lots, at moderate reserves, at the Grand Hotel, Peterborough, on WEDNESDAY, May 20, 1891, at 4 o'clock in the afternoon precisely. The attention of

Private Purchasers, Builders, Land Speculators, Market Gardeners, and Seedsmen, is particularly directed to this Sale, as it affords an excellent opportunity of purchasing Building

Plots, Garden Ground, and Accommodation Land, within half-a-mile of the centre of Peterborough, from whence there is

excellent railway communication with London, and all parts of England. There is gravel and stone under a great part of the Estate, and the site is a commanding one. The water supply

and gas mains adjoin the property. Possession of all lots will be given at Michaelmas next. Two-thirds of the purchase money may remain on mortgage at 4 per cent., on all the lots except the small building lots.

To view, apply to Mr. BRANTON, the Bailiff, Westwood Grange. Particulars, with Plans and Conditions of Sale, may be obtained from Messrs. PERCIVAL and SON, Solicitors, Peterborough; or, Messrs. BIDWELL, Land Agents and Surveyors, Ely, and 12, Mill Lane, Cambridge.

Southsea, in centre of.

FOR SALE, FREEHOLD SEMI-DETACHED

HOUSE, with GLASSHOUSE, used as a FLORIST'S

SHOP, and Garden at rear, containing Glasshouses (heated), and conveniences for large business. Old-established business now being carried on. Arrangements may be made for purchase of stock if desired.

Apply to W. H. BOLITHO, 40, Union Street, Portsea.

TO BE SOLD, a NURSERY, with extensive

Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, and easy of access per rail to Manchester, Wigan, and Liverpool. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

London, W.

FOR SALE, a compact NURSERY, doing a

good business. Comprising 9 nearly new Glass Houses, Pits, Heating Apparatus, &c.; 6-roomed, semi-detached Dwelling House. Price for permanent Stock, 7 of the Glass Houses, &c., £300 or offer.

Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, E.C.

NURSERY GROUNDS, with nine large

Glasshouses and a good House and Stabling, to be

DISPOSED OF. Situate in a Main Thoroughfare, 1½ Miles from the Marble Arch; 120 feet frontage, 210 feet deep. A rare opportunity for any Country Nurseryman desirous of having a Branch Establishment in Town.

Application for further particulars to be made to Messrs. LUMLEYS, 22, St. James's Street, S.W.

NURSERY AND SEEDSMAN'S BUSI-

NESS, in a Borough Town, about 40 miles from London, embraces a respectable House and Shop, close to the Market-place. The Nursery Grounds near contain not quite 2 acres. Incoming at Midsummer for Stock, Glass-houses, Fixtures, and Utensils, £220.

Address, X. X. X., Messrs. Dawson & Sons, 121, Cannon Street, London.

FOR DISPOSAL, a small FLORIST and

JOBBER BUSINESS.—Two Greenhouses and Stock, also General and Sweet's Shop attached; opposite Board School (genuine).

B., care of C. FULLER, High Street, North Finchley, N.

To Horticultural Tool Manufacturers and Others.

FOR DISPOSAL, an INVENTION (Patented)

for CUTTING and HOLDING the FLOWERS, &c., from CLIMBING and OTHER PLANTS out of reach. Practical men in Market and Private Establishments, who have seen this invention, highly recommend it as being simple, effective, and handy to use. Cash required, and other particulars—

W. J. FISHER, 5, Ennersdale Road, Lewisham.

MIDDLESEX (6436). For Sale, a small and

compact Nursery, doing a good business, and suitable for an energetic man. About an acre of land, eight green-

houses, and two cottages. Rent £58. Lease about fifteen years. Price £250, or offer. Apply to Messrs. PROTHEROE

AND MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, E.C.

FOR SALE by Private Contract:—HOUSE,

Buildings, 9 acres of splendid land, in the Midlands, and fishing, £350. HOUSE, compact buildings, 17 acres fruit

ground and pasture, £900. Superior FURNISHED RESIDENCE, spacious buildings, about 14 acres land, £1300.

For Particulars write to J. GUY, Silchester, Reading.

RANGE of THREE GLASS HOUSES.—

Made for a customer since deceased; quite new, can be

finished to suit purchaser. 48 x 16 ft., of ornamental character, suitable for Conservatory or Florist's Show House. For Sale, cheap. This is a bargain seldom to be met with. Illustrations and price on application to—

MESSINGER and CO., Horticultural Builders, Loughborough, Leicestershire, and 163, Palmerston Buildings, Old Broad Street, E.C.

North Lancashire.

TO LET, on lease, immediate possession,

practically new, old-fashioned, substantial, commodious, HOUSE; three Sitting-Rooms, seven Bed-rooms, Stable, Coach-

house, Loft, Cottage, good Garden, small Glass-houses, Vinery in full bearing, and Field; near Church, Station, and Post; Country, healthy and beautiful. Might suit any person

retiring from the trade. Opportunity to Let Rooms.

Address, Homestead, Melling, Carnforth.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from

Manufacturers; one, two, or three years' Credit without

Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received a large and splendid Importation of

ODONTOGLOSSUM ALEXANDRE,

the finest PACHO TYPE.

Also large and fine importations of the following and many other ORCHIDS: Odontoglossum grande, O. pulchellum majus, O. Cervantes morada, Dendrobium Wardianum giganteum, D. Bensonia majus, D. Brymerianum, D. chrysotoxum superbum, D. nobile, D. densiflorum, Vanda teres, Cattleya bicolor, Lælia Perinii, L. superba, &c.

The Company are constantly receiving Importations from various parts of the world, and they have an immense stock of

Established ORCHIDS. Descriptive LISTS, with full particulars, post-free on application to the

Vineyard and Nurseries, Garston, near Liverpool.

Many Acres of Lilies of the Valley!

T. JANNACH, Largest Grower of LILIES

OF THE VALLEY in the Kingdom, offers 3-yr. old

flowering Crowns for forcing, and 2 and 1-yr. old Crowns for

planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNACH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

BEGONIAS A SPECIALTY.—Awarded

Four Gold Medals, and Gold Cup, and all First Prizes. Tubers, named singles, from 12s. to 42s. per dozen; unnamed

seedlings, 12s. to 21s. per dozen; bedding, choicest, 6s. and 9s. per dozen; choicest named doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Our Collection of Begonias is the largest, best, and most complete in the world. Catalogues gratis.

JOHN LAING AND SONS, Begonia Growers, &c., Forest Hill, London.

20,000 DAHLIAS, in 140 best Exhibi-

tion Varieties, True to Name. Show, Fancy, and Pompones, 3s. per doz.; Cactus and Singles, 2s. 6d. per doz.; 20s. per 100. Splendid Plants in single pots.

LOBELIA, Emperor William, and Primula magnifica, 4s. 6d. per 100; true from Cuttings.

PETUNIAS, double fringed, 2s. 6d. per doz.; single fringed, 2s. per doz.; most beautiful varieties.

LIST free. Send for a Sample doz.; Packing free.

A. J. and C. ALLEN, Florists, Heigham, Norwich.

Trade Offer.

W. ICETON begs to offer the following

PALMS:—

Strong ARECA LUTESCENS, in 60s, at 60s. per 100;

„ COCOS WEDDELIANA, in thumbs, at 32s. and 50s.;

„ SEAFORTHIA ELEGANS, in thumbs, 20s. and 30s.;

„ KENTIAS, BELMOREANA and FOSTERIANA, in thumbs, 40s. and 75s.

SEEDLINGS in Stores, at 30s. per 100.

ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.

Extra fine PANDANUS VEITCHII, in all Sizes.

Putney Park Lane, S.W.

Gentlemen.

MY GLOIRE DE DIJON are very strong.

My CLEMATIS are being sold very cheaply.

My RHODORA CANADENSIS are covered with buds.

My AZALEAS are hue and healthy.

CHARLES NOBLE

DANIELS BROS., TOWN CLOSE NURSERIES, NORWICH.

BEG to offer the following from their splendid collection of Choice Named FLORISTS' FLOWERS, &c., all in sturdy young stuff, mostly from single pots, guaranteed true to name, and sent Post or Carriage Free on receipt of cheque or P.O.O.

	Per doz.—s. d.
Abutilon , Sanglant, grand new variety, flowers deep blood scarlet, gleading	each, 2s. ...
.. Verv choice sorts	6 for 2s. 6d. 4 6
Bouvardias ,—All the newest and choicest sorts	6 for 2s. 6d. 4 0
Coleus ,—All the most beautiful sorts	6 for 2s. 3 6
Chrysanthemums ,—Japanese and Incurved. Very choice sorts from our splendid collection	per 100, 15s.; 6 for 1s. 6d. 2 6
.. New and very select	6 for 2s. 6d. 4 6
.. Louis Boehmer. The new pink ostrich-plume Chrysanthemum	each 3s. ...
.. Ada Spaulding. Magnificent new sturdy-growing Incurved	each 2s. ...
.. Six superb new varieties, including Louis Boehmer and Ada Spaulding	7s. 6d. ...
Dahlias , Show and Fancy,—A magnificent collection, including all the best, 6 for 2s. 6d.	6 new varieties of 1890, 9s. 4 6
.. Cactus-flowered,—Empress of India, magnificent dark maroon-crimson, 3 for 2s.; each, 9d.	3 for 2s.; each, 9d. ...
.. .. Henry Patrick, beautiful full pure white,	3 for 2s.; each, 9d. ...
.. .. Robert Maher, beautiful golden yellow the finest (new), each, 1s. 6d.	3 for 2s.; 6 for 3s. 6d. 6 0
.. .. New and very choice sorts,	6 for 2s. 6d. 4 6
.. .. Splendid varieties, our selection,	6 for 2s. 6d. 4 6
.. Single-flowered	6 for 2s. 6d. 4 6
.. Pompones. New and select sorts,	6 for 2s. 6d. 4 6
Fuchsias , Single and double flowered. All the most beautiful varieties	6 for 2s. 3 6
.. New and extra choice	6 for 3s. 6d. 6 0
Musk , New double-flowered. Fine novelty, each 1s. 6d.	6 for 1s. 6d. 2 6
Marguerites or Parisian Daisies , Yellow or white,	6 for 1s. 6d. 2 6
.. Cloth of Gold. Splendid large golden yellow,	3 for 2s.; each 9d. ...
Pelargoniums , New Zonal. All Autumn-struck—	6 for 2s. 6d. 4 6
.. Single-flowered. From our grand collection;	6 for 2s. 6d. 4 6
.. Splendid for pot culture	6 for 2s. 6d. 4 6
.. Six new varieties of 1890 (Pearson's) 7s. 6d.	6 for 2s. 6d. 4 6
.. Double-flowered. Grand new and select,	6 for 2s. 6d. 4 6
.. New double-flowered Ivy-leaved. Magnificent varieties for pots or hanging-baskets, vases, &c., very choice sorts,	3 for 2s.; 6 for 3s. 6d. 6 0
Petunias , New double-flowered fringed, superb,	3 for 2s.; 6 for 3s. 6d. 6 0
Tropaeolum , "Comet," brilliant scarlet, elegant, and perpetual bloomer	each, 6d.; 3 for 1s. 3d. ...

Begonias, Tuberous-rooted Hybrids,—Magnificent single-flowered varieties, immense blooms of the most beautiful colours. Strong flowering dormant tubers, very choice mixed,

per 100, 30s.; 6 for 2s. 6d. 4 6

DANIELS BROS., TOWN CLOSE NURSERIES, NORWICH.

GARDEN.

For whatever is wanted, mentioned or not in these columns, please to write immediately to H. CANNELL AND SONS, whose Seed and Nursery Stock is very complete and extensive, and where nearly everything for the Garden is grown and supplied in large quantities, in the finest possible condition, at the lowest prices, consistent with correctness and superior character. Send for CATALOGUES.

SWANLEY, KENT.

FORBES' EAST LOTHIAN STOCKS.

My superior strain of these, in 5 distinct sorts—Crimson, Purple, Scarlet, White, and Wallflower-leaved White—each sort, 1s., 2s. 6d., and 5s. per packet.

The best and most comprehensive CATALOGUE (124 pages) ever issued on all sections of Florists' Flowers; free on application.

JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

FRUIT TREES A SPECIALTY. STRAWBERRIES.

NOW is a good time to plant. If you want fruit next season, plant now out of small pots, or a full crop in 1892 by planting open-air plants. Good plants of all of the best of the old or NEW varieties; one of the best Collections in the trade. Send for my DESCRIPTIVE CATALOGUE, the most complete issued.

JOHN WATKINS,

Pomona Farm Nurseries, Withington, Hereford.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.

BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s. and upwards.

BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.

DESCRIPTIVE CATALOGUE free on application.

BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

Now ready, descriptive Catalogue of

HARDY HERBACEOUS PERENNIALS, free on application, describing the BEST HARDY HERBACEOUS PLANTS for Borders, Rockwork, and Cuttings. BARR & SON, 12 and 13, King Street, Covent Garden, London; and Nurseries, Long Ditton, Surrey.

TRADE OFFERS OF PALMS.—Areca lutescens, in 32's, 4s. and 5s. each; in 18's, 2s. 6d. and 3s. each; large, 60's, 9s. per doz., 70s. per 100. Latania borbonica, in 24's, 8s. 6d. each; 32's, 4s., 5s., and 6s. each; 48's, 2s. 6d. each. Seaforthia elegans, 32's, 3s. each. Ficus elastica, in 32's, 3 feet, 2s. each; 4 feet, 3s. each. Finest in the Trade. The whole of the Stock is clean and healthy, and grown here. No imported stuff sold. Thousands to offer. Cash with order. J. ROCHFORD, Page Green Nursery, Tottenham.

CUT LILIES OF THE VALLEY! As soon as Lilies are fit to be cut outside (probably in a fortnight), I shall be able to send out between 25,000 and 30,000 very fine large blooms at 4s. 6d. per 100, including packing; cheaper by the 1000. Arrangements can now be made for a daily or weekly supply. Cash with orders from unknown correspondents. T. JANNICH, Lily Nursery, Dersingham, King's Lynn, Norfolk

To Amateurs and Nurserymen.

HIMALAYAN RHODODENDRONS, 2 dozen Jasminiflora Edgeworthii, Princess Alice, and others, just upon flowering, from 1 to 5 feet across, including Standards.

AZALEAS (GREENHOUSE), 20 dozen finest new sorts, 1 to 3 feet across, just upon flowering; greatest numbers of Souvenir Prince Napoleon, Louis Lubbers, Empress of India, Charles Kerchore, Princess Louise, Baron St. Genois, Jean Vervaeue, Louise Kerchore, Apollo, Argus, Andrew alba, Marie Planchon, and many others.

TRAINED FRUIT TREES, mostly from Rivers, 12 dozen, IN POTS, 1 to 2 feet wide, of 5 to 7 years' growth, trained in six various forms, including Gridiron-shape, in best condition, and of most exquisite selection of varieties, especially of Pears, suitable to supply promptly any newly-made garden with a crop this year. **GREENHOUSE and STOVE PLANTS**.—Ferns and Palms, Araucaria excelsa, Camellias, and others.

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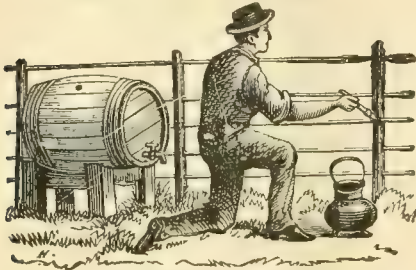
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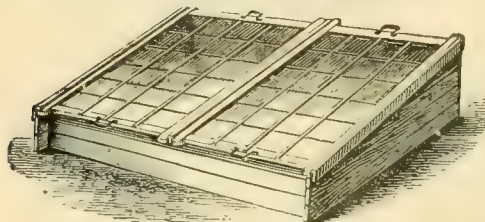
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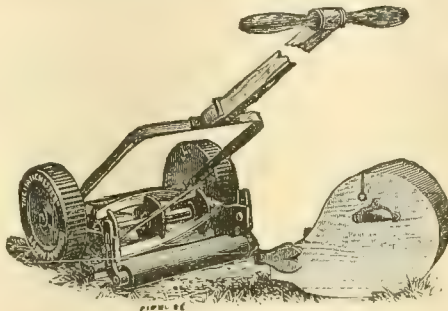
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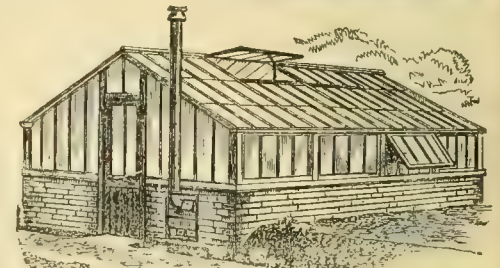
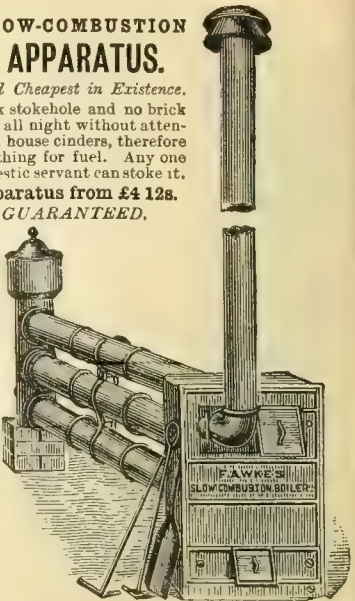
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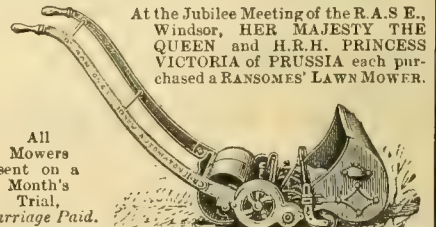
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THE

Gardeners' Chronicle.

SATURDAY, MAY 9, 1891.

TROUT AND TROUT-PONDS.

IT would be easy to mention a number of lakes and ornamental sheets of water which were formed at slight expense by the simple device of an embankment, for the purpose of expanding the water of a stream, and sometimes a very small stream may suffice for the purpose. A beautiful lake of 70 acres might be named which now fills part of a valley in an extensive park, and which cost only about £30 for the dam across the narrow end of the valley. At this very trifling expense the owner of the mansion, not far from the margin of the water, has found a site for some very satisfactory landscape gardening, which has greatly improved his outlook, and has, in addition obtained a well-stocked trout-pond. So far as the financial result is concerned, the 70 acres of water would prove of more value, if let, than was the park-land which the lake now covers. Fish-farming, in fact, usually proves, in favourable situations, more profitable than grass-farming, and very much more so than corn-farming has been for some years past.

Another example of the same kind is that of a small lake of 6 acres, lately described in the *Field*, as having been formed at the small cost of £10. A stream ran through a valley, poor in regard to soil, but exceedingly rich in scenery, and a beautifully secluded trout-pond, with wooded hills on its margin, has been formed by blocking the narrow end of the valley with a dam only 30 yards in length. As soon as this little bit of engineering had been completed, four years since, a slight additional expense was incurred in the forming of some little islands, as in the Lakes of Killarney, bright little spots planted with shrubs. A boat-house was also erected, of such simple materials as Larch poles, wattled and thatched with Heather, the picturesque little building standing a short distance from the shore, and reminding one of the pre-historic lake-dwellings as described by geologists. This particular trout-pond was stocked with 10,000 Loch Leven fry, whose rate of growth may perhaps prove interesting to anglers and others. The pond was stocked three years ago last February, with fry an inch in length, and in one year they had grown to an average weight of 5 oz.; they had, in fact, expanded themselves from the size of whitebait to that of gudgeon. At two years old they weighed on the average half a pound, and afforded capital sport, many of the fish weighing over 1 lb. each, and two rods taking in one afternoon 30 lb. of trout.

In another case, a small trout-pond of 2 acres was formed amid some ornamental grounds, and a well was sunk and the water raised, for the supply of the pond, by steam power. It was stocked with Loch Leven trout, and afforded great sport to the owner within two years. Another and a larger pond was formed else-

where, and fed by means of an artesian well, the owner taking advantage of the geological formation of his neighbourhood. The well in this case affords a constant supply of water, which is led to the pond through an iron pipe. The trout were obtained from a neighbouring stream. If another example may be given, a long river-like pond was dug on the gentle slope of a hill, near the owner's house, and a small stream which flowed through the lower ground was led to the pond from a point higher up the valley. The whole of the water, however, was not diverted, but only a part of it, sufficient for the purpose of keeping the pond fresh and clear, and suitable for trout, which do not thrive in stale water. The overflow, in this case, descends the hill and rejoins the stream below. Loch Leven trout were used in stocking this water, and after five years' experience, they have proved to be the right variety, as, indeed, they invariably do when the supply of fresh water is small and the flow almost imperceptible. The owner of the pond states that Loch Leven trout are at their best at about four years' growth, when the larger ones should be thinned out and the pond re-stocked.

The Tillingbourne, in Surrey, rises at Leith Hill, flows through Witton, and through those charming grounds of Mr. W. J. Evelyn, which were formed by the great tree planter and landscape gardener, Sylvia Evelyn. After passing through Shiere, Albury, and Chilworth, it falls into the Wey, at Shalford, having watered and supplied with trout and watercresses, four of the prettiest villages in Surrey. The Tillingbourne is full of trout from its source to its outfall, except where some manufactories have in recent years polluted the water. It may claim to be a typical trout-stream, abounding in rapids and in deep boiling-pools, with here and there a mill-race and some deep water, and then, perhaps, a steep descent and a rush to a lower level, where, for awhile, the brook flows gently through the meadows. Nature here has done all the work, and in forming artificial trout-streams, it would be well, so far as may be possible, to imitate the current of the Tillingbourne. If the fall is sufficiently rapid, the construction of a few inexpensive weirs—the more rustic and simple the better—will increase the picturesque appearance of the stream, and will, at the same time, furnish such falls and pools as trout delight in, besides stemming the water and adding to its quantity, and greatly increasing the size and number of the trout. The private grounds of a gentleman, whose house is on the Tillingbourne, formerly furnished only a few brace of trout in the season, the extent of ground not exceeding half an acre. By the simple device of a weir, formed of some large stones, and very ornamental, the brook has been headed back, so as to form a small sheet of water in the lawn before the windows, and here the trout disport themselves and grow large. The water then flows down the rockwork, crosses the rest of the lawn, and passes beyond the boundary. The trout delight in these arrangements, and they greatly appreciate the arching over of the stones, by means of which they are provided with a hidden water-way, so that they can always dart off in the open stream, and get out of sight beneath the rockwork, though not always out of danger, since they are often caught at this spot, and laid upon the lawn.

Unfortunately a decline in trout fishing has been brought about in recent times by the pollution of rivers. That part of "the silver-winding Wey" which flows through the pleasant stretch of country lying between Godalming

and Guildford, has been entirely spoiled from this cause, and the old name appropriately bestowed on the river, is by no means applicable to it now. The upper part of the river is, however, still a typical trout stream, while at its source near Haslemere, there are the famous trout-breeding ponds established by Mr. T. Andrews, the well-known pisciculturist of Guildford. The water of the Wey at its source bubbles from the sandy soil of Haslemere, at a point where one may stand with one foot in Surrey and another in Sussex, and stick the point of a walking staff in Hants. Those who have crossed Hindhead and seen the Devil's Punch Bowl, will remember this as a particularly dry district. Blackdown above Haslemere is a sandhill which hardly affords Lord Tennyson's house a green lawn without artificial watering. But the meadow where the Wey rises is full of water. Within six acres, there are one hundred springs, and they are never known to fail. They yield daily, for the delectation of the trout fry, 700,000 gallons of water, which the analysts say is as pure as any they ever examined. Haslemere is justly regarded as the chief breeding-place of the carmine-speckled active trout of the Surrey streams, and from this same nursery of the Wye, this beautiful variety has been very widely distributed. The teeming rivers of Tasmania and New Zealand were stocked by trout exported from the Wey to the former country in 1864, and to the latter in 1873. The largest of the tributaries of the Wye is the Tillingbourne, already named, which flows into the river at Shalford, whose meadows adjoin those of Guildford, at the foot of St. Catherine's Hill.

In applying to the pisciculturist, the purchaser—let us say the trout farmer—has the choice of fry, yearlings, two-year-old, or even larger fish, but owing to the expense of transporting the larger fish they will probably cost more than he will care to pay. On the other hand, if fry are introduced into water already stocked with large trout, cannibals as they are, and with voracious pike, 75 per cent. of them will be devoured within a few days, and most of the rest later on. A middle course seems desirable, and as three-year-old fish do not thrive well when taken from a stream where their food was provided for them at frequent intervals, the experts recommend younger fish in preference. They should be turned adrift with caution, so that they are not subjected to any serious variation of temperature, and the water should be shallow and not too rapid. The *beau idéal* of a nursery for them is a small tributary of the stream from which the big trout and pike have been netted out, and which is fenced at its entrance to the main stream. Even fry will be successful under such conditions, and the cost of fry, delivered at the stream, is very trifling, and considerably less than that even of yearlings. It appears that small trout find the conditions required for their healthy growth in shallows—clean, bright, gravelly shallows. In Nature, they are found in such water, and in artificial cultivation, if they are turned into deep and sluggish water, they will soon find their way to the shallows, and take up their abode in them.

It will readily be understood that a given area of water can only supply food to a given number of fish, which, however, the pisciculturist may increase by means of artificial feeding. The mullet breeders of Rome, whose fish were worth sometimes as much as £40,000, used occasionally to feed the fish by throwing a slave into the pond. At the famous fishery near

Stirling, belonging to Sir James Gibson Maitland, a horse is sometimes utilised for the same purpose. H. E.

NEW OR NOTEWORTHY PLANTS.

A NEW JAPANESE CHRYSANTHEMUM.

THE Chrysanthemum figured in the Japanese *Botanical Magazine*, plate 20, to which reference has already been made in these columns, is a wild form, described by Dr. Ryokichi Yatabe under the name of *C. sinense* var. *satsumensis*. But before giving particulars of it, I would like to say a word respecting the desirability of European botanical and horticultural societies procuring, by exchange or otherwise, the Japanese *Botanical Magazine*, which is written partly in English and partly in Japanese, and contains figures and descriptions of a number of new plants. The figures and analyses are excellent, and the English descriptions idiomatic, and sufficient for all purposes.

Dr. Yatabe has evidently not seen the fuller synonymy published in the *Gardeners' Chronicle* and in the *Journal of the Royal Horticultural Society*, or he would have made some reference to it, and probably have adopted the name *morifolium* for the species. His description follows:—

"Stem shrubby, 2 feet or more high; branches densely albo-tomentose, with appressed hairs. Leaves alternate, petiolate, coriaceous, pale green and pubescent, with short erect hairs on the upper, densely albo-tomentose on the lower surface, pinnatifid into three to five lobes, the lobes incised or coarsely and unequally dentate, the incisions or teeth obtuse; lower leaves larger, 3 inches long, 2 inches broad, with a petiole 1 inch long; upper leaves smaller, and those on the peduncles often lanceolate or linear. Stipules small, ovate or two to three-lobed, absent in the upper leaves. Flower-heads terminal and axillary, on long peduncles, $1\frac{1}{2}$ to 2 inches in diameter. Involucre hemispherical, 5 to 6 lines across; its bracts imbricate, densely tomentose outside, the outer ones linear, dilated at the base, the inner larger, lanceolate, scarious at the margins. Receptacle conico-hemispherical, without paleæ. Florets without pappus, geniculate at the apex of the ovary. Ray-florets pistillate, in a single series, fifteen to twenty-five in number, ligulate, white, at length purplish, with a tubular greenish base, entire and obtuse or slightly three-toothed at the apex, $\frac{1}{2}$ to 1 inch long, $1\frac{1}{2}$ to $2\frac{1}{2}$ lines broad. Disk-florets perfect, yellow; corolla tubular, rather abruptly dilated above the middle, five-toothed, $1\frac{1}{2}$ line long; anthers obtuse at the base. Branches of the style in both kinds of florets thickened and truncate at the apex; ovary or rather calyx-tube obliquely obconical, five-ribbed, crowned with a yellow annular disk surrounding the base of the style. Achenia somewhat curved and obconical, about 1 line long; those of the disk five-angled, somewhat flattened laterally, those of the ray four-angled flattened dorsally. Fl. October to November.

This Chrysanthemum was collected in the province of Satsuma, in the island of Kiusiu, quite in the south of Japan. There is nothing in the Kew Herbarium exactly answering to the figure and description. It agrees with the plant collected in China by Dr. Henry, in having a white ray. W. Botting Hemsley.

EPIDENDRUM × DELLENSE, n. hybr. hort.*
(*E. xanthinum* ♀, *E. radicans* ♂.)

As in the case of the first garden hybrid Epidendrum, *E. O'Brienianum* (which, together with its parents, *E. evectum* and *E. radicans*, was illustrated

* *Epidendrum* × *Dellense*, n. hybr. hort. (*E. xanthinum* ♀, *E. radicans* ♂).—Growth of *E. ellipticum* and *E. xanthinum*. Flowers in a terminal head, from twenty to fifty each, 1 inch across. Sepals and petals equal, orange-tinted vermilion, darker in the older flowers. Lip erect, yellow, toothed or jagged at the tips of the nearly equal three lobes, which bear three prominent wart-like projections at the base. Column slightly curved. Raised and flowered in Baron Schroder's gardens. J.O.E.

in the *Gardeners' Chronicle*, June 28, 1888, p. 771). not so much change has been wrought in the form of the last new one, which was raised and has flowered in the gardens of Baron Schroder, The Dell, Egham, as would have been supposed by the use of such a distinct species as *E. radicans*. It differs in its colour from the form of *E. xanthinum* (the seed-bearing parent) in cultivation, which is clear chrome-yellow, whereas *E. x. Dellense* is a shade of orange approaching to vermilion; but we are reminded of what Lindley said of *E. xanthinum*, that it may be yellow or orange or scarlet, and the darker hue of the present hybrid is of little significance. Its flowers are larger, however, than those of *E. xanthinum*, and there is a slight curvature in the column, which tells of *E. radicans*. *James O'Brien*.

SOBRALIA MACRANTHA DELICATA, n. var.

This will be an appropriate name for a very beautiful variety of *Sobralia macrantha*, which has just flowered out of an importation of Messrs. F. Sander & Co. in the gardens of F. A. Bevan, Esq., Ludgrove, New Barnet. Its flowers are almost wholly white, the only colour being a slight tinge of lavender on the sepals and petals, and a pale lilac colour on the edge of the lip. It differs from *S. m. rosea* of Mrs. General Studd in its lighter colour, and in the absence of yellow in the throat. *J. O'Brien*.

PLANT NOTES.

THE HARDY PANCRACTIUMS (HYMENOCALLIS).

THESE useful and beautiful bulbous flowering plants are too little known to the majority of amateurs. The varieties which I shall mention will flower in the temperature of a cool greenhouse, and also outdoors, if planted in a south border. The bulbs should be placed from 9 inches to 1 foot deep in the ground, and if the soil is heavy or clayey, a rich light compost, with sharp sand, should be placed round the bulbs to a considerable thickness. *Pancratiums* have mostly white flowers, but there is one which is yellow, *Hymenocallis americana*. A rare species, commonly known as Peruvian Daffodil, *P. littorale*, has pure white flowers, and resembles a giant Trumpet Narcissus; *P. maritimum* has white flowers, a plant suitable for pots or planting outdoors; *P. illyricum*, white and fragrant; *P. calathinum*, the pearly-white, sweet-scented Sea Daffodil; *P. undulata*, with delicate white, beautifully-fringed flowers. All the varieties named are worthy the attention of amateurs, and bulbs may yet be obtained. *G. V. B.*

TECOPHILEA CYANOCROCUS.

This beautiful bulbous plant from Chili has proved to be quite hardy, even in the past severe winter. Formerly, we cultivated it in cold frames, but gave it last autumn a trial in the open ground, with good results. It is now carrying blooms which are deep blue in colour. Bulbs of flowering-size should be planted in August, 3 inches deep, in rich well-prepared soil on a sunny border, or in pots 2 inches deep. They are very suitable for pot culture. The bright colours of the large, scented beautiful blue flowers, which everyone admires, will give great satisfaction. After potting they should not have water during the first month, they are far better a little dry than wet. *J. K. Budde, Haarlem*.

BEGONIA GLAUCOPHYLLA.

Among useful plants for hanging baskets, &c., also for training on walls and trellises, this species of *Begonia* may be strongly recommended; the more so, if a plant is wanted that will bloom in the spring-time, although this plant blooms more or less also in the summer. We have grown *Begonia glaucophylla* for several years, and at the present time a pot of it is hanging from the roof of a warm house, and the long shoots hang down to a length of 2 feet, and they are trained about the same length up the wires by which the pot is suspended. The leaves

are of a bright green, and the trusses of a salmon colour; the blooms are freely produced. I know of no other trailing plant having flowers of the same colour. We have the plant growing in a wire basket, and it is doing equally well. I grew this plant in a garden in North Hants into a specimen, 2 feet through, with stems 4 feet long, and the blooms were so numerous as to touch each other. It was grown in a light intermediate house. The plant is of easy culture if it be potted in a light porous soil, and plenty of water be afforded it when growing. *Prom.*

FRANÇOIS LEGUAT AND HIS PLANTS (1691-93.)

(Continued from p. 520.)

II.—RODRIGUEZ.

WE next come to a most wonderful composition, discovered and figured by Leguat, viz., the Pavillon, "Arbre nouvellement decouvert," as he styles it, tom. i., p. 130.

The most expert botanist would find it difficult to recognise, from the copper-plate engraving alone, what strange sort of a tree is hereby represented. It is only by careful study of the accompanying text that a clue is to be found towards the solution of the problem. Leguat's description is as follows:—

"Parmi le grand nombre, & la grande diversité d'Arbres que la Nature, y a plantez, il y en a un admirable, & digne d'être particulièrement observé, pour sa beauté, sa grandeur, la rondeur & la rare symmetrie de son magnifique branchage. Les extrémités de ces branches sont par tout extraordinairement touffues; & ce gros & épais feuillage, retombe tout autour presque jusqu'à terre. De sorte que de quelque côté qu'on aborde de ce bel arbre, on ne peut apercevoir qu'une fort petite partie du bas de son tronc; quelquefois même, on n'en découvre rien du tout. Le milieu de tout cela étant ombragé, comme on peut se l'imaginer, les branches sont en dedans comme des perches sèches, qui semblent n'être là que comme une charpente faite exprès pour soutenir les pennaches qui sont tout à l'entour, & pour former ainsi de l'arbre, une espèce de cage ou de tente. A la vérité, la plus grande beauté de cette tente est au dehors, ou elle est toute charmante, mais l'abri & la fraîcheur du dedans ont aussi leurs délices. Malheureusement le fruit de ce merveilleux arbre n'est pas bon à manger. Ceux d'entre nous qui ont en la curiosité d'en goûter, l'ont trouvé âpre, & savent par expérience qu'il n'est pas non plus dangereux. Il a une odeur fort semblable à celle du coin bien mur. C'est une grappe dont les grains sont serrez; & le tout ensemble nous parvissoit quelquefois de loin comme le fruit de l'Ananas; ce qui fit qu'on s'accoutuma à donner à cet arbre le nom d'Ananas; quoi qu'il y ait une différence extrême entre ces deux Plantes. Les feuilles, d'un verd admirable, ont la queue si courte qu'elles paroissent être immédiatement attachées au bois. Les plus grandes ont quatre à cinq pouces de large par le haut, & finissent en pointe, leur longueur étant d'environ quinze pouces. Elles forment de gros bouquets, et laissent entrevoir ça & là les grappes, qui sont de diverses couleurs, selon qu'elles sont plus ou moins avancées. J'ai souvent fait le tour de ce Palais naturel toujours également ravi de sa grande & singulière beauté."

Such is Leguat's rather graphic description, and those who have taken tiffin at noon-day, when the sun is south of the line, beneath the "vacuos," as the Creoles term them, can well appreciate Leguat's admiration. By the way, a few words on the origin of this Creole term of "vacoa" applied to the Pandanus, may not be out of place. The French in the East Indies, who first became acquainted with the plant in Hindustan, Ceylon, and the Maldives, heard the Malayan name, "Má-karhi-keyo," applied to it. This was speedily Frenchified into "Macarequeau," and the French Creoles of the Mascarene Islands were not slow in abbreviating this long word into "Vacquois," which became Englished again as *Vacua*. The old voyager, Pyrrard de Laval, described the Macarequeau of the Maldives half-a-

century before Leguat's voyage, as "another fine tree, being both lofty and wide-spreading; it is also of great service. Its roots are above ground, long, thick, and of a polished surface; the roots are run into the ground only by their tips, so that the tree seems supported on piles and arcades, and you can see daylight through them. When they want some wood of very fine grain, they cut some of these roots, leaving the tree supported on four only; this does the tree no harm, for it, incontinently, puts forth others. The flower is 1 foot long, big, white, and bent back, and casts an excellent odour. The fruit is as large as a Pumpkin, and quite round; the rind is somewhat hard, and divided into partitions which reach the heart, in the manner of a Pine-cone; but the difference is that these portions are of fruit, and very excellent. It is of a deep carnation colour; the bulk of the fruit is not eaten, but it is full of kernels, which are passing sweet, and much better than those (of our Pines) here. The leaves are an ell and a half in length, and a span broad. They divide them into two strips, and write upon them as upon parchment with ink. The timber is good for nothing, being too sappy, porous, and full of filaments."

Now it is very evident that the designer of the engraving for Leguat's book was greatly puzzled how to represent the wonderful Pavillon; indeed, we can hardly believe that Leguat himself ever accepted this drawing as a true delineation of the Pavillon. It is more like the "Co-operative Cabbage" in the *Nonsense Book* of the late Edward Lear. However, the designer seems to have adapted his drawing from a modification of Rochefort's plate of the Momin, or Corasol, p. 143, the Sour Sop, *Anona muricata*? The artist has been misled by the term "grappe," bunch or cluster, and drawn the drupaceous fruit like a bunch of Grapes. The plant shown on the left of the wonderful tree is also puzzling, until it is compared with the figure given by Gulielmus Piso of the "Arundines Mambucum suo sacra sive Tabaxir," in *De Indie Utriusque Re Naturale et Medici Libri*, 1658, published by the Elsevirs at Amsterdam.

Professor Balfour found Pandani to be the commonest trees in the island, but there were only two species, and those, of course, peculiar to the island, and not found in the other islands of the Mascarene group. These are *Pandanus heterocarpus*, found on the slopes of the valleys, and *Pandanus tenuifolius*, found on the higher parts of the island. The first is a very variable tree, and its popular Creole names indicate this: *Vacua calé rouge*, *Vacua calé blanc*, *Vacua sac*, *Vacua poteau*, *Vacua parasol*, and *Vacua male*. The second, *Vacua chevron*, is much smaller. Now let us hear the distinguished amateur's remarks tacked on to the Professor's observations:—"In the large Palm-house in the Kew Gardens, there is a fine specimen of *P. odoratissimus*, which has flowered and fruited this year (1890). The fruits, two in number, hang from the topmost branches, and bear a close resemblance to Pine-apples, while the peculiar development of the long straggling branches, stout enough for posts or rafters, surmounted by a tuft of leaves growing directly from the wood, and the pendulous roots from the main trunk, present a remarkable appearance, and are worth comparing with the description in our text." We wonder our distinguished amateur did not proceed to taste the two fruits so closely resembling Pine-apples. Doubtless he could obtain permission to do so.

Some forty years after Leguat left Rodriguez, but before his death, an anonymous account of Rodriguez was drawn up by a French official, probably about 1730, which has never, as far as we are aware, been published in English. That portion of it referring to its plants, may be acceptable to our readers:—

"The island is, as I have said, mountainous on the east side and in the middle, but on the west side it is flat. The mountains are intersected by valleys and ravines, which have a winding course of a league within the mountains, and which widen towards the sea-coast, on which account the fresh

water, in the dry seasons, is lost before reaching the lower end, and there is no water but above in the pools. There is very little cultivable soil; all the ravines which are around the island share in it, some more, others less; and of almost all these recesses, there are scarcely any but are inundated by fresh water, and sea water in the hurricane season. It would be possible, however, to prescribe limits to the sea, and prevent it coming within these localities, with a little trouble. The most considerable of these valleys, in the first place, is half a league to the west of the Pointe du Sel, which has perhaps about 50 toises in area. The soil in this locality is about 5 feet in depth.

"The large valley has, perhaps, about 30 to 40 square toises of good soil; the sea comes up very far in high tides, gales, and hurricanes.

"The settlement of François Leguat may cover about 40 square toises. I speak of square, although the ground is not so; it is only the estimate that I make. Quite close to the settlement which I have just named, is a flat piece of land to the south of a sandbank, which is near the settlement. . . ."

[Here follow details on the localities where cultivable ground exists.]

"Large timber is not common in Rodrigue Island, for the finest are not more than 50 feet high, and most of them are not straight. I here give their names as they are called in Bourbon, and commence with those which are in the greatest number, to wit:—

"Bois rouge,* which is very large, but it is not high, and bearing branches fit to make ships timbers (*membres de vaisseaux*, perhaps *membreures*!).

"Bois pant† is neither large nor high, but throws out its branches below; then, growing upward, it forms an agreeable shade. This is the wood most fit for making the ribs of ships. I have seen one of these trees cover with its branches nearly 60 paces of ground.

"Benjoin‡ is in large numbers, and exudes gum like that of ile Bourbon. The largest which I have seen are from 40 to 50 feet in length, and 2½ fathoms in circumference; but these are rare, considering that they are for the most part twisted, and rotten at the heart, whilst there are plenty of other small Benjoints, which grow even in the rocks.

"There are numbers of trees which they call Affouche§ (Affourché?). These have no trunk, and are full of strong branches; they have a gum, white as milk.

"There is a large quantity of Bois d'ébène|| about 30 to 40 feet high, and 1½ fathoms in thickness (in circumference?).

"There is a little Bois de fer¶; it is neither high nor straight, and is not found everywhere.

"Bois de senteur** is here in small quantity.

"Bois de Neff†† is found in great numbers, and more commonly on the mountains than elsewhere; it is not large, and is all twisted.

"A tree is found which they call, at Bourbon, La Face de Judas,‡‡ in small quantity.

"The Bois de Buis§§ is common here, and very small; the parrots eat its seeds.

"There is not much Bois de pomme,|| and it is good for nothing.

There are some Bois de Renette,¶¶ which are small-tufted shrubs, the highest of which may be 4 or 5 feet.

"There are very few trees fit for building; some rafters of moderate-sized houses and some poles, and they are not very straight.

"There are Lataniers* throughout the island, and more frequently in the valleys and ravines; there are three sorts.

"The Palmistes† are in greater quantity than any one of the other trees, as well as the Lataniers; both one and the other are everywhere.

"There is another species of Palmiste, which they call at Bourbon Palmiste-poison.

"A quantity of small trees is found, which they call at Bourbon Pins,‡ with which they make mats and bags. These trees are in height about 10 feet, and which form a round parasol (*par en haut*), which they seem to have shaped expressly, for one leaf does not go beyond another. One is able to shelter oneself beneath, the sun's rays not being able to penetrate below, so tufted are they, and their leaves so well arranged.

"Bois blanc et rouge§ are rare.

"Bois d'éponge|| is not altogether so rare as the preceding.

"There are, besides, other trees and shrubs, of which I know not the names.

"There is found a little Chiendent,* and also Capillaire.

"Bois de demoiselle** is rather rare. The small birds eat seeds of it.

"There is found a little of the Bois de Lostan,†† which strongly resembles the Bois de Coudre,‡‡ which is in France. S. P. Oliver.

ORCHID NOTES AND GLEANINGS.

LÆLIA ANCEPS SCHRODERIANA.

THE largest and finest of the white forms of *Lælia anceps*, and differing, moreover, in the very broad, square, and blunt lip. The whole flower, says Mr. Rolfe, is of a lustrous satiny-white, labellum very broad, with short blunt rectangular side lobes; central lobe very broad, blunt, marginate with a rich orange disc, marked with a few crimson-purple longitudinal radiating lines. The pseudobulbs also are of unusual size. The white forms come from the Pacific coast, where they are cultivated on trees near the huts of the Mexican natives. This particular form was obtained by Mr. Bartholomew, and was sent home *via* San Francisco and New York, and thus arrived in better condition than those which are sent across the isthmus of Panama. This beautiful plant flowered simultaneously in the collections of Baron Schroder and of Lord Rothschild at Tring Park, and is beautifully figured in the last number of *Reichenbachia*, t. 13.

DISA GRANDIFLORA.

A fine figure is given in the last part of the *Reichenbachia* of this magnificent terrestrial Orchid. "Any one who has a very cool house or pit may cultivate this fine plant, if there is humidity and abundance of air." They should be potted in a compost of fibrous peat, with a sprinkling of silver-sand and sphagnum, with small pieces of soft sandstone interspersed. *Reichenbachia*, t. 15.

SELENIPEDIUM HYBRIDUM GRANDE.

A Lybrid raised by Mr. Seden, out of *S. Roezlii* by *S. caudatum*. It has the vigorous habit of the mother plant; the sword-shaped leaves frequently measure 24 to 30 inches in length, and the scapes attain a yard in height. The upper sepal is yellowish-white with yellowish-green veins; the lower one

broader with paler veins. The petals are from 12 to 15 inches long, the basilar portion yellowish with green veins, the remainder of a bright rosy-pink shade. The lip is pale greenish, toned with brown in front, paler behind; the infolded lobes ivory-white, spotted with deep rose. See *Gardeners' Chronicle*, April 9, 1881, and October 14, 1882. It may be grown in a compost of yellow loam, peat, and a small quantity of sphagnum, with fragments of charcoal, or bone intermixed. It should be grown in the warm-house, and receive an abundance of water when growing. A good illustration is given in *Reichenbachia*, t. 16.

ROSELANDS, TEDDINGTON.

The garden of Walter Furze, Esq., modest in extent, is made the most of by being devoted to specialties, each of which is kept well up with the times, and cultivated to perfection. Thus we find a house of tuberous-rooted Begonias, chiefly of the double varieties, grown at their very best; a fine collection of Chrysanthemums, in that condition that looks like prize-winning in due season; a large stage filled with vigorous Tea Roses; and last, but certainly not least in these days, a select lot of Orchids, which has been got together by the purchase of small and healthy plants of rare species and varieties, and growing them after a method which gives the greatest amount of pleasure, and one which is being practised by many other enthusiastic orchidophiles.

Cool Orchids, where they are really well grown always give great satisfaction, and it is in the cold house at Roselands, whose occupants are in the very best of health, that the best show is to be found. Let no one talk of the difficulty of growing Orchids in the neighbourhood of London, on account of the damage to the plants by fogs. Before such a statement could have weight, it would be necessary to show the ill-effects on the Roseland Orchids (and many other suburban collections), and for persons in districts not affected by fogs to produce better specimens, which would present great difficulty. Of course Mr. Furze, and his gardener (Mr. Coombs) do not regard fogs as blessings (in sooty disguise), but they make light of the statements of their scathing effect, as spread by some growers in the gardening papers.

In the *Odontoglossum*-house, where the plants stand on battens over a moist shingle close-stage, there is a fine show of *Odontoglossum Pescatorei* in great variety, one of the forms being very distinct, its large white lip has purple blotches in front of the crest, and its margin a row of coloured spots, so arranged as to seem as though they had been carefully placed with a pen dipped in mauve ink.

The forms of *O. crispum* and *O. triumphans* too are of excellent quality, the cool atmosphere in which their flowers have expanded, seeming to have given them thickness, firmness, and to add to their duration on the plants, some of the specimens having already been for a long period of time in bloom. In the same cool-house is a fine show of *Miltonia vexillaria* in bud, the plants being clean and sturdy. *Ada aurantiaca* and *Sophranitis grandiflora*, and a row of *Odontoglossum Rossii majus* at the back which have been very showy, and still have many spikes.

The *Cypripedium*s are represented by small healthy plants of most of the best species and varieties. The genus is a favourite one here, and much attention is given to it, and to which the plants evidently respond, if one may judge by the clean free growth and the bright colours of the flowers. In bloom were *Cypripedium aureum*×, many *C. callosum*, *C. argus*, and *C. barbatum*, as well as large plants of *C. Boxalli*, *C. bellatulum*, *C. hirsutissimum*, and others. In the same house are a very large and richly-marked form of *Coclogyne speciosa*, *Phalænopsis Schilleriana*, several well-bloomed *Miltonia*, *Phalænopsis*, *Leptotes bicolor*, *Dendrobium Jamesianum*, and other *Dendrobies*, &c.

A span-house in two divisions is devoted to the smaller *Cattleyas*, *Dendrobiums*, *Vandas*, &c., the end of it being occupied by a good collection of *Caladiums*.

* Bois rouge, probably the Bois d'olive rouge (*Eleodendron orientale*). (*Balfour*, p. 334.)

† Bois pant; the modern bois pant in the *Fectidia mauritiana*. (*Balfour*, p. 341.)

‡ Benjoin. *Terminalia mauritiana*.

§ Affouche. La foughe rouge, or La foughe petite feuille. *Ficus rubra* var. *amblyphylla*. (*Balfour*, p. 358.)

|| Bois d'ébène. *Diospyros diversifolia*. (*Balfour*, p. 355.)

¶ Bois de fer. *Eugenia cotinifolia*. (*Balfour*, p. 341.)

** Bois de sentier. Modern Bois senti, *Scutia Commersonii*. (*Balfour*, p. 334.)

†† Bois de Neff, or Bois de Nefle; *Labourdonnaia revoluta*.

‡‡ La face de Judas. What can this plant be?

§§ Bois de Buis. *Murraya exotica*, or, perhaps, *Bois de quivi*, *Quivisia lacinata* now, *Bois balais*. (*Balfour*, p. 333.)

|| Bois de Pomme, *Sideroxylon* sp., one of the *Sapotaceæ*. (*Balfour*, p. 355.)

¶¶ Bois de Renette, Bois de natte. *Imbricaria maxima*.

* Lataniers. *Latania Verschaffeltii*.

† Palmistes. *Areca jaunatre*, *A. lutescens*, was considered poisonous at Bourbon.

‡ Pins, i.e., Screw Pines. *Pandani*, various.

§ Bois blanc et rouge. *Eleodendron orientale*?

|| Bois d'éponge. *Gastonia cutispungia*. (*Balfour*, p. 344.)

¶ Chiendent, *Cynodon Dactylon*.

** Bois de demoiselle, *Kirganelia virginea*. *Phyllanthus casticus*, now called *castique*. (*Balfour*, p. 369.)

†† Bois de Losta. *Nuxia verticillata*.

‡‡ Coudrier, the Filbert or Hazel.

The larger plants of *Cattleyas* and *Lælias* occupy a house which is also rendered gay by the introduction of foliage plants, and flowering plants of the season other than Orchids. *Cattleya Schroderæ*, *C. amethystoglossa*, some fine *Odontoglossum citrosimum*, &c., are here in bloom, and the sturdy plants of *Lælia purpurata* are well furnished with flower-sheaths. Mr. Furze and his gardener get a well-merited reward for the care and attention they bestow on every part of the neat garden at Roselands.

CELMISIA VERNICOSA.

THE New Zealand *Celmisias* are so closely allied to the *Asters* and *Erigerons* of the northern hemisphere, that they may be looked on as their southern representatives. The species are



FIG. 117.—CELMISIA VERNICOSA: FLOWERS PURPLE.

numerous, and difficult of discrimination, as if the genus were still in the full swing of development, and intermediate forms had not had time to die out and leave the species sharply defined. *C. vernicosa*, the drawing (fig. 117) of which we owe to Prof. Kirk, of Wellington, is "a most beautiful plant," common from the sea up to 1000 feet in the Lord Auckland and Campbell's Islands. Sir Joseph Hooker originally described and figured it in the *Flora Antarctica*, i., 34, t. 36; and it is again described in the *Handbook of the New Zealand Flora*, p. 136. It is a tufted herb, everywhere polished and shining, with linear obtuse very leathery leaves, and purple flower-heads. The general appearance is shown in our figure. Dr. Kirk predicts that the *Celmisias* will take a prominent place among the florists' flowers of the future.

FORESTRY.

PRICES OF HOME-GROWN TIMBER AROUND LONDON.

SINCE writing on this subject twelve months ago, the value of home-grown timber has increased but little; indeed, considerable quantities of certain kinds remain unsold from year to year.

The decline of the Hop trade in Kent, and some of the adjoining counties, has told somewhat severely on the hundreds of acres of coppice timber that have for a great number of years past been cultivated almost exclusively for the production of the best class of Hop-poles. So great was the demand a few years back for this class of timber, that many acres of fairly valuable agricultural land were laid down to coppice plantations, and even then the supply was

be sold at as much as 2s. per foot cube, while that of ordinary dimensions and not too knotty, brings 1s. 8d. readily enough.

Larch has a ready market at prices varying from 10d. to 1s. 2d. per foot, much depending on the size of the trees, quality of timber, and place of location. I usually sell the general run of timber at 1s. per foot, unless for exceptionally good trees, when 1s. 4d. to 1s. 6d. is claimed.

Elm timber is not worth cultivating around London, when only in a grudging manner the timber merchant offers 8d. or less per foot, and even then he is quite unconcerned whether it falls to his lot or not. I felled some 400 or 500 feet of excellent Elm lately, and after hawking about for some days, had to accept 8d. as the highest bid.

Beech, for firewood, has a ready sale at 6d. or 7d. per foot, while Birch is worth about the same. Alder, if good, may command a penny or two more per foot than the latter, but it is likewise often left on the seller's hands.

Scotch Pine is not worth cutting down, no one caring to invest even in the best class of wood. Its value for firing is low, too.

There can be little doubt that Sycamore is the profitable tree of the future in this country, it having gradually risen from year to year, until now in some places it brings a higher price than the best class of Oak timber. For that of ordinary quality 1s. 8d. per foot can be easily procured, but large clear butts fetch proportionately more—even as much as 2s. 6d. per foot.

Sweet Chestnut is not so valuable in the south of England as in most other parts of Britain, but it can be readily sold at 1s. 3d. per foot, if at all good.

Large faggots, 18s. per 100; small, 2s. 6d. per 100. Firewood, 5s. per cartload. A. D. W.

SEASONABLE WORK.

The past month was a busy one for the forester, many things in connection with woods and estate management requiring his attention. If not already done, all fences on the estate should be examined and repaired, in order that they may be ready by the time when stock is turned out to graze. Drains in the woods and elsewhere should be cleaned out, where necessary, so that the flow of clear water for the use of the animals—whether wild or tame—may not be impeded. In the nursery department, the transplanting of all kinds of trees and shrubs should now be finished, and the ground between the rows of young stock that has not been disturbed should be dug. Last year's seed-beds will require weeding at this season, and in doing this work, all deep-rooting weeds should be loosened with a fork and pulled up, care being taken to disturb the young plants as little as possible, and dig the alleys between the beds. Finish all grafting of forest and ornamental trees, and repair any damage that may have been done by wind to those early grafted, and protect with straw or Fern tied round the clay grafts on tall stems, while dwarfs may be sufficiently protected by drawing the earth up to the plant, only leaving the scion above-ground. In dry weather, the seeds of Coniferous trees may yet be sown, choosing a loose, friable, sandy soil, formed into beds about 4 feet wide. In late districts, seed sown in the beginning of May turns out a success. Before sowing Larch seed, it should be spread on a floor to the depth of some 10 or 12 inches, and completely saturated with water, the heap should then be turned twice or thrice a day for about a week, by the end of which time the grains will have swelled and the "eyes" become more prominent, which is found to be beneficial in promoting an even and uniform braid of the plants. Sow the seed broadcast, and cover them with fine pulverised soil to the depth of a quarter of an inch. One pound of home-raised seed should be allowed for every 4 or 5 lineal yards of a bed of the size specified. When foreign seed is used it should be sown rather thinner than the former, as it is generally more fertile than home-grown seed. Scotch Fir and common Spruce seed should be sown in the same manner as Larch. The seed of the common Silver Fir, and several others of the same tribe,

inadequate for the demand. Now all is changed; poles fit for Hop stakes are almost a drug in the market, and coppice woods that once were eagerly bought up at £10 or more per acre, are now hard to get rid of even at half that amount.

Certainly during the past two years the demand for Hop-poles owing to the Hop crop being a decided success in certain districts, has been somewhat keener than has been the case for a very long time, the consequence of which is that the value of poles for supporting these has likewise risen in like proportion.

For the past three years I have sold fairly good coppice wood at £6 per acre, and even at that price the remuneration drawn from a medium class of ground is fairly satisfactory.

Oak timber of large size, and good quality, may

being larger, they require more space, and should be sown in such a way that the plants will stand about 2 inches apart in the seed-bed. When the seeds are sown, press down slightly with a light roller, or the back of a spade, and cover them with about half an inch of fine soil. On soft boggy soil in some parts of Ireland, I have found this tree to reproduce itself from seed on the spot.

The seeds of Coniferous trees of recent introduction should be sown about the end of April or beginning of May, and as they differ to a large extent in size, the forester will require to exercise his own judgment with regard to the covering which they may require in the seed-bed. It should likewise be borne in mind that the seed of several foreign species lies two years in the ground before they vegetate.

Tree seeds of all kinds require to be protected from the ravages of birds and vermin for some time after being sown, and when the quantity is on an extensive scale, it is the cheapest and best way to employ a person to watch the beds until danger is past. When the Larch and Silver Fir appear above ground, the plants should be protected from late spring frosts by sticking a sufficient quantity of evergreen branches here and there, and for want of this precaution, I have sometimes seen great havoc made by an untimely frost in a single night. I have occasionally found it advisable to keep the plants protected in this way till the middle of the month of June; but when danger from the frost is past, the branches must be removed and the beds weeded and sorted.

Coniferous trees of recent introduction often produce cones in early life, but very few male flowers. When such is the case, I have often found it necessary to economise the pollen by introducing it into the cone with a small hair pencil. In early summer, the cultivator should be on the look-out, and when he finds the pollen ripe, he should lose no time in applying it to the cones to ensure the fertility of the seed. No doubt this is troublesome, but the value of the seeds of some of the rare species will be found ample compensation. When the trees become well-established, they generally produce their cones and male flowers in more uniform numbers, so that artificial fecundation is unnecessary. This is a point of tree culture which appears to me to be rather neglected, as I always prefer trees raised from seed to such as are grafted. *J. B. Webster.*

TREES AND SHRUBS.

CESALPINIA JAPONICA.

THIS is a very pretty half-hardy flowering shrub. As a species the *Cesalpinias* are not possessed of much beauty, but *C. japonica* is well worth growing, and should be treated similar to the *Desfontainaea*. Its leaves are pinnate, flowers bright yellow, and borne in very graceful upright racemes, each flower being borne singly upon long slender stalks; they are very free flowering, and of excellent habit. *A. P.*

PRUNUS TRILOBA, *Lindl.*

Just now attention may well be directed to this grand Chinese flowering shrub, which was introduced by Fortune in 1857, and, without doubt, is the finest spring-blooming shrub that we have; yet its distribution is limited, considering the number of years that it has been in cultivation. It ought to become a popular shrub, and should find favour as a subject for planting singly on lawns, where it is not too much exposed to cold winds, because it blooms early in the spring, and the flowers are apt to be cut by frosts. Its rosy-pink blossoms are borne in great profusion on the young branches of last season's growth on some of the twigs of those at Kew. I counted thirty blossoms about the size of a crown-piece, and for the next three weeks it will be covered with flowers. Coming into bloom early, when flowers are few, and forcing readily, should secure its recom-

mendation. It should not be forced much, but be brought along very gradually; the flowers last then much longer when cut or on the plant. When the bloom is over, it should be placed in a gentle heat to form growth afterwards, being gradually hardened off, and subsequently planted in well-prepared soil, fully exposed to the sun, and be liberally supplied with water; or it may be kept in its pot, and afforded manure-water, and not, as is usually the case with plants that have been forced, neglected, as though they were of no further value. It is a good plan to divide the number of plants into two batches, and force one batch only in a year. It is quite at home as a wall plant, and if grown as such, its flowers will open a fortnight in advance of those on plants in the shrubbery. The shoots made the previous year should not be nailed to the wall unless they are very strong, but they should be allowed to hang free until the flowering-time is over, then all necessary pruning and nailing should be done. It delights in a good loamy soil.

Propagation is effected chiefly by grafting it on the common Plum in March, or budding in July. It can also be rooted from cuttings, and when seed is obtained, it should be sown in pans of light sandy soil, covering the seeds with sifted soil, and placing them in a temperature of 55°, and they will soon germinate. *H.*

ABIES WEBBIANA.

A Cornish correspondent sends us a branch of this Himalayan Silver Fir, remarkable for its robust habit, very stout branches, covered with a thick corky rind, and producing thickly-set linear-oblong leaves, the longer ones about 1½ inch long; those on the upper surface of the branch rather shorter, all deep green, and channeled above, but with two silvery-white bands separated by the prominent mid-rib beneath. The buds are surrounded at the base by a tube or sheath of numerous overlapping ruddy-brown oblong-acute scales, thinly covered with red hairs. The young leaves form dense, inversely conical or brush-like masses, their pale milky-green colour contrasting beautifully with the brown scales.

The young female catkin on the specimen sent emerges from a sheath of scales like those just described, and is 2½ inches long, parallel in direction to the branch, cylindrical, somewhat pointed, of the thickness of the little finger, and made up of a series of ovate-acute, or even acuminate bracts, of a lovely deep plum-colour. The scales are, at this stage, concealed, though in the ripe cone the bracts are hidden within the scales, which must, therefore, grow rapidly after fertilisation, and outstrip the bracts.

CONTINENTAL NOVELTIES.

A NEW CAULIFLOWER.

WE read in the *Gartenflora* for the present month of a kind of Cauliflower named "Hohenzollern," which was the result of crossing Riesen von Neapel = Veitch's Autumn Giant, with a dark green Curled Kale or Kohl Rabi. The raisers, Messrs. Dammann & Co., in San Giovanni a Teduccio, near Naples, say that it is at once a Curled Kale and a Cauliflower, and both curd and leaves may be eaten separately or together. Both parents have been grown side by side for a number of years, but owing to their flowering at different periods they have never crossed. By preserving the pollen of the one in wax-paper until the flowering-time of the other, the cross was easily effected. Almost all the seedlings show the same characteristics, but only the best are preserved. The leaves are somewhat blue-green, strong-ribbed, with white veins, and quite curly, especially at the edges, and completely enclose the flower, so that the latter does not become visible until it is half-grown. The flavour of the head is higher than that of other Cauliflowers. It is of medium size, but can be made a "Giant" by early sowing and good culture. The seeds will soon be put on the market.

THE WEEK'S WORK.

THE FLOWER GARDEN.

THE cold winds that prevailed more or less during the whole of April have had an injurious effect on Roses, which, instead of being able to grow freely, have become pinched and affected with curl in the leaves, a condition highly favourable to the ravages of the Rose-maggot; and great vigilance will be necessary in hunting for the enemy in the folds of the leaves, sharply squeezing the latter when the grub is discovered. This manner of freeing Rose bushes from the maggot is both more expeditious and safer than when an attempt is made to unfold the leaf, as there is no bruising of the latter committed if the pinch is not severe. The weather has not only favoured the Rose-maggot, but it has conducted to the spread of aphides, and allowed them to obtain a firm hold of the shoots; and if these latter insects are not quickly destroyed at their present stage, by being dusted with tobacco-powder, and when the shoots are longer and more pliable, dipped in tobacco juice or some other approved insecticide, or sprayed, great injury will result. Where Rose beds are so situated that a mulching is not unsightly, it should be applied, as being highly beneficial to the plants, especially if it consist of rotten manure.

BEDDING PLANTS.—The gradual hardening off and preparation of these plants will now require close attention, and some of them will be all the better for being planted at once. Among these may be mentioned *Violas*, *Calceolarias*, *Verbenas*, and all half-hardy annuals that have been raised under glass; but the more tender of these, viz., *Asters* and *Zinnias*, must be kept under cover till the weather becomes warmer, so as not to be spoiled by too early exposure. To have these and others of a like nature in condition to transplant readily and safely, they should be pricked out in light rich soil, as the plants then lift with plenty of roots. *Lupins*, *Stocks*, *Godetias*, *Coreopsis*, *Convolvulus*, *Nemophilas*, *Collinsias*, *Sweet Peas*, *Canary Creeper*, and annuals of that class, may now be sown where they are to flower, thinning them out after they are a few inches high, for unless space be afforded them to grow freely, the results are poor.

FINE-FOLIAGED PLANTS.—These play a very important part in flower gardens at the present day, and form capital foils to the flowering plants. For instance, what can be finer or more useful than *Cannas*, or *Ricinus* and *Maize*? and fortunately all of these and many others may be raised from seed in a few weeks, and got to a size large enough for planting out in the open. It is not too late even now for sowing *Ricinus*, *Maize*, *Hemp*, and *Tobacco*, these plants being of very quick growth; and plants raised at this period often do better than those earlier sown, which may get stunted in small pots. Besides the tender species, there are various hardy plants almost as good, of which the *Funkias* deserve especial notice, as being valuable for the centres or the edgings of beds; the most suitable being *F. Sieboldii* and *F. ovata variegata*, the leaves of both of which are very striking. These admit of ready increase, as they may be divided into as many pieces as there are crowns, and if planted in rich soil, these quickly spread and make a fine show.

HERBACEOUS BORDERS.—The chief attention that these require now, is to see that the strong-growing perennials do not spread too far, or become unduly crowded with shoots. *Phloxes*, *Helianthus*, and *Chrysanthemums* are liable to be thus crowded, and crowded shoots mean poor flowers; they should therefore be thinned out, leaving only the sturdiest and best situated shoots. *J. Sheppard, Woolverstone Park, Ipswich.*

THE KITCHEN GARDEN.

ONIONS.—Those which were sown in heat and pricked-off into boxes afterwards, may now be planted in beds of well-prepared soil dressed with soot and salt previous to planting. The soil should be lightly forked over, then trodden firmly, and stones and rubbish raked off. Shallow drills should be drawn 14 inches apart, and the plants set out 12 inches apart in the rows. The plants should be lifted with a trowel, and as much soil as possible left on the roots, and planted in holes without cramping the roots, or deeper than the bulbing portion was in the pricked-out state. In planting, allow some of the finer particles of soil to come into imme-

diating contact with the roots. If dry weather set in, afford water, so that they may get quickly established. Slightly hoe the ground after planting.

Keep the hoe in constant use among the Tripoli Onions of the autumn sowings, and any that may show flower-heads should have the head pinched off as soon as observed. A sprinkling of some kind of artificial manure should be sowed evenly, in showery weather, between the rows; and not letting any of it fall on the leaves.

CELERY.—The main-crop plants should be pricked out at 4 inches apart in cold frames, a layer of short warm manure, 3 inches, being put at the bottom of the frame on an impenetrable floor, and some light and rich soil put over this to the depth of 3 inches. Keep the frames closed for a few days after the plants are pricked out, shading them from strong sunshine, and sprinkling them twice daily with tepid water, giving air carefully first when the plants begin to grow, and airing more freely as the plants advance. The earliest raised plants should be kept well supplied with water, and if they are crowded, some of them should be planted in cold frames at 6 inches apart. Any that have been grown in pots for special purposes should be repotted into 2½'s, in loam, leaf-mould, and rotten manure of about equal parts. A cold frame is the best place for them for the present, duly attending to them with water, and syringing them overhead when closing the frames.

If the ground intended for Celery is vacant, the trenches may be thrown out, and the compost wheeled into them. I find by experience that deep trenches are a mistake, as by this mode of proceeding the surface-soil, which is always the best, is thrown out for blanching purposes only, and the plants stand on the less fertile subsoil. The trenches should not be more than 5 inches deep after the compost has been put into them; and then the plants will receive more light and air, and yet have ample space to retain the water afforded; the Celery will also keep in better condition in the winter, especially in a wet season. I grow 2000 plants annually, and none of them are planted in deeper trenches than is above stated. On light soils cow-manure is best, but on heavy soils the larger proportion should consist of spent Mushroom beds, spent hot-bed materials, or leaf-mould, reliance being placed on plenty of liquid manure whilst the plants are making growth. *C. J. Waite, Glenhurst, Essex.*

THE ORCHID HOUSES.

THE EAST-INDIA HOUSE.—Plants of *Calanthe Veitchii* and *C. vestita* will generally be sufficiently advanced in growth to have water afforded them regularly; in fact, from the present time until the flowering is past, the plant should not be allowed to become dry at the root, and as the growth advances, greater space should be afforded, or the plants will become drawn. The variety, *C. Veitchii superba*, is in colour undoubtedly the best, and it is a plant which may often be distinguished from the ordinary type by the pseudobulb only, which seldom has the pinched neck of *C. Veitchii* and others. Another hybrid, *C. Sedenii*, is a few shades deeper in colour than *C. V. s.*, and is also distinct in having a dark throat. The syringe should be withheld from these plants, or the leaves will be apt to "spot;" otherwise as much moisture as possible should be kept about the plants.

The lovely *Epidendrum bicornutum*, which is now in flower, is a plant which everyone who has a house with strong heat at command should grow. *Cattleya Schilleriana* is another plant which requires much heat and moisture at all times; and if these two plants be placed upon rafts or in baskets, with very little potting material placed about them—I find it better to put nothing but crocks—they may receive water almost daily. I find it better to dip them in a tank of water. Both plants will grow on a tree-fern stem. Such of the *Dendrobiums* as are making growth, should be carefully examined for thrips, which may be easily kept under by syringing well, sending the water with force against the under side of the foliage, where the thrip and red spider mostly harbour, at first. If the syringing be done in a satisfactory manner, and it is followed with a light fumigation with tobacco once a week, insects will give but little trouble. Genial weather having set in, the *Phalenopsis* are starting into leaf, and should any of these plants need to have the old sphagnum moss picked out, and new afforded, no time should be lost in doing this, as the young rootlets are readily injured whilst tender. Salt has been recommended

by many as a good kind of fertiliser when strewn about on the floors of the *Phalenopsis* house. I have tried it, and must confess that no difference was observable in the health of the plants. Atmospheric moisture should be increased as the day temperature rises with sunheat, and a night temperature of 70° may now be maintained. *A. G. Catt, Parkfield, Hallow.*

THE HARDY FRUIT GARDEN.

STRAWBERRY BEDS.—Young plants layered early in July, and planted out at half the usual distance apart, may have every alternate plant removed after the first crop has been taken, thus affording space for the remaining ones. The first crop is usually a good one, if the season be favourable. It is a commonly recommended practice to plant out the forced plants, after hardening them off properly, but as these are infested with red-spider to some extent, they should first be dipped in a solution of Gishurst soap and flowers-of-sulphur well mixed, the soil thoroughly wetted, and the roots at the outside of the ball loosened a little. Those plants which are intended to be planted should not be neglected, but planted as early as they can be hardened off, as this will save much watering, and give the plants a far better chance to make roots. If the ground has been prepared, let it be hoed and raked clean, then set the plants out by the line at 1½ foot by 2 feet apart, planting them very firmly, and on very light land ramming it with a potting-stick. Afford water to soak the soil thoroughly, and mulch with short manure. If an autumn crop is looked for, the plants may stand at 1½ foot apart, and the position of the bed should be a warm one. None but good early varieties should be planted for autumn fruiting.

PROTECTING FRUIT BLOSSOM.—Where thick protecting materials have been in use, they should be lightened, so as not to weaken the young shoots; and the blinds kept up day and night if the weather be mild. The Peaches that have set earliest will be benefited by getting a slight syringing with rain or river water in the morning, and when the fruits have got to be as large as Marrowfat Peas, the syringe or engine may be used with some force, so that red-spider and aphids may be dislodged. The ground is still very dry about the roots of wall trees, and attention should be paid to watering it, and weak manure-water afforded to trees which were cropped heavily last season. *H. Markham, Mercworth Castle, Maidstone.*

PLANTS UNDER GLASS.

The cool conservatory plants in this structure will now be making rapid growth, and will require weekly attention in the way of regulating the young growths, and fumigating on the first appearance of aphids on the plants. Introduce fresh plants in bloom as others go out, and keep everything neat and tidy, and all decayed leaves and flowers picked off, so that a pleasing appearance is always presented; also pay attention to the necessary shading during the hottest part of the day.

THE STOVE.—Plants of *Jasminum gracillimum* which flowered last winter, should now be making vigorous growth, and the present time is a good one for taking cuttings of the plant. Take them with a heel, they being more certain to strike than if cut off at a joint, and insert them singly in small pots filled with sandy soil. By striking them in this manner the roots are not disturbed when they are ready to be potted into 4 or 5-inch pots. Place the cuttings in a brisk bottom-heat in a close and moist atmosphere, and shade them; they will quickly root. Old plants which were shortened back, and started into fresh growth some time since, should now be moved into pots some two or three sizes larger than those in which they grew previously, removing as much of the old soil as may be done without unduly disturbing the roots. A good fibrous loam, with a small quantity of decayed manure and some silver-sand, makes a good compost for this plant.

THE GREENHOUSE.—*Begonias* which were raised from seed sown early in the present year and are large enough, should now be placed in the pots in which they are to bloom, also any tubers which were started late, to form a succession to others—may be moved into their flowering pots. A frame with a very slight amount of bottom-heat is the best place at this season to grow them, and until the plants come into bloom, taking off the lights when the weather is very fine, but matting up the lights securely every night for the present. *Cannas*, which

were started early in mild heat, and afterwards divided and potted into 48's, will now be ready for their final shift into 8 or 10-inch pots, using a compost of good turfy loam, a small quantity of manure, and coarse clean sand. Grow the plants in a cool pit from now onwards, till they show for bloom, when they should be taken to the conservatory, as the form of growth is such as to afford an agreeable contrast to the other occupants of this house. Shade the plants during bright sunshine so as to prevent the scorching of the leaves, and on sunny days syringe freely overhead. When they have filled their pots with roots, they will be much benefited if occasionally clear liquid manure be afforded them. Such climbing plants as *Tacsonia*, *Cobaea*, *Clanthus*, *Passifloras*, and *Lapagerias*, in this and other houses will require to be freely syringed whilst growing, and shaded in bright weather.

CELOSIAS raised from seed sown in March may now be shifted into 5 or 6-inch pots, using good loam, a little decayed manure, and sharp sand, as a compost for them. These plants should be kept close to the lights from the time the seedlings first appear until they bloom, using a light kind of shading when the weather is bright; otherwise the leaves will lose their colouring. Syringe the plants freely on bright days, as a preventive against red-spider, which is very partial to them. Another sowing may now be made, to form a succession to the first.

ACHIMENES.—Another batch of tubers of this most useful class of flowering plants may now be started for flowering late in the season. Tubers that were started in the last week in March and beginning of April will now be ready for putting into pots or hanging-baskets in which they are intended to bloom. Grow the plants in an airy intermediate-house, and at this season of the year paying special attention to watering and maintaining a moist atmosphere. If the pans, pots, &c., are stood on inverted pots above the stages or benches, the *Achimenes* does better than when these are placed directly on a wet bottom. *R. Milner, Penrice Castle, Swansea.*

FRUITS UNDER GLASS.

TOMATOS.—Fruits on early plants raised from cuttings will be approaching ripeness, and as the plants do not grow so strongly as seedlings, thinning must be severely done if large fruits are required, and moderate thinning for middle-sized fruits. The leaves must also be thinned to narrow limits, so that the sun may reach the fruits. Tomatos do not need much moisture at the roots, or a too rich compost; and in case disease of the ordinary type affects them, the house should be kept on the dry side, and a small amount of air afforded at night if the house is a very close one. A night temperature of 60°, and 75° to 80° by day in bright weather, will be sufficiently high; shut up early in the afternoon, damping down. Those plants which are to succeed these should have the shoots stopped, and trained thinly. As I have said before, Tomatos in houses are better when grown as one-stemmed cordons. Plants in pots should have strong stakes put to them before getting much advanced in growth. Plants for fruiting outside should receive their last shift, and be staked and grown near the light in a lower temperature, and with more air than the earliest plants. Seeds may be sown for raising plants to put out in pits that have been used for other purposes. A large quantity of fruit may be obtained in this way, if plants of a good size are got ready betimes. In whatever place they may be grown, the root-run must be restricted.

CUCUMBERS.—Fruits will now be abundant from winter-sown plants, but there should be no over-cropping, or the supply may fail when it is most wanted. Attend well to the thinning of the fruit and weak shoots, and top-dressing frequently with a warmed compost, consisting of loam and decayed manure, especially cow-dung that has been stacked some time after being mixed with pasture loam. The air should be kept moist, and the foliage well syringed early in the afternoon, allowing the thermometer then to run up to 80°. Very little ventilation will have been necessary of late, if due attention was paid to keeping the house in a moist condition, and shading the plants, as the east winds of themselves cause a dry atmosphere, which is the usual forerunner of an attack of aphids. Water with warm liquid-manure occasionally, and fasten plenty of young vines to the trellis, so as to keep up the supply of fruits. Sow seed for later crops. *G. Wythes, Syon House, Brentford.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	MAY 11—Eastbourne Horticultural Society.
	Royal Horticultural: all Committees meet. Lecture on Hybrid Rhododendrons, by Rev. Professor Henslow.
TUESDAY,	MAY 12—The Executive Committee of the National Rose Society, Hotel Windsor, Victoria Street, Westminster, 3 P.M.

SHOWS.

MONDAY,	MAY 11.—Ghent Horticultural (three days).
WEDNESDAY,	MAY 13—Royal Botanic, Regent's Park.
	Bath Horticultural.
THURSDAY,	MAY 14—Oxfordshire Horticultural.
FRIDAY,	MAY 15—Manchester Royal Botanical Opens. It lasts to May 22.

SALES.

MONDAY,	MAY 11—Sale of Orchids at Messrs. Seeger & Tropp's Nursery, East Dulwich, by Protheroe & Morris.
TUESDAY,	MAY 12—Sale of Plants, Greenhouses, &c., at Harlesden, by Protheroe & Morris.
WEDNESDAY,	MAY 13—Sale of Lilies, Plants, &c., at Protheroe & Morris' Rooms. Special Sale of Orchids in Flower, at Stevens' Rooms.
FRIDAY,	MAY 15—Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—53° 8.

The Deciduous Magnolias.

OF these handsome early-flowering trees and shrubs, *M. conspicua* (the Yulan) and its varieties are the best known, and most often found in gardens. The example which forms the subject of the accompanying illustration (fig. 118) (for which we are indebted to Mr. HUDSON, of Gunnersbury), is the original type with pure white flowers, without any semblance of purple. Mr. HUDSON never having once detected any tinge of colour upon the petals. This tree must have been planted in its present position previous to 1834, and there is good reasons for believing it to have been one of the first planted when it was put into commerce after its introduction from China in 1789. It must have taken very many years to have reached to its present size; besides which, it was deprived of a large branch some years ago, probably because it hung too much over the terrace walk. It is planted in a position where it is sheltered from the north-east and easterly winds, and partially so from the north. From the former points of the compass this protection is in the form of two huge Horse Chestnut trees, the foliage upon which is usually in a forward condition when the flowers of the Magnolia are unfolding. Protection is thus to a great extent afforded at the time when it is most required, without the tree being in any way hastened into flower by such a shelter as would be gained were it partially surrounded by evergreens of any size. It is growing in a light loamy soil, with a subsoil of gravel; it does not, therefore, make an over-luxuriant growth. As an assistance to this tree, Mr. HUDSON top-dressed it with good soil for several springs. During the past fifteen years it has failed to yield a good crop on about three separate springs, that of 1880 and the present being the most conspicuous instances. In other years it has invariably given an abundant crop of flower, that of last year and of 1889 being prodigious. It is, as a rule, in good

condition from the middle of April to the second week in May—sometimes a little earlier, but not often so. The buds upon the extremities of the branches open nearly three weeks before those in the central portion of the tree; thus a good succession is secured. It is at times slightly injured by frost, but not to a serious extent. Its height is somewhat over 30 feet, by nearly as much in diameter. Last autumn it set a splendid crop of flower-buds, but these were greatly injured by the severe frost—only a few dozen having escaped. It was also injured by the severe blast which passed over this part of the country a few years back, when the air was charged with saline matter to such an extent as to injure many fine trees.

There are at least two fine specimens of the deciduous Magnolias at Sion House, one of which is of about the same dimensions as that at Gunnersbury. Mr. WYTHES informs us that the flower-buds are not injured with him this season. These trees will, therefore, soon make a good display.

The following list for which we are mainly indebted to Messrs. Veitch, comprises the deciduous varieties in cultivation:—

**M. conspicua*, alias *M. Yulan*, introduced from China in 1789. Its petals are spoon-shaped.

Var. *Soulangeana*, perhaps a hybrid between *M. conspicua* and *M. obovata*.

*Var. *Soulangeana nigra*, with very dark plum-coloured flowers.

Var. *Alexandrina*.

Var. *Norberti*.

The two last and *Soulangeana* are very much alike in colour, having white flowers, streaked with purple. *M. precia* is referable to the same species.

M. glauca has nearly evergreen leaves, glaucous beneath. *M. Thomsoniana* is a variety of this. Both have creamy-white fragrant flowers.

M. obovata, a Japanese species, introduced in 1790, has obovate leaves and purple sweet-scented flowers, with oblong obtuse petals. *M. purpurea* and **M. Lennè* are darker-coloured varieties. Other varieties are var. *discolor*, *Borreriana*, *rubescens*, *angustifolia*, and *discolor*.

**M. stellata* is a dwarf-growing Japanese species, with double white fragrant flowers. It is also known as *M. Halleana*, and is figured in *Gard. Chron.*, vol. vii., 1890, p. 617.

M. tripetala, the Umbrella Tree, so called from the arrangement of the leaves at the end of the shoots, like the ribs of an umbrella. It has large white flowers.

M. Fischeri has purple flowers.

M. acuminata, the Cucumber Tree, one of the best town trees, has small yellowish-green flowers.

M. macrophylla has very large leaves and white fragrant flowers. United States, whence it was introduced in 1800. It is scarce, on account of its being so tender when young, and is generally injured by frost, as it makes thick sappy wood, which does not get ripened.

M. Fraseri is synonymous with *M. auriculata*, and may be known by its leaves auricled at the base. Introduced in 1786 from the United States.

The species marked * are those which are the finest for general cultivation.

M. Campbellii is a very fine rosy lilac-flowered East Himalayan species, which has not been known to flower in England, although we believe there are large plants of it about.

We once saw flowers from the garden of the late Mr. CRAWFORD, near Cork, but after the plate in Hooker's *Illustrations of Himalayan Plants*, the flowers were disappointing. See *Bot. Mag.* t. 6793.

The general order of flowering, beginning with the earliest, is:—

- M. conspicua*
- „ *stellata* (Halleana)
- „ *conspicua Soulangeana*
- „ „ *Alexandrina*
- „ „ *Norberti*
- „ *purpurea*
- „ *Fischeri*
- „ *conspicua speciosa*
- „ „ *Soulangeana nigra*
- „ *purpurea* var. *Lennè*
- „ *glauca*
- „ „ *Thompsoni*
- „ *Campbelli*
- „ *tripetala*
- „ *acuminata*
- „ *hypoleuca*
- „ *Fraseri*.

Of *M. stellata* there is a variety which is not yet in commerce, with blush-coloured flowers. It was sent home from Japan by Mr. MARIES. Flowers of this kind were sent last week, they are of a pleasing shade.

At Messrs. PAUL & SONS, Broxbourne Nurseries, *M. stellata* has also stood well. A fine young specimen which is there planted upon the rockery, is this season flowering profusely. At Kew the plant has been in bloom for several weeks, and the flowers are slightly injured by the frost. This variety is of more bushy habit and dense growth than *M. conspicua*. Mr. GEORGE PAUL states that he finds *M. stellata* to be extremely useful for flowering early under glass for a cut supply.

With the careful selection of a suitable position for these early-blooming deciduous Magnolias, there is no reason whatever why they should not be more extensively planted. Given a good shelter at the flowering period, with the opportunity of well ripening their wood in the autumn, there need not be any fear of bad results ensuing during our average seasons. We have seen them do well planted against the wall of a house. In exposed positions this would be the better plan to adopt, as a slight protection could be afforded without much difficulty whilst in flower.

Professor SARGENT, in his recently-published first volume of his magnificent *Silva*, thus classes the North American deciduous species:—

Leaves subsistent, young shoots pubescent

—*M. GLAUCA*.

Leaves deciduous.

Leaves oblong or ovate, or subcordate; flowers small, green, or yellow—*M. ACUMINATA*.

Leaves obovate or oblong-cordate at the narrow base; flowers very large, white—*M. MACROPHYLLA*.

Leaves crowded at the summit of the flowering-branches; leaf-buds glabrous.

Leaves obovate, lanceolate, pointed at both ends—*M. TRIPETATA*.

Leaves obovate, spatulate, auriculate at the base—*M. FRASERI*.

M. Kobus, the *M. parviflora* of SIEBOLD, is a distinct-looking species, but whether it is in cultivation or not we do not know. The Japanese species, as we learn from Professor SARGENT, grow more quickly when grafted on *M. acuminata*.

THE COLONY OF THE LEEWARD ISLANDS.—The text of Mr. MORRIS's lecture on these islands has just been printed in the journal of the Royal Colonial Institute. It comprises a description of the natural features of the islands and their agricultural resources. As in the case of agriculturists nearer home, the colonists have manifested a tendency to put all their eggs into one basket, and with more or less disastrous results. Thanks to the initiative of Kew, and the energy of Mr. MORRIS, "botanical" stations, which

utilised as nurseries for Orchids and other tropical plants, whence the home market may be supplied, somewhat as the propagating houses at Kew furnish the decorative plants for the show houses.

HOME-GROWN BULBS.—An interesting experiment is in progress at Kew. Dutch bulbs are good, but they cost money, and my Lords of the Treasury keep a tight hand over expenditure. It has therefore been decided to make a trial to ascertain

firm at the mercy of the market could do. At any rate, it is within our knowledge that Dutch bulbs were grown in Kent many years ago, but although their quality was acknowledged to be quite up to average, they could not be profitably disposed of, because the grower could not fairly describe them as Dutch bulbs. There is a tradition, for the authenticity of which we cannot vouch, that these same bulbs were afterwards sold to the late M. VAN HOUTTE, of Ghent, but even Ghent is not Holland. In any case, the result of



FIG. 118.—MAGNOLIA CONSPICUA AT GUNNERSBURY HOUSE, ACTON. (SEE P. 590.)

should rather be called agricultural stations, have been instituted for the purpose of introducing and distributing tropical and other plants likely to be of economic importance and suitable for cultivation in particular districts, such as Coffee, Tea, Caoutchouc in various forms, Cinchona, spices, fibre-plants, and so on. A great federation of botanical and agricultural stations, with Kew as the centre, has been the ideal of successive directors, and now the ideal is being realised. Perhaps in the future the West India Islands, or other suitable localities may be

whether the bulbs may not be grown as well and as economically here as on the other side of the North Sea. Of course, long years of experience count for a great deal, and market customs for even more; but the climate and soil of Kew, to say nothing of cultural skill, are not so very different from those of Holland as to offer any material obstacle to bulb culture. It is a mere matter of finance as it seems to us. Can we compete with our Dutch friends in this respect? A public establishment may do so more readily than a private

the experiments made at Kew in the case of Hyacinths and Narcissus are so far eminently satisfactory.

NEWCASTLE-ON-TYNE.—A Society having for its object the advancement of gardening and gardeners in the North of England has been formed in Newcastle, which will supply a want that has made itself felt for many years past. The district, like many others in the northern counties, contains a large population fond of gardening pursuits, and

large gardens are liberally dotted around the town; but a central meeting-place was sadly wanted, where gardeners and amateurs might meet to discuss matters of horticultural interest, and exchange views. An account of the preliminary meeting called to inaugurate the Society will be found in to-day's issue.

SCOTCH FIRS AT HAM HOUSE.—In an article on this famous historic mansion, near Richmond, contained in the present number of the *English Illustrated Magazine*, Lady SUDELEY speaks of "the tall dark-crowned Scotch Firs, said to be the first ever planted in English soil." We trust that Lady SUDELEY, who doubtless records a family tradition, will publish some further corroborative evidence on this doubtful point. According to Loudon's *Arboretum*, the Scotch Pine was known to Evelyn, and the trees at Warminster, on the estate of the Marquis of BATH, are known to have been planted in 1696. The trees at Ham House, to which Lady SUDELEY refers, were, in 1838, 70 feet in height, the diameter of the trunk 4 feet, and of the head 80 feet. At Whitton, on the other side of the Thames, there are, says Loudon, many specimens, one hundred years planted, from 70 to 80 feet in height. In Buckinghamshire, at Harlingford, Loudon also mentions trees one hundred and sixty years old, with a height of 70 feet, and cites many other cases in various counties, which go to show that in all probability, the Ham trees have no claim to be the first planted in England.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* will take place on Tuesday, the 12th inst., at 6 P.M., Sir J. D. T. LLEWELYN, Bart., in the chair. The subject for discussion will be, "Gardens and Plants in the West Indies," illustrated with lantern slides; to be opened by Mr. D. MORRIS.

ANNALS OF BOTANY.—The eighteenth number, published in April, contains the full text of the paper on the relative antiquity of the leptosporangiate and of the eusporangiate Ferns, which formed the subject of an address before the Fern Congress of the Royal Horticultural Society at Chiswick. The current opinion is, that the simpler leptosporangiate Ferns, such as the filmy Ferns, are the more primitive, while the eusporangiate are more highly developed, and of more recent origin. Professor BOWER, however, inclines to the view that the simpler forms are degenerate representatives of more highly organised forms. Mr. BAKER contributes a paper on the "Vascular Cryptogams of St. Vincent," besides an important list of the Ferns which have been described as new since 1874, the date of the publication of the last edition of HOOKER's and BAKER's *Synopsis Filicum*. Several other papers of exclusively botanical interest are given in this number.

SOUTHAMPTON HORTICULTURAL SOCIETY.—The Council of the Southampton Horticultural Society have decided to hold a Chrysanthemum Exhibition this year, in addition to the spring and summer shows. The Spring Show is to be held on Whit-Monday, May 18; the Summer Exhibition—the central feature of the year—on Saturday and Monday, August 1 and 3; and the Chrysanthemum Show on Tuesday and Wednesday, November 3 and 4, at the Skating Rink.

ROYAL BOTANIC SOCIETY OF LONDON.—The first of a course of lectures was delivered on May 1, before a large audience, by Professor MARSHALL WARD, F.R.S. The subject, "Parasitic Plants," was illustrated by a large number of diagrams and specimens from the Society's gardens and museums. Commencing by defining parasitism in plants, he showed how universal the habit is, and how greatly the plants affected by it degenerate from the family they belong to. He enlarged upon the various degrees exhibited by different species, from the Fiji Sandalwood, which is parasitic at will, to the *Rafflesia*, from Sumatra, in which the whole plant is reduced to a flower springing from the stem of the host-plant.

"BOTANICAL MAGAZINE."—The number of the *Botanical Magazine* for May contains coloured illustrations of the following plants:—

Yucca rupicola, t. 7172.—A stemless species, with tufts of sword-shaped leaves with minute horny teeth, and the margins and erect panicles of cream-coloured flowers, the segments tipped with pink. It is a native of Texas and New Mexico. The specimen figured was from the garden of Canon ELLACOMBE.

Hermannia cristata, t. 7173.—A South African species, with lanceolate serrate leaves, and small nodding, deep orange-coloured flowers, about 1 inch long, with spirally overlapping petals. A pretty greenhouse plant. Kew.

Wahlenbergia undulata, t. 7174.—A decumbent species, with slender hispid branches and sessile linear leaves. The flowers are about 1 inch long, bell-shaped, five-lobed, slatey-blue. Introduced from King William's Town by Mr. WATSON. From its habit, it is well adapted for pot-culture as a hanging plant. It requires to be grown in a cool house. Kew.

Pitcairnia Roezlii, t. 7175.—A species marked by its distinctly petioled, comparatively broad entire lanceolate leaves, covered with white scales on the under surface. The flowers are borne in rather loose racemes at the tips of the scape; each flower is about 3 inches long, cylindric, curved, bright scarlet. Kew.

Calogyne Rossiana, t. 7176.—A Burmese species, with decurved ascending racemes of starry cream-white flowers, whose segments are linear, while the three-lobed lip is marked in the centre by two projecting crests. Kew.

TIGER'S MILK.—Mr. RIDLEY, of Singapore Botanic Gardens, has been investigating the nature of the vegetable production, considered by the Malays to be the congealed milk of the tiger! and which is considered a valuable remedy for asthma. According to Mr. RIDLEY's examination, this tuberos mass is a "Sclerotium," or compacted mass of fungous threads.

SUGAR-CANE IN LOUISIANA.—It appears from the report of Dr. STUBBS, the Director of the Sugar Experiment Station at New Orleans, that a dry, warm winter, followed by a moderately dry spring, and this succeeded by a hot, wet summer, are conditions favourable to the maximum growth of cane.

SURVEYORS' INSTITUTE.—The next meeting will be held on Monday, May 11, at 12, Great George Street, Westminster, when a paper will be read by Mr. W. G. S. ROLLESTON (Fellow), entitled, "State-created Small Holdings." The chair to be taken at 8 o'clock.

TELLIMA AFFINIS.—From Mr. T. SMITH, Daisy Hill Nursery, Newry, comes a specimen of this pretty plant. Its leaves are not unlike those of the Saxifrages of the hypnoides group, while the flowers resemble those of *Saxifraga granulata*, but each of the five white petals is divided into three lobes.

THE "FLORA" IN COLOGNE.—HERRN FINKEN has been appointed to the post of Garden Director. The School of Horticulture at these gardens will be closed.

VEGETATION OF URUGUAY.—M. ED. ANDRÉ recently addressed the Members of the French Acclimatisation Society on the results of his botanical researches in Uruguay. In planting the parks of Monte Video, M. ANDRÉ has very wisely determined to avail himself largely of the native vegetation. There will not be much difficulty in finding suitable subjects, for taking a few of the plants mentioned in M. ANDRÉ's letter promiscuously, we find the Pampas Grass, the giant Eryngiums, Verbenas, Petunias, gigantic Thistles, *Lucuma*, *Eugenia*'s, Tillandsias, Palms (*Cocos australis*), Calliandra, various Laurels, Erythrina, and very many other suitable plants. What a pity it seems that our

Indian and Colonial friends do not follow M. ANDRÉ's plan of utilising and developing the resources offered by the native flora, instead of endeavouring to reproduce under unfavourable conditions the gardens and flower-shows of Europe.

NEST-MAKING ANTS IN THE STRAITS SETTLEMENTS.—Mr. RIDLEY thus describes the habits of the caringa ant:—"When a nest is to be built, a number of ants seize one edge of a leaf in their jaws, and by sticking the claws of the hind legs into an adjoining leaf, steadily draw the two edges together. Usually one ant commences the work; then others come up and assist, till finally a large number can be seen holding on tightly. The structure of the legs is evidently adapted for this work, as they are remarkably long, and furnished with very sharp hooked claws. If the edges of the two leaves are still too far apart, and one ant cannot reach both edges, a chain is made. One ant grasps one edge with its jaws, another seizes him gently but firmly by the notch above the abdomen in its jaws. A third repeats the operation on the second, and holds the second leaf by its hind claws. In this manner the leaves are gradually pulled together till the edges almost or entirely meet. The ants can remain in this strained position for a very long time, but usually in a few minutes others come up and commence to sew the leaves together with silk. This is done in the following way:—One or two ants come from the interior of the nest, each bearing a larva in its mouth, the tail of the larva pointing outwards. They then commence by applying the tail end of the grub to the edge of one leaf, irritating it by quivering the antennæ over and upon it. The grub emits a thread of silk, which is fixed apparently by the antennæ of the ant to the leaf-edge. The sewer then runs across to the other leaf, drawing the thread from the grub, and fixing it there, and thus it goes backwards and forwards from leaf-edge to leaf-edge, till a strong web of silk binds the two leaves together. No silk is used in lining the nest, but any holes or spaces between the leaves are closed with a curtain of silk. When a grub's silk-producing power is exhausted, it is taken back to the interior of the nest, and another one fetched. The rapidity with which the work is done is wonderful. The courage of the caringa is marvellous. It does not scruple to attack any insect however large. I once witnessed a fight between an army of caringas, who tenanted the upper part of a Fig tree, and an advancing crowd of a much larger kind of black ants. The field of battle was a large horizontal bough about 5 feet from the ground. The caringas standing alert on their tall legs, were arranged in masses awaiting the onset of the enemy. The black ants charged singly at any isolated caringas, and tried to bite it in two with their powerful jaws. If successful the caringa was borne off to the nest at the foot of the tree. The red ant, on the other hand, attempted always to seize the black ant and hold on to it, so that its formic acid might take effect in the body of its enemy. If it got a hold on the black ant, the latter soon succumbed and was borne off to the nest in the top of the tree. Eventually the caringas retreated to their nest, and the last who left the field was one who had lost one leg and the abdomen in the fight, but notwithstanding this, I saw it alone charge and repulse three black ants one after the other before it left the field."

PROTECTION v. FREE TRADE.—Parisians are fond of calling their city *la ville la plus hospitalière du monde*, but as many of us know, the hospitality has to be paid for as a rule, and is strictly conditioned. Owing, it is alleged, to the large numbers of market plants exhibited by foreigners in Paris at the Central Horticultural Society of France, the French nurserymen, or some of them, have protested against the admission of foreign competitors to their shows. The French exhibitors complain of their exhibitions being treated as mere marts for the sale of plants of no special horticultural value. We do not know what the rules of the Society may be, or how far, if at all, foreigners may have abused the hospi-

tality extended to them, but the case might be met if power were given to the superintendent to refuse admittance to collections of market plants. It is to be desired that this power were more often exercised here also. Of what value, except for trade purposes, are long banks of Cyclamens or Primulas? For purposes of critical appreciation, a few typical illustrations are all that is needed. For purely decorative purposes the case may be different. In like manner some French nurserymen are protesting against the sale of Belgian plants by auction in France. It appears that according to the French law, public auction of articles of merchandise are not lawful except in the case of the goods of a deceased person. Under no other circumstances is the sale of commercial objects lawful, unless expressly authorised by the Tribunal of Commerce. A dispute has arisen, and it may be hoped that in settling it the French judges will take a broad view of the case, and not fetter trade with unnecessary restrictions. Laws made for the special benefit of the few can never be defended in principle.

POST-OFFICE PERVERSITIES.—Mr. UNCOTT GILL has done good service by publishing a pamphlet on the registration and postage of newspapers. The general public, accustomed to the excellent system of letter-distribution, has little or no idea of the absurd restrictions which the authorities of the Post-office have the power of inflicting on newspaper publishers, and of the harassing vexation and loss so occasioned. The defence of the authorities is, that it is necessary to provide the revenue. No one would object to this; but by the restrictions now imposed, it seems as if the revenue must suffer rather than gain. The postal authorities claim to edit the papers as well as to transmit them. We think, and the public will, we are sure, concur, that it would be better for the Post-office to stick to its proper work, and leave the editors to do theirs, as they certainly have no wish to trench on the province of the Post-office.

FLOWER GARDENS IN LONDON.—In addition to the flower gardens in the parks and squares of the metropolis, St. Paul's Churchyard is now quite gay with spring-flowering bulbs, such as Hyacinths, Crocuses, Scillas, &c., in a variety of colours, of the best kinds. Not far distant is St. Sepulchre's Church, on the Holborn Viaduct, where also a pretty show of spring flowering bulbs may be observed in the beds. The old parish burying ground of St. Marylebone, is also laid out with borders, &c., where deciduous and evergreen shrubs are planted, the flower beds being alive with Hyacinths, Tulips, &c., which show promise of good results in the way of bloom, the Hyacinths especially are throwing up some good strong flower-spikes. The Gardens and the old burial ground of St. Mary's, Paddington Green, has become a beautiful recreation ground for the residents of that locality during the last few years. Going back again to the W.C. district, Leicester Square, through the munificence of Baron GRANT, has become one of the neatest and best kept gardens of the Metropolis, with its large fountain of water and beds of spring flowers; while there is ample seat accommodation for those who prefer to sit for awhile and rest while admiring the spring flowers, and watch the startling audacity of the London sparrows as they come to feed from the pieces of bread that are thrown to them. Further to the south-west, Parliament Square stands out conspicuous, with well-filled beds of spring flowers. The Victoria Embankment Garden is another charming place to spend an hour amongst the flowers, all in neat order and good trim generally, and being in such close proximity to the Embankment, it is naturally one of the best promenades in London, and in fine weather it is one of the pleasantest spots in the metropolis, and with the exception of the beautiful gardens at the far west end of Hyde Park, Kensington Gardens, almost the only place where a selection of the choicest trees, evergreens, deciduous shrubs, and hardy herbaceous flowering plants may be

seen. The hardy flowering trees here, such as the pink and white Thorns, double and single; the double-blossomed Cherries, Laburnums, Pavias, scarlet Horse Chestnuts, Tulip Trees, Magnolias, &c.; besides the fine banks and beds of Rhododendrons, and the elegant Birch, the coloured Beech, and Weeping Ash, and others make up the collection.

THE FLOWER BEDS IN HYDE PARK.—It is an open question whether any finer display of Hyacinths, Tulips, &c., can be seen at any time or place than that which at present meets the eye at the east side of Hyde Park, close to Park Lane. The Hyacinths are now at their best, in the more distinct colours of light and dark blue, white, pink, red, and blush. Of blues, Charles Dickens, Couronne de Celles, Regulus, Mimosa, Baron von Thuyll, and King of the Blues, a late variety. In reds, Amy, Robert Steiger, and Sultan's Favourite. Pink, Grandeur, Merveille, and Gigantea. White, comprise Madame Van der Hoop, and Mirandolina. The Tulips are now in perfection; the varieties include such good and distinct sorts as Keizer Kroon, a very fine and showy flower; Joet Van Vondel, Queen of the Violets, La Belle Alliance, Crimson King, Queen Victorine, Thomas Moore, Comte de Mirabeau, Gloria Solis, Molière, a pretty variety; Chrysolora, a splendid yellow; and the sweetest of all, the lovely Yellow Prince. There are also some fine beds of Auriculas, Polyanthus, and Cowslips in good colours; Doronicum austriacum, one of the best yellow flowers for spring. Muscari botryoides (Grape Hyacinth), Narcissus bicolor Horsfieldii, N. incomparabilis Stella, and N. Burbidgei, with the large trumpet N. maximus. Some of the later Narcissi are still backward, only throwing a few blooms, but taking into consideration the hard winter we have passed through, and the succession of east winds that have prevailed for so long, it is almost wonderful that the flowers look so fresh and even; many of the beds are pictures in themselves. In the borders facing the south, Tulips, some few Hyacinths, Scillas, Polyanthus, Narcissus, Arabis albidia, and the tall yellow and terra-cotta Crown Imperials, make up a pretty show. It is only natural that on fine days, and especially on Sundays, the well-kept paths are crowded with well-dressed admirers of both sexes, feasting their eyes on the fine display of hardy bulbs and spring flowers to be seen in such immense quantities, and in such splendid colours.

THE GARDENS AT ALNWICK.—A recent number of *Cornhill* contained a capital paper on "The Castle of Alnwick," and the following extract will be found of special interest to our readers:—"The gardens Pennant found too trim for his taste lie to the east of the castle. Here, again, we are reminded of the possessions of Italian princes in past centuries, notwithstanding the cold skies and keen winds of the 'North Country.' There are terraces sloping up one above another, parterres bright with flowers arranged with geometric precision, parterres green with convolutions of Box and Ivy without flowers, leafy screens of Linden trees, squared edges of Yew and Privet almost as compact as masonry, banks with festoons of foliage on them, wide walks bordered on either side with wide flower-beds all the more brilliant for the contrast with their smooth grass bordering, and on three sides of the goodly acres thus treated, stands a high red-brick wall covered with fruit trees. In the heart of the garden, in the centre of the parterres, is a large fountain, or *carrie d'eau*, with a polished semicircular red granite lip, or rim. At the lower end of this division, or opening, stands a fine conservatory, 100 feet long, with two other glasshouses about as long on either side of it, at a little distance, wing-fashion. At the upper end, at the full height of the sloping terraces, is an Italian-looking gateway of three arches filled with ornamental ironwork of the lightest workmanship, which gives access to other portions of the gardens and grounds. To the west of the fountain is a quadrangular *allée verte* of Linden trees trained to

form a green colonnaded cloistral walk round a central Paradise, to use an old word for the grassy square enclosed by it; to the east is the Rose garden—some thirty beds of choice Roses cut out of greensward, which is an addition to an older starlike device of Roses near it, originally thought of, probably, by Capability Brown. And beyond all this are many kitchen gardens, glass-houses where Pine-apples are grown in great numbers, vineries, ferneries, an Orchid-house, and most of the items that go to make up Lord Bacon's idea of man's greatest happiness. The ornamental pleasure-grounds encircle the gardens and extend westwards, where they enclose the river, and finally merge in the parks mentioned, round which runs a stone wall about twelve miles long. The parks are traversed by forty-seven miles of roads, and contain all that remains of Alnwick Abbey and Hulin Priory, and some of the loveliest spots in this "dear kingdom of England," as the Saxon poet called our native land. On the summit of a heather-clad mount, about two miles westward of the castle, is an ornamental column erected by the first Duke of Northumberland, from the balcony of which may be seen many miles of the borderland committed by so many sovereigns to the keeping of the Percies, with the Aln winding below, the ocean spreading along the north-east coast, with Grace Darling's lighthouse as a central spot of interest upon it, the Cheviots rising up like a natural barrier to the Scots, and in the same direction Flodden Field, with, we must conclude, somewhere among the distant hills, the scene of 'Chevy Chase,' or of the series of encounters in the course of centuries that were concentrated into the narrative set forth in that poem. Bamborough Castle, the seat of Saxon kings in the days of the Heptarchy, is also visible from this mount (known as Brislee), as well as Dunstanborough and Warkworth Castles. Hulin Priory is near at hand, on rising ground on the opposite side of the river. It is said the resemblance to the scenery round Mount Carmel, in Syria, was the reason of the selection of this spot by the monks for the site of the monastery. Hulin Abbey is not quite a ruin, some of its apartments—notably the Prior's quarters—being tenanted usually by a head keeper. The gigantic Silver Firs, the Pines, the seas of heather, the glades, the deer, the wide openings of greenest verdure, the close plantations, the majesty of some of the monarchs of the forest, the profuseness of animal, bird, and plant-life, not to mention fish-life in the beautiful river, create an impression, perhaps, even more acute than that afforded by the castle, that enables us to realise how much the Percies gave or lost in olden times, when their estates were confiscated; and something, too, of the magnanimity of the sovereigns who restored them, time after time, to them and their heirs.

TOMATO DISEASES.—We have lately received from more than one source, specimens of Tomatos presenting the same appearances. The plants have grown well for a time, and then failed, not in batches, but here one and there one. The leaves on one side of the stem flag first and become soft, the stems are discoloured, and on microscopic examination the young wood on one side is seen to be dead. The roots are mostly healthy, but here and there are a few small knobs over which the rind is more or less cracked. This is what our correspondents describe as "canker." We examined these knobs microscopically in the full expectation that we should find root-worms therein; but up to the present we have not discovered them, though we still suspect them to be the cause of the mischief. The specimens were also examined by one of our leading authorities on fungi, but he could detect neither fungus nor insect, and so the matter remains mysterious. It seems that the services of an expert pathologist are now greatly required, both by farmers and gardeners. Editors do their best, but editors have their own work to do; and to spend an hour or two, or perhaps a day, in endeavouring to come to some conclusion on a mysterious plant

disease, is to make a sacrifice of time and trouble far beyond what the ordinary reader is aware of, and which cannot be persisted in without detriment to other more pressing duties; nor can the editors always trespass on the good nature of their scientific advisers and correspondents, who also have their own work to do. In America and in Germany there are now numerous public officials who devote their whole time and skill exclusively to these matters, and it is more than time that we had similar investigators here. Voluntary effort is very valuable, but there comes a time when it must be superseded by properly-paid and systematic investigation by trained experts. With reference to plant diseases, the time has more than come, and the laboratory at Kew seems a fitting place for such investigations as we have in view.

HIMALAYAN RHODODENDRONS.—We have received from that excellent cultivator, Mr. EVANS, of Lythe Hill, Haslemere, a basketful of Himalayan Rhododendron shoots loaded with blooms, many of them exceedingly fragrant. The species and varieties included R. Fosterianum, R. fragrantissimum, R. albescent, R. Sesterianum, a pink-flowered sport from R. Edgeworthii; and Lady Alice Fitzwilliam. As subjects for cutting for filling vases in the house, the flowers of these Rhododendrons are admirably suited, as they lack the lumpiness of the ordinary type of hybrid Rhododendron, and when the plants are flowered at temperatures not higher than 50° at night, and the flowers cut just before they expand, they last a considerable time, and will bear carriage without much injury. Where there are roomy houses, some of these plants should always be found; and as most of them will stand a little hastening in heat, the flowering season may be made to extend over several weeks.

ROSES IN POTS.—A seventh edition of Mr. W. PAUL's little treatise needs no further comment than the announcement of its publication by Messrs. SIMPKIN, MARSHALL & Co., of 23, Paternoster Row, and a recommendation to those who are not already acquainted with *The Autobiography of a Pot-Rose*, to avail themselves of the present opportunity.

WHAT SOME ADVERTISERS EXPECT.—The following advertisement appeared the other day in the *Gardeners' Chronicle*: "Wanted about April 20, a gardener (single-handed), married man, abstainer, without family preferred; understanding greenhouse, flower and kitchen gardens; pony, trap, poultry, pigs, and bees; and make himself useful in the house. Wages, 12s. per week, with cottage." Assuming (says *Truth*) the cottage in question to be worth 4s. a week, this man-of-all-work will be receiving something less than the pay against which the London dockers went on strike, while he will be working, presumably, about twice the dockers' hours. The advertiser's evidence as to the result of this munificent offer might be of some value to the Labour Commissioners.

GROUNDSEL AS FORAGE.—A lady farmer at Llanfairfechan has lately been utilising Groundsel as fodder for cattle, and has also been "bold" enough to taste it herself. This is only one of our many non-poisonous plants which are considered weeds, and for lack of enterprise are neglected, instead of being cultivated for human food.

THE ORIGIN OF DWARF PLANTS.—In addressing the members of the Ealing Natural History Society recently, the Rev. Professor HENSLOW stated he was desirous of inquiring into the origin of dwarf plants, and he asked his audience to make practical experiments in the direction of an attempt to establish a small race of a flower, a corn, or a vegetable, by selecting and sowing each year the smallest seeds or grains of any particular flower, plant, &c. There was scarcely a garden that did not produce dwarf varieties of flowers or plants, and gardeners by careful selection had been able to grow plants and flowers of small size. There was no doubt that gardeners as a body might afford botanists an enormous amount of information on this subject

of the possible reduction to be achieved in the size of plants, as well as on other topics, if they would only record their observations. Gardeners, however, were chiefly engaged in supplying the market, and were, it was to be feared, apt to be content with the result of an experiment or certain course of action, without troubling themselves greatly by an inquiry into the causes, into the why and the wherefore, which had contributed to that result. Professor HENSLOW strongly recommended the pursuit, and the recording of casual observations relative to the effect of environment on plants, a study which he thought might open up very interesting details.

THE LATE GRAF VON MOLTKE was an enthusiastic patron of horticulture, and it was seldom that he omitted to visit the exhibitions at Berlin.

PUBLICATIONS RECEIVED.—*The Connecticut Agricultural Experiment Station, New Haven, Con.*—*Journal of the Royal Colonial Institute, No. 6.*—*National Rose Society's Annual Report, and Schedule of Prizes, &c., for 1891.*—*Agricultural Journal, Cape Colony (Departmental).*—*Eighth Annual Report of Massachusetts Agricultural Experiment Station, 1890.*—*Fifth Report of the United States Entomological Commission from the Department of Agriculture.*—*Annual Administration Reports of the Forest Department, Madras Presidency.*—*Journal of the Bath and West of England Society.*—ED. STANFORD, 26, 27, Cockspur Street.—*Willing's British and Irish Press Guide.*—*The Nursery Book.*—New York Rural Publishing Company.—*Cultivation of Roses in Pots.*—SIMPKIN, MARSHALL, HAMILTON, KENT & Co.—*Artificial Manures.*—Agricultural and Horticultural Association.—*Proceedings of the Agricultural Research Association.*—Ceylon Administration Reports.—*Annual Report of the Proceedings of the Sussex Association for the Improvement of Agriculture.*—*Hints on Cacti.*—A. BLANC & Co., Philadelphia.—*Revue de l'Horticulture Belge.*—*Nuovo Giornale Botanico Italiano.*—FIRENZE.—*Insect Life.*—U. S. Department of Agriculture, Washington.—*Bulletin No. 1, Government Agricultural Experiment Station for North Dakota.*—*Quelques Fleurs d'Orchidées.*—New York Agricultural Experiment Station, *Bulletin No. 26.*—Geneva, New York.—*Fungous Diseases of the Grape.*—United States Department of Agriculture, Washington.—*Bulletin No. 15, University of Illinois Agricultural Experiment Station.*—*Bulletin No. 13, University of Illinois Agricultural Experiment Station.*—*Catalogue of Anthophyta and Pteridophyta of Ames, Iowa.*—*Bulletin de l'Association pour la Protection des Plantes.*—JULES CARRY, Rue du Vieux-College, Genève.—*Agricultural Gazette of New South Wales.*—*Transactions of the Royal Scottish Arboricultural Society.*—*Bees and Bee-keeping (Parts 12 and 13).*—UPCOTT GILL, 170, Strand, W.C.

BOOK NOTICE.

THE NURSERY BOOK, &c. By L. H. Bailey. New York: The Rural Publishing Company.

LEST any reader should imagine that we have here to do with a work on the management of children, we hasten to add the second title, "A Complete Guide to the Multiplication and Pollination of Plants."

Mr. L. H. Bailey, the author of this little treatise, is a well-known authority in horticulture in the States, and the director of one of the agricultural stations. His "little handbook aims at nothing more than an account of the methods commonly employed in the propagation and crossing of plants." The subject is dealt with under the several heads of seedage, separation, layerage, cuttage, graftage, and pollination.

The words ending in "age" strike us as peculiar on this side of the Atlantic, but they are sufficiently intelligible, and the directions given under each heading are practical and to the point. Under the head of—

"Cuttage," or propagation by means of cuttings, various forms of propagating-cases heated by ordinary lamps are given which are little known in this country, except by the great

seed firms who employ them for testing the germinating quality of their seeds, but which are well adapted for the use of amateurs and even of parlour gardeners, and of invalids to whom the management of these little apparatus and the development of the young plants, whether from seedlings or from cuttings, would prove a valuable diversion.

The value of "graftage" has been much discussed of late, so that it may be of interest to quote what our author says about it:—

Nearly all the named varieties of tree fruits, and many of those of ornamental trees and shrubs, are perpetuated by means of graftage. In some species which present no marked varieties, however, propagation by seeds or cuttings is for various reasons so difficult or uncertain, that recourse must be had to graftage. This is particularly true in many of the Firs and Spruces, which do not produce seeds to any extent in cultivation. In other cases, graftage is performed for the purpose of producing some radical change in the character of habit of the plants, as in the dwarfing of Pears by grafting them upon the Quince, the elevation of weeping tops by working them upon upright trunks, and the acceleration of fruit-bearing by setting scions in old plants. It is sometimes employed to aid the healing of wounds, or to repair and fill out broken tops. And it has been used to make infertile plants fertile, by grafting in the missing sex in dioecious trees, or a variety with more potent pollen, as practised in some of the native Plums. All these uses of graftage fall under three heads—1, to perpetuate a variety; 2, to increase ease and speed of multiplication; 3, to produce some radical change in nature or habit of scion or stock.

A description of the various methods of grafting principally taken from Baltet, is then given, but we should have been pleased to have seen some further particulars as to the reason why particular modes of grafting are adopted in certain cases in preference to others.

The "Nursery List," which occupies the greater part of the little volume, is a mere alphabetical list of the more important genera of cultivated plants, with indications of the mode of propagation by seeds, cuttings, grafting, or otherwise. We notice that a Rose, called *Rosa Watsonia*, a Japanese species, is utilised as a stock for H.P. Roses about Boston; but we have not heard of its employment for that purpose here. Less familiar to the generality of horticulturists are the facts and processes recorded in Chapter vii., on pollination, including the production of hybrids, cross-breeds, &c. The book is unpretending, and likely to be very useful to gardeners.

FOREIGN CORRESPONDENCE.

EXHIBITION OF THE GHENT ROYAL HORTICULTURAL SOCIETY.

A PRETTY little show, where almost all the exhibits were from MM. Jacob Makoy & Cie. Their tall Palms were truly remarkable; their Orchids—especially the collection of *Odontoglossums*—very beautiful; their miscellaneous exhibits were also a valuable contribution. *Philodendron Corsinianum*, a splendid hybrid, foliage purple when first produced; *Philodendron Selloum* and *imperiale*, *Cyclanthus tripartitus*, *Rhopala corcovadensis*, *Ananas Cochinchinensis*, *Pandanus Veitchii*, *Dracæna Lindenii*, *Curculigo recurvata*, fol. var., were some of the best. *Rhododendron Williamsi*, with splendid white flowers, gained the prize for good cultivation. In the fine collection of Bromeliads, the following were especially noticeable:—*Vriesia Lubbersi*, *Lamprococcus Weibachii leodiense*, *Hoplophytum robustum*, fol. var., measuring nearly 6 feet across; *Vriesia Glaziouana*, *Echmea spectabilis*, &c. The six new plants not yet in commerce, from MM. Jacob Makoy, were all interesting:—*Echinostachys Pfitzeri*, with lines of yellowish white (Brazil, 1891), *Maranta Louisa*, the underside of the leaf purple, the upper surface metallic green, with a white mid-Rib (Brazil, 1890); *Anthurium Louis Fournier*, a pretty white flower, spotted and flushed with pink (1891); *Maranta iconifera argentea*, of a silvery colour, with metallic marks, very evenly arranged (Brazil, 1891); *Phyllagathia Leopoldi* (Brazil, 1889); and *Hoplophytum robustum*, with a silvery margin, very bright (Brazil, 1891). The best new plant was *Pteris Victorine*, a very elegant species, with white markings; this will be a plant

of the future. *Canna Madame Crozy*, from M. Pfitzer, of Stuttgart, gained the prize for a seedling; the flowers were of a deep reddish-crimson, with a golden border—a most handsome novelty. For twelve new plants recently introduced into commerce, MM. Jacob Makoy showed *Adiantum schizophyllum*, *Asparagus laevigatus*, *Aphelandra chrysops*, *Canistrum leopardinum*, *Dracaena Desmetiana*, *Diefenbachia Fournieri*, *D. Lorenzi*, *Inga ferruginea argentea*, *Nepenthes picturata*, *Nidularium Makoyanum*, *Vriesia Closoni*. Three really meritorious new plants were *Anthurium Président Lamarche*, *Vriesia psittacina striata*, *Dracaena Kegelmaniana*. An elegant Palm is *Corypha decora*. The *Pandanus* from the same exhibitors were unusually well grown—*De Smetianus*, *Kerchovianus*, *Glazioviana*, *Mauricianus*, and *Veitchi*. The *Bromeliads* from the Liège Botanic Garden were splendid, especially *Æchmea crocophylla* (with red leaves), *Vriesia Wiotti* (with three floral trusses), *V. leoninensis*, *Nidularium Maréchalii*, *Vriesia fenestralis*, *Hohenbergia erythrostachys*, *Pitcairnia fulgens*, and *Caratas Binoti*, a fine example in bud. *Ch. D. B.*

EGYPT.

The Tombs of Beni Hasan, Abu Kerkas, Upper Egypt.—I have been so very busy copying the paintings and inscriptions in the tombs here, that I have not had time to botanise or to write articles for the *Chronicle*. I start work usually at sunrise, and work on till 9 at night, for all the photographs taken in the tombs here have to be taken after dark by exploding magnesium-powder. After my work for the day is done, I am too tired for writing.

You ask me whether there is any *Juniperus* where I am? I have only seen a very few in this country at all, and all that I have seen have been planted; they are certainly not indigenous. There may, of course, be a species indigenous to the Delta or the Fayum, but I have not explored either region yet. If I should find any, I will remember you, and press specimens. Among the plant remains which Flinders Petrie found a couple of years ago at Hawara in the Fayum, I discovered several berries and twigs of *Juniperus phoenicia*. These I have described in my chapter on the plant remains published in his *Hawara*. These were of Græco-Roman date. Last year Mr. Petrie discovered a number of berries of a species of *Juniperus* among the ruins of the XII. dynasty (2600—2400 B.C.) town at Kahun (also in the Fayum province). These I have in my possession in England, and I will let you have specimens when I return if you would like to have them. I will also let you have specimens of the twigs from the Hawara "find." With regard to the letter on the flora and culture of plants here, I fear I must defer it. I am living high up in the hills of the desert, and no plants are to be seen for several miles, so I have no chance of studying the botany of Egypt yet. However, next year I hope to work at some ruins quite close to the Nile, and I shall then have the opportunity of collecting. I am writing under difficulties—Arab guards snoring at the entrance to my tent, jackals barking outside, bats flying about inside, and a very rickety table; therefore I hope you will excuse my bad writing and any incoherences. *N.*

FLORISTS' FLOWERS.

THE PINK.

PINKS, where well-established, suffered little or not at all from the severe winter, and the Pinks may be taken as the representative of a good hardy border flower. I would now allude to the Pinks which are forced into early bloom. The earliest of these will now, in the south, be in full flower, and if the plants are placed in a cool greenhouse, the flowers will still last some long time. If the plants have made good growth, there will be plenty of cuttings on them, and the present time is good for propagating them for next year; the cuttings should be placed in

pots of fine sandy soil, in a hot-bed or a forcing-house. When they are rooted, plant them in boxes about 3 inches apart, and inure them gradually to the open air; they may be planted a foot apart in an open part of the garden. If well managed, these cuttings form large tufts, which will flower freely if forced next season. They should be potted up about the last week in September or early in October, singly, in 32's, placing them for a fortnight in a rather close frame, when they will be well-established, and the lights may be drawn off the frame. The Pink thrives in light airy places, and even when forced, the lightest and airiest place should be chosen for them.

The interest in the white-ground laced Pinks has been stirred a little by the promotion of special exhibitions for them. A Pink Society may be as satisfying to the lover of this simple border flower as that of any other special society. A drawback to the popularity of the Pink is the sameness of the flowers in form and colour, unless border varieties are brought in, and these have but little quality in the flowers wherewith to furnish an exhibition. As an addition to a Rose show or other exhibition in June, the Pink would be a source of attraction to many visitors, because of their sweetness and beauty, but perhaps more for association with old-fashioned and partly-forgotten plants.

The house sparrow is a great ravager of Pink beds, and these birds must be kept at a distance. I find a few white threads strained horizontally above the plants will deter them. The beds should be lightly stirred up with a hand-fork, and all weeds removed. Heavy soils which crack in dry weather should be stirred more than once during the season. During the present month a dressing of rich manure should be spread on the surface, and in the absence of timely rains, a good watering should be afforded; dressings of this kind give richness of colour and size to the flowers. The flower-buds may be thinned if the finest flowers are desired, and a bit of soft matting tied round the calyx, to prevent its bursting. *J. Douglas.*

THE CARNATION CALYX-BURSTERS.

I stated at p. 363, that in the time of Parkinson the Carnation had been cultivated to such a degree of fullness of petals that they burst open the calyx which contained them. "Pod-bursters" is not only a very inelegant expression, but it is misleading. The seed-pod is within the petals, and cannot be burst open by them. The calyx is outside, and it is that part of the flower that is burst open by the expansion of the petals. During the last few years a great many misleading paragraphs have been published concerning the Carnation, and the National Carnation Society has been attacked, because it encourages the flowers that have a tendency to burst open the calyx. I was told by one gentleman, who is supposed to be a great authority on Carnations, that such flowers ought not to be grown at all; now, I freely admit that it would be much better if we could get flowers, the petals of which would always be confined within the bounds of the calyx tube; but this is impossible. The most popular Carnation at present, and one of which more plants are grown than any other, is *Souvenir de la Malmaison*, and the flowers of this variety are never confined within the compass of the calyx; but the growers who produce flowers to be sold in the florists' shops, manage to keep the large flowers in proper form by tying round the calyx with a strip of matting. When flowers with this characteristic are grown for exhibition, the cultivator can sometimes prevent the disaster by slitting the calyx down a little on the opposite side to that where the petals have begun to slit it open, and at the same time it may be tied round lightly with a thin strip of matting. It is verging on the ludicrous to stigmatize this simple process as misleading the public. The public continue to purchase *Souvenir de la Malmaison* and other calyx-splitting varieties in thousands; and yet this variety has never been, that I am aware of, exhibited at any of the national shows. Another cause of complaint is the way in which the flowers are tied to the sticks.

Paper collars on pot-plants were I think rightly objected to, and the Society put a stop to the practice. It is absolutely necessary that Carnations should be supported with sticks, and it is left to the discretion of the exhibitor as to the way the flowers should be fastened to them. Pins are used with a loop at one end, and these being inserted into the sticks, the flowers hang loosely in the loop, and can be placed very readily in the position likely to make the most effective display.

Experienced cultivators find that this is the best way to train the Carnation when in bloom, but the critics say this also is deceiving the public. In time, the cultivators of any class of plants for exhibition or otherwise find out the best way to grow and show them off to the greatest advantage. When I first exhibited Hyacinths, I read in some of the horticultural papers, that the sticks intended to support the flower-spikes should be thrust through the bulbs, so that the spikes might be quite upright; but we soon found a better way, viz., bending stout wire into such a form, that the part of it in the soil passed clear of the bulbs, and the upright wire fitting closely to the stems, is not seen at all when the plants are placed upon the stage for exhibition. In some instances, the critics know so little about what they write, that one wonders that editors find room for it. "A man must serve his time to every trade save censure critics—all are ready-made." As a rule, such writers for the press know nothing about the cultivation of the plants they so freely criticise. They will inform a man who has been a lover of Carnations for a life-time, and has spent years in learning the art of culture, how he ought to do this, and why he ought not to do the other thing; but when you ask to see how they have done it, you find they never grew a plant themselves. Their trade is censure, not gardening. *J. Douglas.*

ALPINE AURICULAS AT SLOUGH.

Anyone interested in these charming flowers will do well to pay a visit to the Royal Nursery, Slough, where may be seen a collection of nearly, or quite, 2000 plants in full bloom, and in the best condition. Many represent the leading named varieties; others are seedlings of the past two or three years. Some of them are named, and in course of being increased, for sending out in due course; others are plants that bloomed last year for the first time, and of these there are some white-centred flowers of great promise. Of gold-centred flowers there are many fine ones. White-centred flowers number but few eminently good, the common faults being either that they open of a cream colour and then turn to white, a change that in course of transition gives perplexing contrasts in a flower; or else they open white, and then change to a pallid hue in the centre, which appears to die before the marginal colour shows sign of decay.

Some new varieties may be noticed, especially among the young plants blooming for the first time this season, that have centres that are snow-white, almost with shaded crimson margins, thus affording a remarkable contrast. The occurrence of two shades in combination is not a new development, but until within the last year or two, the white centres have been weak, opening of one shade, and passing into another.

The new varieties of alpine Auriculas raised at Slough unfortunately get into commerce very slowly indeed. A variety cannot be distributed until it is in sufficient quantity to justify the act of sending it out.

Among the new white centres which, when obtainable, will be found to materially strengthen collections, are—*Phœbe*, *Countess*, *Mrs. Harry Turner*, *Peter Flower*, and *Queen of Spring*, all of which have been shown in fine condition this season. Of golden centres, *Harry Turner*, *Alarm*, *Eustace*, *H. M. Pollett*, *Fred Knighton*, *Prince George*, and *John Bright*, all particularly fine, with good-sized flat smooth pips, forming bold and imposing trusses. *R. D.*

SCOTLAND.

MR. A. SINCLAIR AND MR. A. ROSS.

THE Peruvian Corporation (Limited), of which Sir Alfred Dent, K.C.M.G., of Messrs. Dent, Brothers & Co., merchants and commission agents, Old Broad Street, London, is chairman, have just arranged with Mr. Arthur Sinclair, Meadowbank, Culter, Aberdeen, with whom is associated Mr. Alexander Ross, of Stonehaven, near Aberdeen, to undertake a piece of very important survey work for them in Peru. To the general reader it may be necessary to explain that, in consequence of grave financial difficulties into which it had got, the Peruvian Government ceased to pay interest on its public debts (amounting to about £56,000,000), several years ago, and after protracted negotiations, a powerful British-Peruvian Corporation came to the rescue, headed by Sir Alfred Dent, who had done excellent work in connection with the British North Borneo Company, of which he is still a director. Amongst the many concessions made to this company by the Peruvian Government, one was the right to select and utilise some 10,000,000 acres of land in the valley of the majestic Amazon river. The commission that has now been entrusted to Messrs. Sinclair & Ross, on very handsome terms as to remuneration and otherwise, is to fix generally the locality for this very large selection, with a view specially to the adaptation of the land to tropical agriculture. For this purpose the situation, climate, and general capabilities of the prevailing soils, will all have to be carefully noted and reported upon to the directorate of the Peruvian Corporation; and the work, including the passage to and fro, is expected to occupy not less than five months. No one who knows the career of either will doubt the wisdom of the choice made by Sir Alfred Dent and his co-directors. Both have had ample experience of tropical agriculture as planters in Ceylon. In the case of Mr. Sinclair, the fact of his having been bred to the occupation of gardener, with a good knowledge of practical botany, enabled him at once to take to the work in which he was engaged for a score of years or thereabouts, in the "spicy isle," with the greatest advantage; and for a good many years he acted as general superintendent of a large number of Coffee plantations with the highest efficiency, his duties in that way giving him an acquaintance with the conditions of tropical agriculture generally, as well with a large part of the area of Ceylon, such as few men have had opportunity of acquiring. And in addition to this, Mr. Sinclair spent over a couple of years in Australasia, chiefly in Tasmania, where he had further opportunities of observing sub-tropical vegetation. Of Mr. Ross, it can also be said he has had a lengthened experience as a successful planter in Ceylon.

LECTURES ON GARDENS AT DUNDEE.

This course of evening lectures was begun on April 30 at University College by Professor Patrick Geddes. After some discussion of the different provinces of botany and gardening, the mutual indebtedness of each to each was evidenced by such facts as that Linnaeus, the founder of the artificial system of classification, and De Jussieu, the founder of the present natural system, were both gardeners. The lecturer then proceeded briefly to outline the various subjects which it is proposed to deal with during the course. These were an account of the history and origin of cultivated plants, and an outline of their relation to the history of civilisation, the extraordinary fixity of Chinese institutions being shown to depend essentially upon the culture of Rice by the patriarchal family. This was followed by some account of the problems of geographical botany. Next were outlined the rational explanations of the processes of horticulture, such as manuring, watering, pruning, grafting, and so on, which it is proposed to deal with more fully in detail. The lecture concluded with a brief summary of the changes in landscape garden-

ing during the past three centuries, viewed in relation to general history, political and social, industrial and artistic. *Dundee Advertiser.*

THE SCOTTISH HORTICULTURAL ASSOCIATION AND PRINCES' STREET GARDENS.

At a meeting held on Tuesday evening last, Mr. Grieve, Vice-president, in the chair, Mr. Carmichael, late gardener to the Prince of Wales at Sandringham, read a paper on "The Cultivation of the Strawberry." Amongst the exhibits on the table were a collection of flowers from the Isle of Raasay, Strome Ferry, sent by Mr. Minty, as well as contributions from Mr. Mattison, Currie Hill; Mr. Mackinnon, Melville Castle; and Mr. McLennan, Restalrig House. Mr. M. Todd, Edinburgh, reported that the Council had unanimously decided to contribute £20 towards the expenses incurred by the market gardeners in opposing the proposal to give possession of the Waverley Market to the North British Railway Company. Mr. McKenzie, Warriston Nurseries, subsequently moved a resolution protesting against any encroachment on Princes' Street Gardens, and urging the Town Council to continue their opposition in the matter. If the Railway Company got what they wanted, he said the beauty of the gardens would be gone for ever. Mr. Dunn, Dalkeith Palace, seconded the motion, and asked where all the engineering skill of the country was that it could not get the Railway Company out of the difficulty in another way. The resolution was adopted, and it was further resolved to send copies of it to members of Parliament for the city and county of Edinburgh, asking them to do their utmost to prevent the bill coming into force.

GEN. BERKELEY'S ORCHID POT.

THIS improved Orchid Pot (fig. 119), is the invention of Major-Gen. Emeric S. Berkeley, of Spetchley House, Bitterne, Southampton, a well-known Orchid grower of many years' experience. The advantages of this kind of Orchid pot and pan will be obvious to all experienced Orchid growers. The difficulties experienced in the use of the old pattern of Orchid pots were the accumulation of water at the base of the pot, and the difficulty of keeping the pots clean; the oval and round holes being in many cases too small to get a brush into, to clean out the accumulated *conferve*, which are known to be injurious to the roots, besides spoiling the cleanly appearance of the pots. In this pot these faults are remedied, and the accumulation of water at the base prevented. The base of the pot being concave, the portions between the slits form legs, which raise the main part of the pot above the stage, and obviate all risk of stagnant water remaining at the base of the pot inside.

The slits are V-shaped, facing outwards throughout their whole length, thus facing the pot-cleaner, not simple cut slits, the object of these being to enable the gardener to use a brush and clean the slits as readily as he can the outside of the pot.

Both pots and pans are provided with a rim, in which three holes are pierced, so that wires may be put in to hang them up by if desired. The pans will prove a special boon to *Cattleya* growers, as the free drainage at the base will prevent the roots getting rotten.

The price is twice that of ordinary flower pots of the same size. These pots and pans are manufactured solely by Mr. Conway G. Warne, Royal Potteries, Weston-super-Mare.

HOME CORRESPONDENCE.

NOTES FROM KETTON.—Being near Ketton Hall the other day, I could not resist calling to see the well-known collection of Peaches there. This fruit is grown there on a very large scale, no fewer than six houses being devoted to its culture. One house, a fine curvilinear span on Rendle's system, is

257 feet long, and is divided into three parts. As far as I could get Mr. Divers—who is a most successful exhibitor, as well as grower of Peaches—to express a positive opinion, I should say that if he could grow only one Peach, and one Nectarine, he would choose *Crimson Galande* and *Dryden*. The trees themselves were evidently very well managed, and were pictures of health, vigour, and cleanliness. In one house the Peaches were trained on a trellis under a roof covered with *Maréchal Niel* Roses, and I was assured, without much apparent loss of colour or flavour to the former. Another feature in the houses is the splendid show of *Fair Maid of Guernsey Chrysanthemum* in flower. They were even more floriferous than when flowering at the usual season. I should say that they had been cut down after flowering, given rich, fresh soil, and put into heat again. Whether this was the case or not, your readers may know that it is possible to have white *Chrysanthemums* in any quantity in April. *C. A. M. Carmichael.*

THE PAST WINTER IN CHESHIRE.—What Mr. Thiselton Dyer said to the Scientific Committee of the Royal Horticultural Society about the shrubs in the gardens at Kew is confirmed by my observations here—that many tender shrubs which survived January were killed in March. I made frequent examinations of the stems of *Cistus*, *Veronica*, *Hypericum*, and other shrubs, which I grow in large numbers. A large proportion of these were alive at the base, and in the principal branches at the end of January, and during February they seemed to improve. They endured the stiff frosts which were continuous for seven weeks, but when the blasting north and east winds of March were added to a less degree of cold than they had already borne, they were killed. I have always found similar results in March. Ten or twelve degrees of frost combined with a piercing east wind, kills more things than 25° of still frost. Perhaps I may say a few words on the result of the winter, which is now pretty evident. Frost was nearly continuous here from the beginning of December to January 24, with a minimum of 7° on December 21; 12° on January 7; and 12° on January 18. From March 9 to the end, there was frost nearly every night with north or east winds, and minima of 18° and 20°. We had very little snow. Herbaceous plants have hardly suffered at all; but those which retain their foliage and stalks in winter have, in many cases, been killed. All the Himalayan *Meconopsis* are entirely withered up. *Heuchera sanguinea* has hardly a live leaf, the consequence of east wind rather than of cold. *Anemone fulgens* which last year filled the garden with scarlet in February, had its leaves killed, and has hardly attempted to flower. The *Natal Anemone Fannini*, to my surprise, seems everywhere unharmed; [killed with us. Ed.] so do *Tritoma caulescens* and *Macowani*, and several others of this genus. *Veronica parviflora*, of which I have probably fifty shrubs, appear quite dead everywhere, but when the stem is examined, the sap is green, and seems to be running. The dwarf *Veronicas*, such as *V. carnosula*, *pinguifolia*, *epacridea*, are very little hurt; *Chathamica* is killed. Of the *St. John's Worts*, *Hypericum oblongifolium*, seven feet high, is breaking to the very tips of the shoots, but *patulum* is killed quite to the ground, and though it will break from the base, like *Fuchsias*, it will not flower from the young growths like those shrubs. *H. reptans* is also quite killed. Of *Cistuses*, *C. cyprius* and *C. laurifolius* are uninjured; all others entirely or nearly killed. *Helianthemums* are very much crippled; *H. formosum* and *H. algarvense* have stood better than many of the hybrids and varieties of *H. vulgare*. *Lilium giganteum* has not been injured in any part of the garden, though the front of the bulb is level with the surface. The flowers which have surprised me most have been the tall *Hellebores* of the *orientalis* and *colchicus* type. I have at least a hundred large plants of these, mostly close to north walls, or near Fir trees. They began to flower early in February, and are still, at the end of April, in full flower, without having suffered the least injury. If planted in an open place, they are easily damaged by wind and frost. The Irish Heath (*Menziesia polifolia*), and Cornish Heath, *Erica vagans*, seem nearly all killed. Wallflowers all dead. *C. Wolley Dod*, *Edge Hall*, *Malpas*.

KAURI PINE.—In reply to Mr. Rust's remarks, I once tried this tree. It was planted two years ago in a choice situation. It was a poor specimen, but, it was the only one procurable, and last winter settled it, as it did many a much harder thing. If what Mr. Rust saw was really a Kauri Pine, and

really grown in this country, it would be interesting to know its history and where it grew. With much deference, I venture to submit with reference to your editorial note, that the "Kauri" (as it is called by the natives), is the "Dammara australis," and not the Podocarpus Totara. I have long tried, but, without success, to get a specimen of the latter. *James Laurie.* [Our correspondent is quite correct as to the name. Ed.]

RANUNCULUSES.—At a late autumnal meeting of the Birmingham Gardeners' Association last year, some bunches of late-planted Ranunculus were shown, and some surprise was expressed at such good blooms being obtainable at so late a period of the year. It turned out that, from causes I need not enter into here, the roots were not planted out until June, and then in ordinary garden soil, and 1½ inch deep. As the Ranunculus is of such easy cultivation, and the flowers are so comely, and in a cut state keep for so long a period, I am surprised it is not more generally cultivated. *D.*

ALLEGED HYBRID BETWEEN AN AURICULA AND A COMMON PRIMROSE.—When visiting, a few days since, a gardener who is frequently engaged in cross fertilising and endeavouring to hybridise plants, he called my attention to an Auricula which had thrown up from around the base of the truss-stem a number of flowers produced Primrose-fashion on each, on a long stem, and he claimed these as evidence of a cross between the Primrose and the Auricula. But growers of Auriculas know this to be of occasional occurrence, and in the nature of the plant to manifest itself in this way. One of the most singular freaks I have ever seen in the case of an Auricula was shown by two plants of a very fine new green-edged variety, in Mr. T. E. Henwood's collection at Reading. Each plant had thrown up a truss of bloom, but every flower was fully double. *R. D.*

FOREIGN BEES.—I was very much surprised on reading "Expert's" condemnation of foreign bees in the *Gardeners' Chronicle*, April 4, p. 431. Will "Expert" please state the experience he has had with the foreign bees he condemns, especially the Punic race, which they and some of the former in the hands of experts have proved so valuable? *C. Russell.*

PROLIFIC APPLE TREES.—At a farm in this neighbourhood (Maidstone), there are some Apple trees of fine proportions which are, at the least, a hundred years old. Although the quality is only that of second-rate mid-season kitchen fruit, they bear generally very well, and in seasons when Apples are scarce, the fruits come in very useful. There are three trees of one kind, but the name of variety is not known. A few years since, the trees each carried about 50 bushels, and that summer the wind blew down half the crop, and the foreman told me that 30 bushels of half-grown fruits were picked up under one of the trees. In 1880 the crop was a slight one; in 1890 the three trees together produced about 30 bushels. It is a mixed orchard of Plums, Damsons, Bullaces, and Apples, on turf, and the soil a sharp, poor loam, resting on the Kentish rag. I have known these trees for many years past. *W. Divers, The Gardens, Wierton House.* [Our correspondent kindly sent a photograph of the biggest tree, and some of the fruit. Ed.]

THE ROOT-GALL ON CATTLEYA.—I notice in the *Gardeners' Chronicle* for November 1, 1890, vol. viii., p. 535, a short note on the "Root-gall of Orchids," in which the statement is made, in substance, that it is still a matter of doubt among entomologists whether the *Isosoma orchidearum* of Westwood is the author of the injury to the Cattleyas, or whether this mischief is caused by a midge (*Cecidomyia*), which latter is the host of the *Isosoma*, as held by Mr. McLachlan. That the latter supposition is an error, and that Westwood is undoubtedly correct, I have shown in a note published in *Insect Life*, vol. i., p. 121. As stated in this note, the phytophagous nature of this *Isosoma* was proved beyond a peradventure by a study of specimens submitted to me by Dr. Felix Henneguy while I was in Paris in October, 1887, which afforded an opportunity to study the larvæ in all stages and to rear both sexes. I repeatedly saw the larvæ feeding on the Orchid substance, and the cavity made was, in the early larval stage, only just large enough to contain the larva and its vegetal frass. *C. V. Riley, Washington, U.S.*

MARECHAL NIEL ROSE.—We have a plant of this variety in a 12-inch pot with 1000 blooms on it;

last summer made a shoot 22 feet long, and 3 inches in circumference. An amateur told me that he cuts his plant, Maréchal Niel, down close to the ground after flowering, and did it every year. I do not know if this is done generally by other gardeners. I have no experience of this mode of treating Roses, and should be glad to hear what others think of it. *J. Maers, Chymorvah, Marazion, Cornwall.*

CŒLOGYNE CRISTATA.—On page 500 of the *Gardeners' Chronicle*, J. F. Morgan writes about his plants of *Cœlogyne cristata* flowering in batches, which must make the plants increasingly useful. But he doubts what "W. H. W." on p. 333, writes about the *Cœlogyne*s at Clarendon Park flowering twice in a short period. I may say that I have seen this species of Orchid in flower in the gardens at the Glen Innerleithen, N.B., about the end of March, and again in September of the same year. The only difference being that the flower spikes came from the base of the bulbs in the spring, and in September from the points of the bulbs between the two leaves. Mr. M. MacIntyre, the gardener at the Glen, showed the plant at the Royal Caledonian Society's Show in September, 1888, it being in full flower. He grows nearly all the *Cœlogyne*s in baskets, and some of them are more than 3 feet wide. *John Dingwall.*

HARTLAND'S APRIL QUEEN BROCCOLI.—To illustrate the mildness of our climate in the south of Ireland, this Broccoli has been produced this season in the Cork district from 14 lb. to 24 lb., as large as one's head in size, and white as snow, and the flavour, when cooked, is that of a Cauliflower. *H.*



Fig. 119.—GENERAL EBERLEY'S ORCHID POTS (see p. 596).

SOCIETIES.

NEWCASTLE-UPON-TYNE.

APRIL 29.—A meeting of gardeners and others interested in horticulture was held here, to consider the advisability of establishing a Horticultural Mutual Improvement Society. There was a fair attendance. Mr. R. H. Irvine, having been voted to the chair, addressed the meeting at some length, urging upon gardeners to combine and form some such society as it would be proposed to establish that night. Mr. John Hood, jun., then proposed the following resolution:—"That this meeting is of opinion that a Horticultural Mutual Improvement Society would be beneficial to the district; and further, that it decides to form one, and that a committee be appointed to draft rules, solicit subscriptions, and report to another general meeting." In supporting the resolution, he spoke of the entire absence of any society in the district which had for its object the mutual improvement and general welfare of gardeners, and of the numerous advantages which would be derived by gardeners and amateurs (the younger ones

especially) by meeting occasionally and hearing a paper read on some gardening subject, and by taking part in the discussion which would follow the reading of the paper. He then read several extracts from the *Gardeners' Chronicle* and other papers, and letters from secretaries of other societies, to show how they were managed, and with what success their efforts were attended—Ware, Woolton, and Chiswick being mentioned, as well as the recently-formed society at Sunderland. Mr. M. ADAMSON seconded, and Mr. A. HEDLOP supported, and wished more especially to commend the Society to young gardeners as a means by which they could meet and converse with older and more experienced men, and get an opportunity of gaining a little knowledge of botany, and the meaning of various technical terms used in gardening. Eventually the resolution was carried, and a committee appointed, Mr. J. Hood, jun., being elected secretary *pro tem.*

TRADE NOTICE.

Messrs. MESSENGER & Co., Horticultural Builders, &c., of Loughborough, inform us that they have opened an Office in London, at 163, Palmerston Buildings, Old Broad Street, E.C.

Obituary.

MR. JOHN WILSON.—We regret to announce the death of Mr. John Wilson, who retired from the secretaryship of the Great York Gala and Floral Fête about three years since, at his residence at Maida Vale on the 1st inst. Mr. Wilson was well known, having been one of the promoters of the Society and first guarantors, and Secretary for a period of nearly thirty years.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

BARRON'S "BRITISH WINTER GARDEN."—Will any reader who may possess a copy of this work, which he may be willing to dispose of, by exchange or otherwise, communicate with X., care of Editor.

BIARRITZ.—Everything is very late here this season, and, judging by the way in which Bay trees have been punished during the winter, it must have been comparatively as severe here as with us. Gardening here is not to be compared with that on the Riviera. There are plenty of nurseries, but, as a rule, more weeds seem to be cultivated in them than anything else, and there is an utter want of energy and "go" about their management. The Lilacs are now beautifully in bloom, and Pears and Apple trees; the Cherries being over. Amongst wild flowers, the *Daphne Cneorum* and *Lithospermum fruticosum* are beautiful just now, whilst any quantity of *Anemone fulgens* and *Daffodils* come from the neighbouring mountains. *Viator.*

MARKETS.

COVENT GARDEN, May 7.

Market well supplied, and steady business doing, with prices rather easier. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.		s. d. s. d.	
Artichokes, Globe,	...	Lettuces, per dozen...	3 0
each	...	Mushrooms, punnet	2 0
Beans, French, lb.	1 6-2 0	Mustard and Cress,	...
Beet, red, per dozen	2 0-3 0	punnet	...
Brussels Sprouts, lb.	0 6-...	Parsley, per bunch...	0 4-...
Carrots, per bunch...	0 6-...	Seakale, per basket	1 6-2 0
Cauliflowers, each	0 6-...	Shallots, per lb.	0 6-...
Celery, per bundle	2 6-3 6	Spinach, per bushel...	7 0-...
Cucumbers, each	0 9-1 0	Tomatoes, per lb.	2 6-3 6
Endive, per dozen	4 0-...	Turnips, per bunch	0 6-...
Herbs, per bunch	0 4-...		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 3-sieve	3 6-6 0	Lemons, per case	15 0 25 0
— Nova Scotia, brl.	15 0 25 0	Pine-apples, St. Michael, each	2 0-8 0
— Tasmanian, cask	12 0-14 0	Strawberries, p. lb.	3 6-8 0
Cobs, Kent, 100 lb.	45 0-50 0		
Grapes, new	3 0-5 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, 12 blms.	2 0-4 0	Narcissus (yellow), 12 bun.	2 0-4 0
Azalea, 12 sprays	0 6-0 8	— Poeticus (Pheasant Eye) 12 bun	1 6-2 6
Bouvardia, per bun.	1 0-1 6	Pelargoniums, scarlet, 12 spr.	0 4-0 6
Calla lilies, 12 fl.	2 0-4 0	Primroses, double, p. 12 bunches	1 0-2 0
Camellias, white, 12 blooms	2 0-3 0	— per 12 bunches	0 4-0 6
— cold., 12 blms.	0 9-1 0	Primulas, double, 12 sprays	0 6-1 0
Carnations, 12 blms.	1 0-2 0	Ranunculus (Fren.), 12 bun.	1 0-2 0
Cineraria, 12 blms.	0 6-0 9	Roses, Tea, per doz.	1 0-3 0
Cyclamens, per doz.	0 3-0 6	— coloured, dozen	2 0-4 0
Daffodils, various, 12 blooms	1 6-5 0	— yellow (Marechal), per doz.	3 0-6 0
— (Foreign), 12 bun.	2 0-6 0	— red, per dozen	3 0-6 0
Eucharis, per dozen	3 0-6 0	— do., French p. doz.	1 0-3 0
Gardenias, per doz.	1 6-3 0	Spiraea, per bunch	0 4-0 6
Heliotropes, 12 spr.	0 6-1 0	Tuberose, 12 blms.	1 0-1 6
Hyacinth, various, in boxes, Dutch	1 6-3 0	Tulips, various, per doz. bunches	3 0-6 0
Lilac, best, p. bunch	4 0-6 0	Violets, 12 bun.	0 6-0 9
— p. bunch	1 6-2 0	— Parma, Fr., bun.	3 0-3 6
Lilium Harrisii, doz.	3 0-4 0	— dark, Fr., bun	1 0-1 6
Lily of the Valley, 12 sprays	0 6-1 0	Wallflower, 12 bun.	4 0-6 0
Maiden Hair Fern, 12 bunches	4 0-9 0		
Marguerites, 12 bun.	3 0-6 0		
Mignonette, Fr., bu.	1 6-2 0		
Myosotis, 12 bun.	2 0-4 0		

ORCHID-BLOOM in variety.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ferns, in var., doz.	4 0-18 0
Aspidistra, doz.	18 0-42 0	Ficus elastica, each	1 6-7 0
— spec., plants, each	7 6-10 6	Foliage plants, various, each	2 0-10 0
Azalea, per dozen	18 0-36 0	Genista, per dozen	6 0-9 0
Bedding plants, variety, per doz.	1 0-2 0	Heliotrope, per doz.	6 0-9 0
Bouvardia, p. doz.	9 0-18 0	Lily of the Valley, per dozen pots	9 0-18 0
Calceolaria, p. doz.	6 0-10 0	Marguerites, doz.	6 0-12 0
Cineraria, per dozen	4 0-8 0	Mignonette, per doz.	6 0-9 0
Cyclamens, dozen	9 0-18 0	Musk, per doz.	3 0-6 0
Cyperus, per dozen	4 0-12 0	Myrtle, per doz. pots	6 0-12 0
Dielytra, per dozen	8 0-12 0	Palms in variety, each	2 6-21 0
Dracena terminalis, per dozen	30 0-60 0	Pelargoniums, doz.	12 0-18 0
— viridis, per doz.	12 0 24 0	— scarlet p. doz.	4 0-9 0
Euonymus, in var., per dozen	6 0-18 0	Primula sinensis, doz.	4 0-6 0
Ericas, various, doz.	8 0-24 0	Roots for bedding, in boxes, each, from	1 0-2 0
Evergreens, in var., per dozen	6 0-24 0	Spiraea, per dozen	6 0-9 0

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
	Above (+) or below (—) the Mean for the week ending May 2.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.				
1	4 —	19	25	+ 31 + 65	3 +	78	16.2	19
2	2 —	35	15	— 27 + 77	3 +	47	6.4	29
3	0 aver	33	2	— 38 + 82	1 —	56	5.1	28
4	0 aver	53	8	— 39 + 122	1 —	55	4.6	27
5	0 aver	52	9	— 26 + 104	1 +	43	5.4	30
6	1 —	50	1	— 55 + 146	1 —	47	6.3	30
7	3 —	32	12	+ 15 + 36	3 +	56	10.5	26
8	1 —	38	4	+ 2 + 31	4 +	45	5.8	21
9	0 aver	45	0	— 34 + 107	3 +	47	8.0	33
10	3 —	33	7	+ 2 + 24	4 +	61	6.9	24
11	1 —	44	2	+ 15 + 22	1 —	52	6.7	29
12	0 aver	62	0	— 13 + 40	2 —	53	6.8	39

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S. Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 2, is furnished from the Meteorological Office:—

"The weather during this period has undergone a complete change. The cold, dry, anticyclonic conditions gradually disappeared early in the week, and gave place to cyclonic, showery, and milder weather generally. Thunderstorms occurred in several parts of England and Ireland on the 1st.

"The temperature has again been below the mean in Scotland and Ireland, but about the mean value over the greater part of England. The highest of the maxima, which were recorded either on the 28th or 30th, ranged from 67° in 'England, E.' and 'S.', and 66° in 'Ireland, S.' to 57° in 'Scotland, N.', and 56° in 'Scotland, W.' The lowest of the minima, which occurred during the earlier days of the period, varied between 24° and 28° in 'Scotland,' 29° and 30° in 'Ireland,' and 25° and 32° over 'England.' In the 'Channel Islands,' however, the lowest reading was 41°.

"The rainfall again shows a deficit over the north-eastern, eastern, and southern parts of 'England,' as well as in the south of 'Ireland,' and the 'Channel Islands.' In all other parts of the Kingdom there has been an excess.

"The bright sunshine has been much less prevalent than of late, and, except in 'Scotland, E.,' the weekly values are below the mean for the time of year. The percentage of the possible duration ranged from 19 in 'Scotland, N.,' and 21 in 'England, N.W.,' to 33 in 'England, S.W.,' and to 39 in the 'Channel Islands.'"

NOTICES TO CORRESPONDENTS.

BEAN: C. Head. Judging by the seed alone, it is Kidney Bean Harlequin (Haricot arlequin), of the Paris market; a tall growing, late kind, with tough pods; hardy and productive.



FIG. 120.—PERIDERMIUM ON PICRA MORINDA.

BOOKS: F. L. H. A good book on the propagation of nursery stock is *The Nursery Book*, by Bailey (New York: The Rural Publishing Co.); see remarks on it at p. 594, present issue.—Landscape

Gardening, *How to Lay Out a Garden*, E. Kemp (Bradbury, Agnew, & Co., Bouverie Street, London, E.C.). and Milner's *Landscape Gardening*, Market Gardening, *The London Market Gardens*, C. W. Shaw (37, Southampton Street, Strand, W.C.); *The Inquiry into the State of Agriculture, Duke of Richmond's Commission* (Eyre & Spottiswood), 10s. 6d.—G. H. P. C. We do not know the book on the Vine you mention, Williams' *Stove and Greenhouse Plants and Ferns* may be had from the Victoria Nurseries, Holloway, London. D. Thomson on *Fruit Culture under Glass* may be had from Blackwood & Sons, of Edinburgh, or any bookseller.

ENTRY AT KEW: *Herbarium*. See our Answers to Correspondents' Column, May 2.

GOOSEBERRIES AND RED SPIDER: W. H. M. If the attack is not very serious, well syringe the bushes from all sides with clear water from the garden-engine night and early morning for a week. A bag of soot soaked in the water previous to using it makes it more effective. In a bad attack mix 1 lb. of flowers-of-sulphur with each gallon of water before using it. The sulphur must be mixed first as a thick paint, and then diluted, the soot being also made use of. Quassia-water and Gishurst compound soap are also useful remedies, but not where there are berries on the bushes. Dress the land in autumn with gas lime.

GRAPE VINES PLANTED IN MARCH: T. C. The vine must be maintained in a genial condition of warmth and moisture, so as to induce good growth, the canes having been cut to a length that will carry them into the vinery about 1½ to 2 feet, or they may, if strong, be carried in almost at full length, merely the weak top being removed, train loosely in position on the wires; syringe at 3 to 3.30 p.m. and in the early morning, keep the house moist during the day, ventilate when the thermometer indicates 75° to 80, and shut up at 3 or 3.30 p.m.; keep close till 6 or 7 p.m., when a little top ventilation may be afforded. When the Vines have run up half the length of the roof, pinch out the leading point of each, and then the next shoot, which grows at this point; by so doing, compelling the dormant bud to break and become the leader. This check to growth will strengthen all the laterals down the canes. Let the laterals grow to the length of 1½ to 2 feet, removing all sub-laterals which grow from these. Purchase a manual on the Vine.

GRASS CUTTINGS: J. X. Z. The cuttings of Grass from lawns if used green as a mulch for crops, would not become like hay, as it would be saturated by rains and rotted by damp.

INSECTS: A. C., Tetbury. The very minute and shrivelled-up insects sent by you appear to us (so far as we can decide from their condition) to be the common red-spider (or rather red-mite) of the greenhouse. I. O. W.

MILDEW ON STRAWBERRIES: W. G. None of the ordinary remedies can be applied whilst the Strawberry plants are in flower or fruit. That being so, the conditions of culture which are favourable to the growth of the mildew on the fruits and leaves must be altered. Instead of a close, damp, rather cool air, a brisk, warm, buoyant state of the air in the house should be maintained by day and night, and broad shallow pans containing water in which sulphur has been dissolved put about where the sun can reach them all day long. These pans will give off fumes unfavourable to the development of the mildew. Smearing the hot-water pipes with white-wash and sulphur will have a similar effect, and might supplement the first-named. Be careful about admitting air at the bottom of the house, unless it be warmed by sunshine. The best time to ventilate by means of the front lights or clappers is from 11 a.m. to 2 p.m. There is a useful little book on *Strawberries All the Year Round*, by W. Hinds.

NAMES OF FRUIT: P. O. M. Warner's King. It is not fair to us to send a fruit in a half-rotted condition.—E. R. W. The larger fruit, Alfriston; the smaller, not recognised. Send again in its proper season.

NAMES OF PLANTS: T. M. Ribes alpinum.—W. H. T. 1 and 2. Cephalotaxus drupacea; 3, C. Fortunei.—T. R. O. P. Lathraea squamaria.—W. P., Epping. It is Peziza Summeriana; it often comes up under Cedars.—F. L. S. Rubus spectabilis, an old inhabitant of our gardens.—C. W. D. Probably a

GROVE WORKS, BATTERSEA, LONDON, S.W.
15, VICTORIA STREET, WESTMINSTER, S.W.;
and BACHELOR'S WALK, DUBLIN.—Discount for Cash.

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The Gardens, Bifrons Park.—Your Silicate on the Vines when I used it has greatly improved the colouring of the Grapes, and with less shanking.—Signed, JAMES HOSSACK, Gardener to the Marquis Conyngham.

The Gardens, Ruxton Hall, Kettering, Nov. 10, 1890.—Dear Sirs,—I regret I had not an opportunity of testing your Silicate on early vineries. I used it on two late vineries with excellent results. It is certainly the best artificial manure I have tried. Gros Colmar, which have lacked colour in previous years, are as black as Sloes; other varieties equally benefited.—I remain, yours respectfully, JOHN CRUICK-SHANK, Gardener to E. C. C. Thornhill, Esq.

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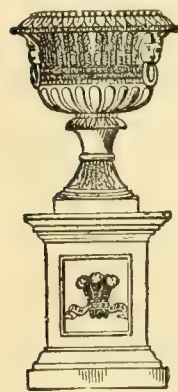
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MR. J. MOORMAN, who had supervised the laying-out of Camberwell Park for the Metropolitan Public Gardens Association, which, on completion, was taken over by the London County Council, has been appointed as Superintendent of Brockwell Park, South London. **Mr. Moorman** is succeeded at Camberwell by **Mr. J. PALLET** from Battersea Park.

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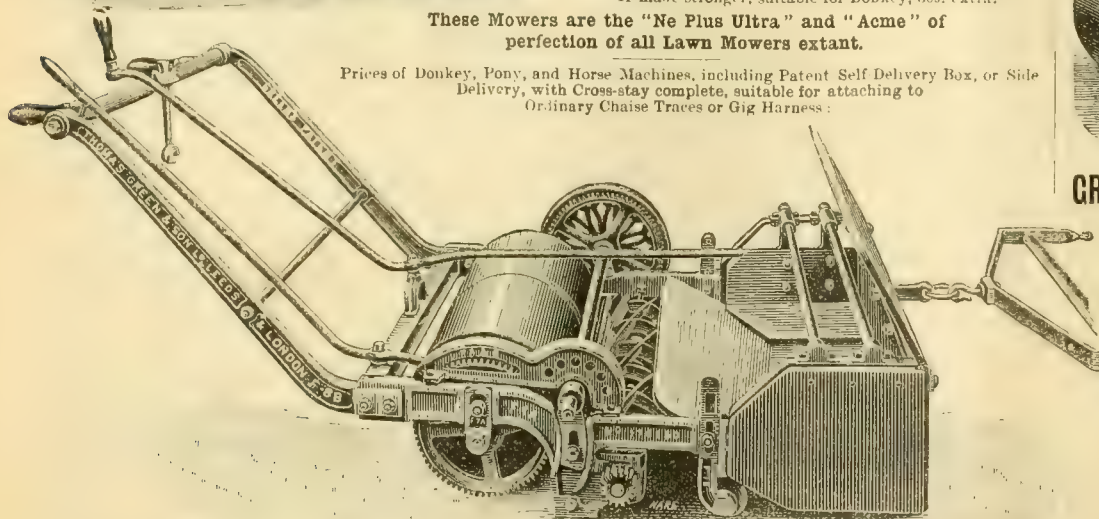
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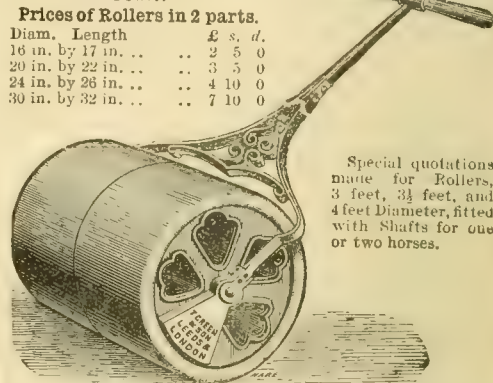


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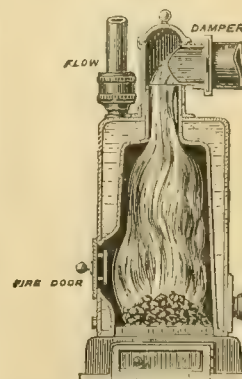
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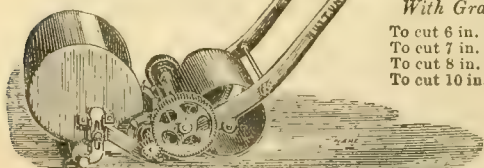
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.

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SATURDAY, MAY 16, 1891.

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The Last Consignment of the Season.

2000 Splendid Bulbs of LILIIUM AURATUM, in original cases as received.

MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, May 21. On view morning of Sale, and Catalogues had.

Wednesday Next.

PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, May 20, at half-past 12 o'clock, PALMS and other PLANTS, STOVE and GREENHOUSE FERNS, ASTERS, PANSIES, PINKS, a collection of COOLHOUSE ORCHIDS, suitable for Amateurs; CYCAS REVOLUTA STEMS, GLADIOLUS, TRELLIS-WORK, &c. On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED AND ESTABLISHED ORCHIDS, ODONTOGLOSSUM VEXILLARIUM, special varieties.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, May 22, 300 lots of DENDROBIUMS, LÆLIAS, ODONTOGLOSSUMS, and CYPRIPEDIUMS, from the Liverpool Horticultural Company.

Also a Private Collection of 60 plants of specially selected varieties of ODONTOGLOSSUM VEXILLARIUM, from a private Gentleman, for Unreserved Sale.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA MENDELII.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 22, at half-past 12 o'clock, by order of Messrs. Hugh Low & Co., a grand Importation of CATTLEYA MENDELII, just received by ss. *Medway*, in fine condition, and abundantly furnished with fresh green leaves; also an Importation of CATTLEYA GASKELLIANA, in good condition; DENDROBIUM FORMOSUM GIGANTEUM, D. JAMESIANUM, EPIDENDRUM BICORNUTUM, ONCIDIUM CRISPUM, O. LANCEANUM, O. MARSHALLIANUM, VANDA CÆRULEA, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

The Gardens, Harefield Grove, Uxbridge.

Two-and-a-half Miles from Rickmansworth and Northwood Stations.

ALTERATION OF DATE, to MONDAY, MAY 25 (instead of May 27, as previously announced), at 11.30 o'clock sharp, in consequence of the large number of lots.

FIRST PORTION of the extensive collection of ESTABLISHED ORCHIDS, STOVE, GREENHOUSE, and BEDDING PLANTS, the Greenhouses being required for other purposes.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the premises above, on MONDAY, May 25, at half-past 11 o'clock, the extensive collection of well-grown ESTABLISHED ORCHIDS, including 250 Cypripedium insigne specimens, half specimens, and smaller plants; 130 Cologyne cristata, amongst them many fine plants; 300 Cattleya Mendelii and others, 300 Odontoglossum Alexandre, 210 Lælia anceps, and many others; 200 Azalea indica, embracing several very fine specimens. 290 CAMELLIAS ALBA PLENA, 1 to 10 ft. high, the greater portion in 16, 24, 32, and 48-pots, and many of them large plants. 250 KENTIA BELMOREANA, 400 LATANIAS, SEAFORTHIAS, and other PALMS in 48-pots. DRACÆNAS, CYCLAMEN, 150 very choice AMARYLLIS, 5400 GERANIUMS of sorts, and many other plants.

May be viewed three days prior to the Sale. Catalogues may be had of Mr. E. Bennett, on the premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Orchids in Flower.—Special Sale, Tuesday, May 26.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER will take place as above. For which they will be glad to RECEIVE ENTRIES as EARLY as POSSIBLE.

Eltham, Kent.

FREEHOLD LAND suitable for BUILDING or NURSERY PURPOSES.

MR. W. H. COLLIER is instructed by the British Land Company (Limited), to SELL by AUCTION, at the "Royal Hotel," Eltham Station, on THURSDAY, May 28, 1891, at 6 for 7 o'clock in the evening, 39 Lots of Eligible FREEHOLD LAND, free of Tithe and Land Tax, being a portion of the Mottingham Park Estate, comprising 35 Building Sites; and, in 4 Lots, about 5½ Acres, admirably adapted for Nursery or Building Purposes, having frontages to Mottingham Lane, the main road from Lee to Chislehurst, and the proposed new road leading therefrom. Situate within a few minutes' walk of Eltham Station on the South-Eastern Railway (Dartford Loop Line). Payments by instalments if desired. Free conveyances.

Particulars, Plans, and Conditions of Sale may be obtained of the Auctioneer, 25, Moorgate Street, E.C.; and at the place of Sale.

City of Peterborough and Woodstone.

VALUABLE and IMPORTANT FREEHOLD and TITHE-FREE BUILDING ESTATE, known as WESTWOOD GRANGE, situate within half-a-mile of the centre of the city of Peterborough, and close to the Great Northern and Midland railway stations, comprising an excellent private residence, with large Seed and Onion sheds, and commodious Farm Buildings, with Garden and Accommodation Land, containing 10a. 2r. 0p., large and well-planted Orchard, containing 4a. 0r. 30p., thirty-one plots of valuable Freehold Building Land, in close proximity to Mayor's Walk and Westwood Road, giving good access to the City Cattle Market, &c., and avoids the double railway crossings; six closes of accommodation Pasture Land, and five inclosures of Freehold Arable and Pasture Land; also 1a. 2r. 0p. of Building Land, in the parish of Woodstone, adjoining Jubilee Street, the whole comprising a total area of about 64a. 2r. 0p.

MESSRS. BIDWELL are instructed by H. H. ENGLISH, Esq., to SELL the above VALUABLE ESTATE by AUCTION, in lots, at moderate reserves, at the Grand Hotel, Peterborough, on WEDNESDAY, May 20, 1891, at 4 o'clock in the afternoon precisely. The attention of Private Purchasers, Builders, Land Speculators, Market Gardeners, and Seedsmen, is particularly directed to this Sale, as it affords an excellent opportunity of purchasing Building Plots, Garden Ground, and Accommodation Land, within half-a-mile of the centre of Peterborough, from whence there is excellent railway communication with London, and all parts of England. There is gravel and stone under a great part of the Estate, and the site is a commanding one. The water supply and gas mains adjoin the property. Possession of all lots will be given at Michaelmas next. Two-thirds of the purchase money may remain on mortgage at 4 per cent., on all the lots except the small building lots.

To view, apply to Mr. BRANTON, the Bailiff, Westwood Grange. Particulars, with Plans and Conditions of Sale, may be obtained from Messrs. PERCIVAL AND SON, Solicitors, Peterborough; or, Messrs. BIDWELL, Land Agents and Surveyors, Ely, and 12, Mill Lane, Cambridge.

WANTED TO RENT, small NURSERY BUSINESS, with some Glass Erections, and 2 or 3 acres of Land.—Offers to E. T., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR DISPOSAL, in a high-class neighbourhood, in the South-Western District, a thoroughly sound and thriving FLORIST'S BUSINESS, in good going order, to be sold, the owner (who is also the Freeholder) retiring. The Property comprises capital Dwelling-house, spacious Stabling, 9 capital Greenhouses, all modern; fine clean Stock. Large Jobbing Business attached. Good old-standing Connection.

To be LET or SOLD. For terms apply to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C., who have personally inspected the Property, and can recommend it.

NORTH LANCASHIRE.—To Let, on Lease, Immediate Possession, practically new, old-fashioned, substantial, commodious HOUSE; three Sitting-Rooms, seven Bed-rooms, Stable, Coach-house, Loft, Cottage, good Garden, small Glass-houses, Vinery in full bearing, and Field; near Church, Station, and Post; Country, healthy and beautiful. Might suit any person retiring from the trade. Opportunity to Let Rooms.—Address, Homestead, Melling, Carnforth.

Southsea, in centre of.

FOR SALE, FREEHOLD SEMI-DETACHED HOUSE, with GLASSHOUSE, used as a FLORIST'S SHOP, and Garden at rear, containing Glasshouses (heated), and conveniences for large business. Old-established business now being carried on. Arrangements may be made for purchase of stock if desired.

Apply to W. H. BOLITHO, 40, Union Street, Portsea.

TO BE SOLD, a NURSERY, with extensive Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, and easy of access per rail to Manchester, Wigan, and Liverpool. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

To Florists, Fruiterers, and Others.

TO BE DISPOSED OF, a very high class West End FLORIST'S and FRUITERER'S BUSINESS.—Established over sixty years. The premises are situate in one of the best business thoroughfares in the West End, with stabling and entrance in the rear.

Particulars of Messrs. VAUGHAN AND CO., Southampton Estate Office, Fitzroy Square, W.

CORNISH VILLAGE, about 4½ miles from main line Railway Station, soil good, situation high, and very healthy, FREEHOLD, TO BE SOLD, in consequence of the decease of the proprietor (a well-known botanist), a substantially-built and comfortable House, containing three entertaining and eight bed and dressing-rooms; good Stabling and Outbuildings; large Vinery, and two small Greenhouses; also Gardener's Cottage, and about 8 Acres of Land. The Gardens contain a choice collection of Trees, Shrubs, and Plants.—Apply to L. T., Messrs. CARLYON AND KERBY, Solicitors, Truro.

South of England.

MATURED GARDEN, 16 acres, with 20 Hot Houses and Vineries; 2 Cottages; rent £200; Valuation £500.—ELDRIDGE, 2, Western Parade, Southsea.

RANGE of THREE GLASS HOUSES.—

Made for a customer since deceased; quite new, can be finished to suit purchaser. 48 x 16 ft., of ornamental character, suitable for Conservatory or Florist's Show House. For Sale, cheap. This is a bargain seldom to be met with. Illustrations and price on application to—

MESSINGER AND CO., Horticultural Builders, Loughborough, Leicestershire, and 163, Palmerston Buildings, Old Broad Street, E.C.

THE TOWER FURNISHING COMPANY (Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus. Address, SECRETARY, 43, Great Tower Street, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received a large and splendid Importation of ODONTOGLOSSUM ALEXANDRE, the finest PACHO TYPE.

Also large and fine importations of the following and many other ORCHIDS: Odontoglossum grande, O. pulchellum majus, O. Cervantesi morada, Dendrobium Wardianum giganteum, D. Bensoniæ majus, D. Brymerianum, D. chrysotoxum superbum, D. nobile, D. densiflorum, Vanda teres, Cattleya bicolor, Lælia Perinii, L. superbiens, &c.

The Company are constantly receiving Importations from various parts of the world, and they have an immense stock of Established ORCHIDS. Descriptive LISTS, with full particulars, post-free on application to the

Vineyard and Nurseries, Garston, near Liverpool.

AGENCE GÉNÉRALE HORTICOLE, BELGE

De HERDT and STRECKER,

ANTWERP.

Branch House and Plant Houses, Ghent, 74, Rue de la Forge. Plant Houses & Trial Grounds, Duzeld, lez Schooten, Antwerp. Cablegrams—STRECKER, Antwerp and Ghent.

Special Trade Offer.

ARECA LUTESCENS,

Splendid Seedlings for Potting—Very large size

(1½ YEAR).

PRICE, 12s. 6d. PER 100.

SAMPLES FREE ON APPLICATION.

GOLD MEDAL.

ALEXANDER DICKSON & SONS

Respectfully beg to remind Rose Growers that, at Birmingham, they were awarded the NATIONAL ROSE SOCIETY'S GOLD MEDAL for their

NEW PEDIGREE ROSE, Margaret Dickson, H.P., colour white with pale flesh centre. Awarded Gold Medal and six First-class Certificates. Price, 10s. 6d. each.

NEW PEDIGREE ROSE, Marchioness of Dufferin, H.P. This truly grand Rose is of enormous size, the colour is a beautiful rosy-pink, suffused with yellow at base of petals. Awarded four First-class Certificates. Price, 10s. 6d. each.

These Novelties will be distributed early in June. All Orders executed in strict rotation. Descriptive LISTS may be had on application.

The Royal Nurseries, Newtownards, co. Down.

DAHLIAS! DAHLIAS!!

We have a splendid Collection of these, including more than 300 of the newest and choicest sorts, which we offer in Strong Young Plants, correctly named, at moderate prices, as below.

Post or Carriage Free for Cash.

	s. d.	s. d.
Show and Fancy, our selection, including the most beautiful sorts, 6 for 2 6; per doz., 4 6		
Show and New, and extra choice varieties	6	3 6
Cactus Flowered, all the newest and best	6	2 6
" " extra choice sorts 6	3	6
Pomponé or Bouquet, in charming variety	6	2 6
Single-Flowered, very choice sorts 6	2	6
" " New and extra choice 6	3	6
" " Seedlings from our grand collection of choice named flowers	per 100,	15 0
		2 6

DANIELS BROS., TOWN CLOSE NURSERIES, NORWICH.

FORBES' EAST LOTHIAN STOCKS.

My superior strain of these, in 5 distinct sorts—Crimson, Purple, Scarlet, White, and Wallflower-leaved White—each sort, 1s., 2s. 6d., and 5s. per packet.

The best and most comprehensive CATALOGUE (124 pages) ever issued on all sections of Florists' Flowers; free on application.

JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

FRIDAY NEXT.

CATTLEYA MENDELII.

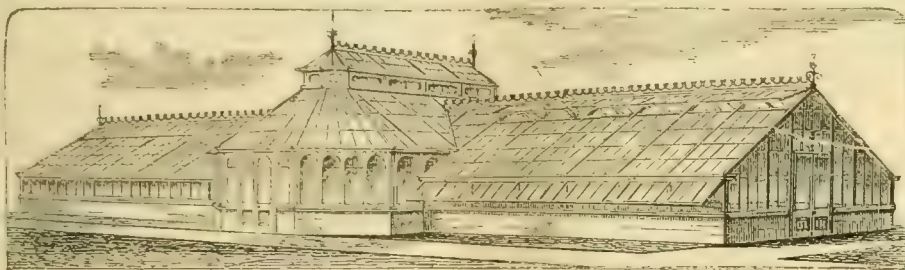
CATTLEYA GASKELLIANA,
DENDROBIUM FORMOSUM GI-
GANTEUM,
DENDROBIUM JAMESIANUM,

EPIDENDRUM BICORNUTUM,
ONCIDIUM CRISPUM,
ONCIDIUM MARSHALLIANUM,
VANDA CÆRULEA.

MESSRS. PROTHEROE & MORRIS are instructed by Messrs. HUGH LOW & CO., to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, May 22, **GRAND IMPORTATIONS** of the above ORCHIDS—see advertisement in auction columns.

On view morning of Sale, and Catalogues had.

Five 1st Prize Medals recently
awarded in open competition.



Five 1st Prize Medals recently
awarded in open competition.

R. HALLIDAY & CO.,
HOthouse BUILDERS and HOT-WATER ENGINEERS,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm, from the smallest to the largest. Hot-water Heating Apparatus, with really reliable Boilers, erected, and success guaranteed in all cases. Melon Frames, Sashes, Hotbed Boxes, &c., always in stock.

Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

THE "CLIMAX"

CONCENTRATED

WEED KILLER

Is Double the strength of any other.

Destroys all weeds on Garden Walks, &c., &c. Improves the colour of the Gravel—has no smell. Saves many times its cost in labour alone. One application will keep the walks clear of weeds for a whole season at least. Can be applied with an ordinary watering-can.

Note the strength, & compare the price with others.

1 Gallon makes 51 Gallons for use.

PRICE IN TINS:—1 gallon, 3s.; 5 gallons, 2s. 6d. per gallon; 10 gallons, 2s. 3d. per gallon; 40 gallon casks, 2s. per gallon. Tins and Casks free.

Carriage paid on all orders of 10 gallons and upwards. Sample gallons sent Carriage paid on receipt of Postal Order.

Prepared solely by the **BOUNDARY CHEMICAL CO., Luton Street, Liverpool.**

Can be had through all Seedsmen, or direct. Ask for the "CLIMAX," and take no other.

THE "CLIMAX"

MOSS ERADICATOR

Is Guaranteed to effectually Destroy all Moss on Lawns, &c., while at the same time it will stimulate and increase the Growth of the Grass.

1 Gallon as sold will make 15 Gallons for use, and is sufficient to do 110 square yards. Can be applied with an ordinary watering-can. Saves many times its cost, and insures a perfect Sward.

PRICE IN TINS:—1 gallon, 3s.; 5 gallons, 2s. 9d. per gallon; 10 gallons, 2s. 6d. per gallon; 40 gallon casks, 2s. 3d. per gal. Drums and Casks free.

WORKS OF AUTHORITY ON BOTANY.

BOTANY FOR BEGINNERS. An Introduction to the Study of Plants. By MAXWELL T. MASTERS, M.D., F.R.S., late Lecturer on Botany at St. George's Hospital. With upwards of 100 Illustrations. Price 3s. 6d.

LINDLEY'S MEDICAL AND ECONOMICAL BOTANY. With numerous Illustrations. 8vo, cloth, price 5s.

SIR JOSEPH PAXTON'S BOTANICAL DICTIONARY. Comprising the Names, History, and Culture of all Plants known in Britain, together with a full Explanation of Technical Terms. Medium 8vo, cloth, price 18s.

LINDLEY'S DESCRIPTIVE BOTANY. For Self-Instruction and the Use of Schools. Price 1s., sewed.

London: **BRADBURY, AGNEW, & CO. (Limited), Bouverie Street, E.C.**

EXHIBITIONS.

BRIGHTON HORTICULTURAL ASSOCIATION.

SUMMER SHOW, July 1 and 2.

APPLICATIONS for SPACES for EXHIBITING HORTICULTURAL SUNDRIES, &c., on the Lawn or in the Rooms of the Royal Pavilion, to be sent to the Secretary—

E. CARPENTER, 96, St. James Street.

BATH and WEST OF ENGLAND SOCIETY and SOUTHERN COUNTIES ASSOCIATION.

BATH MEETING, JUNE 3, 4, 5, 6, and 8, 1891.

A HORTICULTURAL EXHIBITION will be held in connection with the above, and any one having Specialties in Plants, which they are desirous of showing, are requested to communicate with the Chairman of the Department,

R. B. CATER, Esq., of Bath.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

The following have been selected as JUDGES for the INTERNATIONAL FRUIT and FLOWER SHOW, to be held in Edinburgh, on SEPTEMBER 9, 10, and 11, 1891, and have accepted office:—

I.—FRUIT.

Messrs. THOMSON, Drumlairig; BARRON, Chiswick; WHITTON, Glamis; SMITH, Mentmore; LUNT, Ardgowan; RUST, Bridge; BUNYARD, Maidstone; PRATT, Longleat; MACKINNON, Scone; HENDERSYN, Thoresby; WYNNE, Gardening World; and THOMSON, Clovenfords.

II.—PLANTS.

Messrs. FINDLAY, Manchester; MOORE, Dublin; BURBIDGE, Dublin; BENNET, Rangmore; LAING, London; BLAIR, Trentham; DOUGLAS, Ilford; TURNER, Slough; BULLEN, Glasgow; and THOMAS, Chatsworth.

III.—VEGETABLES.

Messrs. MILES, Wycombe; INGLES, Howick; FINDLAY, Markinch; FORREST, Haddo; CAIRNS, The Hirsell; and SMITH, Cullen.

IV.—HONEY.

Messrs. CHOWLER, Dalkeith; and MURRAY, Culzean.

CHARLES STEWART, Hon. Sec.

Notice is also given that in Rule No. 2, to be observed by Competitors, the word "Growers" should be "Merchants."

Cercle Horticole Van Houtte, Ledeborg, Ghent.

GREAT GENERAL HORTICULTURAL EXHIBITION, under the patronage of the Government and the Provincial and Town Councils. From SUNDAY, August 23, to SUNDAY, August 30, 1891. For programmes and schedules, address—

ERNEST DELARUYE, Secrétaire du Cercle V. H., Chaussée de Bruxelles, Ledeborg, Gand.

Corporation of Stockton-on-Tees.

To CONTRACTORS and OTHERS.

THE PARK COMMITTEE invite TENDERS

for WORKS as per the following CONTRACTS in connection with the FORMING and LAYING OUT of a PUBLIC PARK containing an area of 39½ acres.

Contract No. 1, includes EXCAVATING, EMBANKMENTS, DRAINAGE, ROAD-MAKING, PROMENADES, WALKS, &c.

Contract No. 2, includes LODGES, BOUNDARY-WALLS, BANDSTANDS, and OTHER BUILDINGS.

Contract No. 3, PLANTING.

Parties desirous of Tendering, may, on and after May 15, inspect the Drawings, Specifications, Conditions of Contract, and obtain other Particulars on application to Mr. K. F. CAMPBELL, A.M., inst. C.E., Borough Engineer, on payment of £2 2s., which sum will be returned on receipt of a *bona-fide* Tender. Tenders, which must be on the prescribed Form, and accompanied by a full and true Bill of Quantities with the rates of charge and amount of each item, and total amount upon which the Tenders are based, are to be delivered at the Town Clerk's Office, addressed to the CHAIRMAN of the PARKS COMMITTEE, sealed, and endorsed "Tender for Public Park," not later than 10 A.M. on MONDAY, June 1. No Tender will be considered which is not fully filled up, or is detached from the Bill of Quantities.

The Committee do not bind themselves to accept the lowest or any Tender. By Order,

MAT. B. DODDS, Town Clerk.

Town Clerk's Office, Stockton-on-Tees.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

Trade Offer.
W. ICETON begs to offer the following
PALMS—
 Strong ARECA LUTESCENS, in 60's, at 60s. per 100;
 " COCOS WEDDELLIANA, in thumbs, at 32s. and 50s.;
 " SEAFORTHIA ELEGANS, in thumbs, 20s. and 30s.;
 " KENTIAS, BELMOREANA and FOSTERIANA, in
 thumbs, 40s. and 75s.
 " SEEDLINGS in Stores, at 30s. per 100.
 ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.
 Extra fine PANDANUS VEITCHII, in all Sizes.
 Putney Park Lane, S.W.

GARDEN.

For whatever is wanted, mentioned or not in these columns, please to write immediately to **H. CANNELL AND SONS**, whose Seed and Nursery Stock is very complete and extensive, and where nearly everything for the Garden is grown and supplied in large quantities, in the finest possible condition, at the lowest prices, consistent with correctness and superior character. Send for CATALOGUES.

SWANLEY, KENT.

Now ready, descriptive Catalogue of
HARDY HERBACEOUS PERENNIALS,
 free on application, describing the BEST HARDY
 HERBACEOUS PLANTS for Borders, Rockwork, and Cuttings.
BARR & SON, 12 and 13, King Street, Covent Garden,
 London; and Nurseries, Long Ditton, Surrey.

CHEALS' DAHLIAS.

SINGLE, CACTUS, POMPONE,
 SHOW, and FANCY.

ALL THE BEST VARIETIES IN CULTIVATION.

A NUMBER OF
VALUABLE NOVELTIES

FOR THIS SEASON.

New Descriptive Catalogue, Post-free.

J. CHEAL & SONS, THE NURSERIES, CRAWLEY.

Verbenas—Verbenas—Lobelias.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Pink VERBENAS, well-rooted cuttings, hardened off fit for potting, 6s. per 100, 50s. per 1000. LOBELIAS, Brighton Blue-stone, Emperor William, and Snowball, all true from cuttings, 3s. per 100, 21s. per 1000. Packing included. Terms cash.
 Cemetery Nursery, Gravesend.

STRAWBERRY SEASON.

TO GROWERS AND DEALERS.—
 The CLYDEDALE BOX COMPANY, 45, Montrose Street, Glasgow, make a specialty of Manufacturing PUNNETS and TRAYS specially adapted for Strawberries and other soft Fruits. Illustrated PRICE LIST free by Post on application. Sample Parcels, containing 4 dozen assorted Punnets and Trays, sent Post-free for 3s. 2d., or 6 dozen Trays only, assorted, 3s. 2d. The above Company are prepared to appoint Agents to hold Stock in the principal districts.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.

BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.
 BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.
 GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.

DESCRIPTIVE CATALOGUE free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

PALM SEEDS.

ONLY THE BEST SPECIES.

KENTIAS, COCOS WEDDELLIANA, ARECA BAURI, A. LUTESCENS, &c., &c.

Customers' own selection, 7s. 6d. per 100.

Wholesale prices on application.

F. ROSS & CO., General Import & Commission Agents,
 BLECHINGLEY, REDHILL, SURREY.

NURSERY GROUNDS, with nine large Glasshouses and a good House and Stabling, to be DISPOSED OF. Situate in a Main Thoroughfare, 1½ Miles from the Marble Arch; 120 feet frontage, 210 feet deep. A rare opportunity for any Country Nurseryman desirous of having a Branch Establishment in Town.

Application for further particulars to be made to Messrs. LUMLEYS, 22, St. James's Street, S.W.

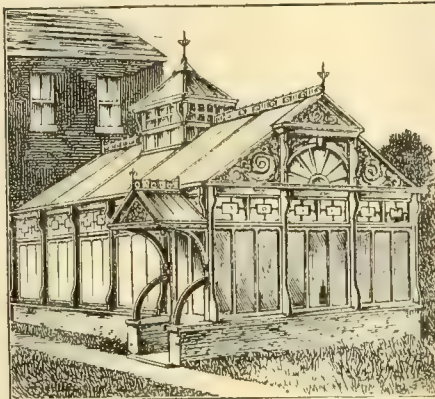
GENUINE GARDEN REQUISITES.
 COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack; 10 for 12s., 20 for 20s., 30 for 28s. ORCHID PEAT, special, 8s. per sack. SPHAGNUM MOSS, 7s. 6d. per sack. Horticultural CHARCOAL, 8s. per sack. BONES, 4-inch, 10s. per cwt.; DUST, 10s. 6d. per cwt. Finest ROLL TOBACCO PAPER, 10d. per lb.; 28 lb. for 21s.; CLOTH, 1s. per lb., 28 lb. for 26s.; CORD, 6d. per lb., 28 lb. for 12s. 6d. Brown Fibrous PEAT, 5s. per sack, 5 for 22s. 6d.; Black, 4s. 6d. per sack, 5 for 20s. Coarse SILVER SAND, 1s. 6d. per bushel, 14s. per ton, 25s. per ton. LEAF MOULD, PEAT MOULD, FIBROUS LOAM, each 3s. per sack. Prepared POTTING COMPOSTS, 5s. per sack; 5 for 20s. New ARCHANGEL MATS, 9 feet 4 inches by 4 feet 6 inches, 18s. per dozen. PETERSBURG MATS, 12s. and 10s. per dozen. BAMBOO CANES, STICKS, and SUNDRIES. List free.—**W. HERBERT AND CO.**, Hop Exchange Warehouses, Southwark Street, London, S.E.

BOULTON & PAUL, NORWICH.

HORTICULTURAL BUILDERS,

WINTER GARDENS, CONSERVATORIES,

and GREENHOUSES in all Styles.



WALL FRUIT TREE PROTECTORS,
 HAND LIGHTS, PROPAGATING
 GLASSES, &c.

BOILERS of all makes and sizes supplied at the
 cheapest rates.
 VALVES, PIPES, and all FITTINGS always in stock.

GARDEN FRAMES in
 great VARIETY.



No. 60.

PORTABLE PLANT
 PRESERVER.

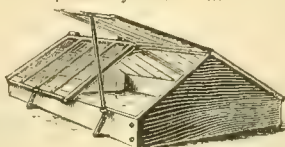
CASH PRICES.

CARRIAGE PAID.

6 ft. by 3 ft. ... £2 0 0 6 ft. by 4 ft. ... £2 5 0
 12 ft. by 3 ft. ... 3 2 0 12 ft. by 4 ft. ... 3 15 0

No. 73.

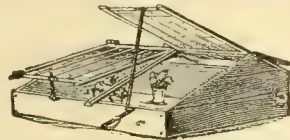
NEW SPAN-ROOF
 GARDEN FRAME.



CASH PRICES.

CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0 12 ft. by 6 ft. ... £5 14 0
 8 ft. by 6 ft. ... 4 4 0 16 ft. by 6 ft. ... 7 4 0



No. 74.

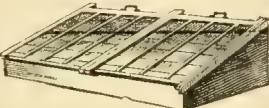
THREE-QUARTER
 SPAN
 GARDEN FRAME.

CASH PRICES,
 CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0 12 ft. by 6 ft. ... £5 17 0
 8 ft. by 6 ft. ... 4 5 6 16 ft. by 6 ft. ... 7 8 8

No. 75.

MELON AND
 CUCUMBER FRAME.



CASH PRICES.

CARRIAGE PAID.

4 ft. by 6 ft. ... £2 0 0 12 ft. by 6 ft. ... £4 3 0
 8 ft. by 6 ft. ... 3 0 0 16 ft. by 6 ft. ... 5 6 0

No. 77, Smaller Size Frames, } 6 ft. by 4 ft. £1 15 0
 similar to No. 75. } 9 ft. by 4 ft. 2 7 6
 } 12 ft. by 4 ft. 3 0 0

All Frames made of Selected Red Deal, painted three times,
 and Lights glazed with 21-oz. sheet glass.

CATALOGUES of all our Manufactures, including HORTICULTURAL BUILDINGS, FRAMES, BOILERS, IRON BUILDINGS, STABLING, KENNELS, POULTRY, and GARDEN APPLIANCES, free.

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Best quality and workmanship, 2 inches thick, 6 ft. by 4 ft., iron bar across and very strong, 4s. each; free on rail in London. Cash or reference with order.

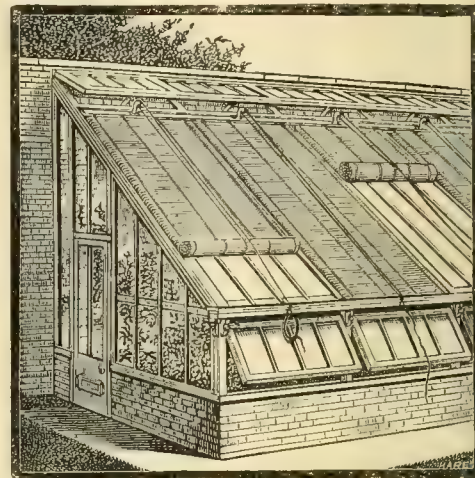
CUCUMBER HOUSES.

Timber sufficient to build 100 ft. by 12 ft. house, lights, door, &c. Put on rail in London. Low price. Send for detailed specification, to

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 HORTICULTURAL WORKS, TOTTENHAM.

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REDUCTION IN PRICE.



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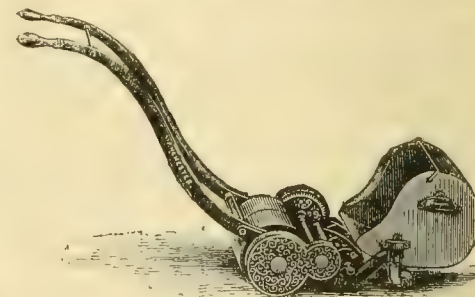
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W. RICHARDSON & CO., Horticultural Works,
 DARLINGTON.

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Awarded numerous National & International Prize Medals.



A beautifully designed, well constructed, highly finished, English made, and almost noiseless Machine. Durable, easy to work, and eminently suitable for the Tennis ground, and also for Ornamental Gardening. It has no equal. Thousands are in use, giving unqualified satisfaction. Every Machine guaranteed.

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ENGINEERS.

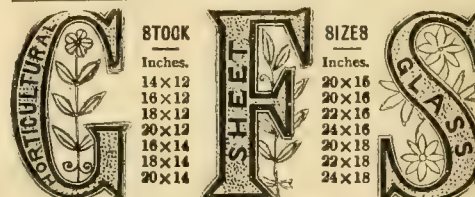
GORTON, MANCHESTER.

Patentees and Manufacturers of the Patent "CLIMAX," "MANCHESTER," and Royal "ANGLO-AMERICAN" LAWN MOWERS.

80,000 SOLD SINCE 1869.

To be obtained promptly from all respectable Ironmongers and Seedsmen PRICE LISTS POST FREE.

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the manufacturers.—CHADBORN and COLDWELL, Mfg. Co., 223, Upper Thames Street, London, E.C.
 See large Advertisement for April 25, page 544.



21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, delivered free and sound in the country, in quantity.

"HORTICULTURAL PUTTY." Own Special Manufacture.

GEORGE FARMILOE & SONS,

LEAD, GLASS, OIL, and COLOUR MERCHANTS,

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 Stock Lists and Prices on application. Please quote Chronicle.

RELIABLE ARTICLES
OF
SUPERIOR MERIT.

The INFALLIBLE
Weed Killer
'CUPROLENE,'
Regd. Trade Mark.

Numerous Testimonials
and every particular re-
specting these, and our
other manufactures, sent
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IT WILL PAY YOU
to apply for them before
placing your orders else-
where.

The DEMON
Insecticide
and CLEANSER.
Regd. Trade Mark.

Sole Proprietors—
DEIGHTON & CO.,
Operative Chemists,
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"PERFECT"
SUMMER SHADING

Supersedes all Others.

FOR SHADING GLASS ROOFS OF ALL KIND.
Is applied cold. Goes four times as far
as the old preparations. Note its merits
described below.

1 lb. (cost 1s.) makes half a gallon for use.
Sample 1 lb. tin, post-free, 1s. 4d.

Messrs. CARLTON, Contractors for the painting
of the Glasgow Exhibition of 1888, write:

"By order of the Directors we applied this Shading to
the glass roofing of the Glasgow Exhibition, and found it
possessed great advantages over all other preparations we
had met with. Being applied cold it was most convenient
to use, and while it resisted the action of the rain the whole
season it was at once easily removed by gentle rubbing after
drying. It afforded a cool and pleasant shade, at the same
time admitting an abundance of light."

THE
"PERFECT"
WEED KILLER

Maintains its Superiority over all Rivals
for permanently destroying vegetation on Walks, Carriage
Drives, Ash Tennis Courts, Stonework grown green, etc.
Saves many times its cost in labour, and will keep
Walks, etc., clear of Weeds for a year or more.

Used in the proportion of 1 gallon to 20 gallons of Water

THE BEST TESTIMONIAL IS
A GUARANTEE OF COMPLETE EFFICIENCY.

And we hereby Guarantee all Weed Killer bearing our Trad
Mark to be thoroughly efficient, and to give satisfaction.

SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

The GARDENERS' MAGAZINE, of
21st June. 1890, says:

Observations in several quarters in the past two years have
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Street, Glasgow, is the very thing that has long been wanted.
This is at once simple, cheap, and effective, and requires
only reasonable care to ensure perfect action and lasting
results. At the Royal Gardens, Kew, the R.H.S. Gardens
at Chiswick, and other public places near London, the
"Perfect" Weed Killer is trusted for making a clean sweep
of the road weeds, and, therefore, plays an important part
in the keeping of the roads."

SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97 MILTON ST., GLASGOW.

CAUTION.—Please carefully note our name, address, and
trade mark, and do not be deceived by imitations.

SOLD BY SEEDSMEN, ETC.

100,000 yards to select from.

EXTRA STOUT strong-tanned NET, 2 yards
wide, 14d. yard; 4 yards wide, 3d. yard; or 2 yards wide,
10s. per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE
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THE BEST TIME FOR APPLYING

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As a TOP DRESSING is when

THE

FRUIT IS STONING.

Tins, 1/3; 7 lb., 2/6; ½-cwt., 10/-;
1 cwt., 19/-.



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FAVOURITE

LIQUID MANURE POWDER,

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Tins, 1/6; 7 lb., 3/-; ½-cwt., 13/6;
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NO GARDENER SHOULD BE WITHOUT IT.

W. WOOD & SON, F.R.H.S.

ESTABLISHED 1850,

WOOD GREEN, LONDON, N.

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WEED DESTROYER.

Mr. J. HUDSON, Gunnersbury House Gardens, writes:—"I
am glad to say that the Weed Destroyer has given us every
satisfaction; it proved most effectual, and is a great saving of
time and labour."

Mr. A. WARD, Stoke Edith Park Gardens, writes:—"I am
pleased to tell you that I am exceedingly gratified with the
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In the following sizes, carriage paid:—
3 Gallon Drums, 5s. 6d. | 12 Gallon Casks, 19s. 0d.
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40 Gallon Casks, 50s.

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JOSEPH BENTLEY,
CHEMICAL WORKS,
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GISHURST COMPOUND used since 1859
for Red Spider, Mildew, Thrips, Greenfly and other
blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a
winter dressing for Vines and Orchard-house trees, in lather
from cake for American blight, and as an emulsion when
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supercede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on
wet ground. Boxes, 6d. and 1s. from the Trade.
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QUICK. LASTING. ECONOMICAL.

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and Greenhouse Plants, Melons, Cucumbers, Tomatoes, Pot
Strawberries, Chrysanthemums, &c. For Lawns it has a quick
and beneficial effect. For Amateurs and those with small
gardens, where there is a difficulty in obtaining stable or farm-
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as it is clean in use, easy of application, and reasonable in
price.—Yours respectfully, J. GILMOUR, Gardener to the
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MANURE for Garden use, NATIVE GUANO. Price
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CRUSTACEAN FERTILISER.

Made from the Waste of the Lobster Tinning
Factories in Newfoundland and Nova Scotia.

Ask your Seedsmen for a shilling 1 lb. Tin, with printed
directions for use, and see that you get none other.

For Wholesale Quantities address:—

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Cheapest Fertiliser for all purposes. Write for Circular
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SLUGICIDE (Registered).—CERTAIN
DEATH to SLUGS. Harmless to Plant, Vegetable, and
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Six 1/6 packets for 7/6; six 2/6 packets for 12/6.

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NORWICH.

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A Correspondent writes, May 9, 1891:—
“Please send packet of Phoenix Kale. I am cutting it now, splendid.”

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A Winter Necessity for Gardeners.

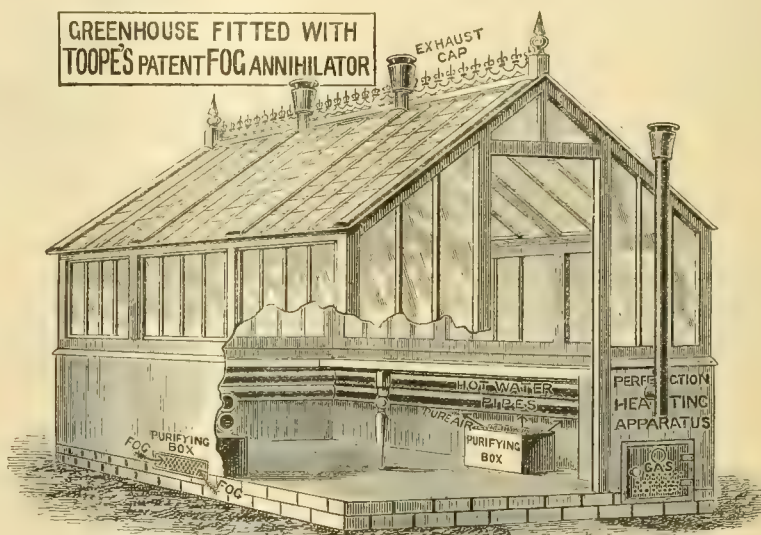
To have a Kale of superior quality fit to be served upon a first-class table for a certainty, no matter what wintry weather we experience, demonstrates its great value to the private gardener, and more especially to the market Gardener, who is doubly interested in a sure winter crop.

CULTIVATION.—Sow in beds now, and when strong enough plant out in square similar to the Savoy crop.

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For Destroying Weeds on Garden Walks, Carriage Drives, Roads, Stable Yards, &c., also for Killing Plantain on Lawns. Saves more than twice its cost in Labour. No Smell. Does not stain the Gravel.

One application will keep the Walks clear of Weeds for at least Eighteen months.

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Used in the proportion of one gallon to twenty-five gallons of water.

ANTI-FUNGI POWDER, THE ONLY EFFECTUAL REMEDY FOR TOMATO DISEASE, MOULD AND MILDEW ON ROSES, VINES, &c.

It can be applied with an ordinary Powder Distributor, has no smell, and is harmless to the plants or fruit. Recommended by Mr. W. HILLS, Gardener to Viscount Gort, East Cowes Castle; Mr. W. CHILD, Gardener to the Rev. W. WILKS, Secretary to the Royal Horticultural Society; Mr. CHAS. ROSS, Welford Park Gardens, Newbury, and others.

Prices: 1 lb. 1s., 3 lb. 2s. 9d., 7 lb. 5s. 6d., 14 lb. 10s., 28 lb. 18s., 56 lb. 35s. Carriage paid on 28 lb. and upwards.

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Agents in Ireland:—Messrs. W. DRUMMOND & SONS, 58, Dawson Street, Dublin; W. CARSON & SONS, 21, Bachelor's Walk, Dublin; ALEX. DICKSON & SONS, 55, Royal Avenue, Belfast; and MCKENZIE & SONS, Limited, Camden Quay, Cork.

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THE Entire Collection of CLEMATIS (the result of a lifetime of hybridisation and selection) is to be DISPOSED OF AT ONCE.

CHARLES NOBLE

has just received a consignment of TREE and SHRUB SEEDS from the Mountains of Sikkim, many supposed to be new and all valuable.

CHARLES NOBLE

feels his entire attention must be devoted to this collection, and reluctantly sacrifices his old hobby.

The CLEMATIS will be SOLD (until the Stock is exhausted), at HALF PRICE.

These Clematis are invaluable for Bedding.

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BULB GROWER,

Quartier du Temple, Toulon (Var), France

(The largest Bulb Grower in the South of France).

Offers—

EARLY WHITE ROMAN HYACINTHS.

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LILIUM CANDIDUM. FREESIA REFRACTA ALBA.

And all other Specialties of South of France.

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Fine lemon-yellow. 10s. 6d.

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A selection of the best varieties. 30s. per dozen.

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Plants now Ready, 3s. 6d. each.

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First-class Certificates and an Award of Merit. Quite

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All other NEW ROSES of 1890 at Current Prices.

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Certificates. 3s. 6d. each.

A large Stock of the Leading Older Varieties, in pots, suitable for present planting, 10s. 6d. to 15s. per dozen; extra strong, in 8-inch pots, 24s. to 30s. per dozen.

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TO THE

GARDENERS' CHRONICLE

For May 30, will be Published a Double-page

Ink-Photograph of

A GROUP OF ORCHIDS,

from a Sketch

By W. H. FITCH, Esq., F.L.S.



THE

Gardeners' Chronicle

SATURDAY, MAY 16, 1891.

ARDDARROCH, GARELOCHEAD.

THIS small demesne, belonging to R. B. White, Esq., is situated in a charming part of the Western Highlands of Scotland, among rugged, Heather-clad mountains, whose beauties are ever changing with the season, and cannot be imagined by those who have not seen them, and which it would be vain to attempt to describe. The whole of the 45 acres, of which it consists, may be said to be entirely devoted to gardening, it being planted with fine trees and shrubs, and laid out in a series of gardens, beautiful in themselves, and which tend further to heighten the beauties of the rugged landscape, and of the broad expanse of loch, which stretches itself in front of the house. Views of some of the delightful scenery around Arddarroch were given in the *Gardeners' Chronicle*, November 13, 1886, and a brief reference to them will do more to convey a fair idea of its beauty and grandeur than any number of words. The grounds, which it will be needless to say, call for some amount of climbing in places, are laid out in that portion nearest to the house, as a modern garden, and above this, sheltered and partly screened by trees, are the fine ranges of plant houses whose occupant, should do well if the pure air of a place so far removed from busy trade centres as the whir of the blackcock in the trees above the plant houses would seem to indicate, is conducive to health. Beyond and around the houses are plantations of fine coniferous trees and shrubs, among which some *Araucaria imbricata* have grown to marvellous proportions, perfect in their branches, and clothed with bright green leaves almost to the trunk. One of these fine fellows, probably the largest and most beautiful we had seen, and which we measured, was 9 feet in circumference a short distance above the ground, and the spread of the branches nearly 30 feet; its height appeared to be about 50 feet. Imagine what grand features these fine tropical Conifers will form in the rugged Highland scenery, say in 100 years or thereabouts; possibly they may seed and become naturalized, and thus change the aspect of the country side, for they seem to be perfectly at home.

Still higher, and stretching away to the winding path at a great elevation above the loch, are gardens of American plants which grow in the

natural soil of this part of the estate—peat, which is found to exist to a tested depth of 14 feet, and how much more is not known. Sphagnum moss and filmy Hymenophyllums abound here, and the ground, which yields to the tread, is moist, but not wet. Here the Rhododendron grows to a great size, and there being several strains flowering at different seasons, the flowering season is a long one. One strain blooms, or attempts to bloom, at Christmas, then come those which are now in bloom, which seem to be of the *R. arboreum* breed, of which bright carmine, crimson, and white, with various shades of rose-colour were observed. The sides of the upland drives are planted with these Rhododendrons, and with Azaleas and other American plants, and so freely do they grow that the axe has to be used at times to prevent them blocking the roadway. Everywhere among the natural rocks advantage has been taken to plant alpine and other suitable plants, and everything possible is done to increase the beauties of a naturally beautiful site.

THE PLANT-HOUSES.

Of these, the older are near the dwelling-house, and are used as vineries, houses for flowering plants, and ferneries, in one of which *Cœlogyne cristata* is planted among the Ferns, which form the clothing to the back wall, and it seems likely to do well in that position. The mention of this fact will in itself disclose the pet culture of the Arddarroch gardens, and the one on which Mr. White, his wife, and their clever gardener, Mr. Brown, all bestow their best care, viz., the Orchids. For these plants, new and convenient houses, fitted with all the best appliances, are arranged, and their occupants are one and all cultivated in the best manner. The Cattleyas and Odontoglossums, for which Mr. White himself sent out a collector, are marvellous, both in the vigour of the plants, and in the superb quality of their flowers.

In the large Cattleya-house, in two divisions, chiefly occupied by grand specimens of *Cattleya Mendeli*, which may be said to be the Arddarroch specialty, were found scores of large specimens in bloom, some of them 3 or 4 feet across, and furnished with twenty to fifty flowers each. Among them is the very distinct *C. Mendeli*, Arddarroch var., with its chaste white flowers different to those of the *C. M. Bluntii*—which is also here, and equally good—and extending between these white forms and the highly-coloured varieties are three plants of a new section of *C. Mendeli*, of exquisite beauty, whose flowers are white with no other colour on either the lip or petals than a delicate flush of lilac or lavender. The flowers are beautiful in shape, with a labellum whose edges are prettily crimped and folded, an altogether lovely novelty. Of those with a richly coloured lip, *C. M. Empress of India* is a thing to dream about—the intense purplish-crimson on the lip extends so far up as the throat itself, and there is a heavy crimson feather running up the petals. Mr. White says that the consensus of opinion of the orchidists who have seen it is, that it is the handsomest known *Cattleya*, and we must, so far as our experience goes, pronounce a like opinion. Next to this, in the intense violet-crimson colour on the lip, comes *C. M. var. Dumbarton*, a close ally to the fine *C. M. var. Prince of Wales*; then for size and beauty, comes *C. M. var. Rajah*, a specimen of which was carrying more than forty noble flowers, having pure white sepals and petals, and a crimson front lobe to the wide labellum, which faded off towards the edges, and was exquisitely veined

over its whole surface with white. But there were lovely specimens of *C. Mendeli* on every hand, and it is not easy to select the best out of so many very fine varieties. The specimens of *C. Trianae* are equally fine, a few of them being more than 3 feet in diameter; and in the same range were a grand specimen of *Odontoglossum coronarium*, pushing two stout spikes; a good plant of *Oncidium ornithorhynchum album*; a grand specimen of *Cymbidium Lowianum*, with sixteen spikes, averaging twenty-five flowers each; a noble mass of *Cœlogyne cristata*, 3 feet across; some masses of *Epidendrum vitellinum majus*, each with a couple of dozen of flower spikes; large masses of *Cattleya citrina*, *Maxillaria grandiflora*, with a dozen spikes; some good *Odontoglossum hastilabium*, *Epidendrum Frederici Guilelmi*, in spike; and various other good things, such as fine forms of *Miltonia vexillaria*, *Odontoglossum citrosum*, and *Cattleya Lawrenceana*.

THE ODONTOGLOSSUMS.

These are furnished with stout spikes throughout. In the larger range the specimen plants are grown, and among these were observed some grand things in spotted forms of the true *O. crispum*, as well as unique hybrid varieties, among the last-named some twenty forms of *O. Andersonianum*, a fine series of *O. Wilckeanum*, *O. excellens*, and other hybrids. The large specimens of *O. triumphans* were of great merit, and one with a peculiar orange-coloured tip to the segments, was remarked as being novel. *O. Pescatorei*, too, was found in quantity and great variety, one of the plants bearing sixty flowers on a spike. *Epidendrum vitellinum*, *Sophranitis grandiflora*, *Ada aurantiaca*, and the showy *Masdevallias*, gave the required bright bit of colour to the houses.

But the interest of the owner is centred in the long range, occupied solely by unflowered *O. crispum*, specially collected, and which are said by the collector to have given evidence of novel forms by the flowers he found on some of them. All are in magnificent health, and full justice is being done them, so that they may be expected to show fairly what they are on coming into flower.

Another range in three divisions, in the block of upper houses, is devoted—the first to *Cypripediums* and *Cattleya Mossiae*, of which latter there are some specimens measuring 4 feet in diameter. Here in flower were *Cypripedium Dayanum*, *C. caudatum*, *C. hirsutissimum*, *C. superciliale*, *C. conchiferum*, *C. Leeana* superbum, and others. The second division was filled with the smaller *Odontoglossums* and *Masdevallias*; and the third with *Odontoglossums* of various species.

Beyond these, in a sunken house, is a fine batch of all the white forms of *Lælia anceps*; and in another range of warm-houses, with *Clerodendron Balfouri*, *Aristolochia elegans*, *Stephanotis*, &c., on the roof, were found some good examples of the rarer species of *Cypripediums*; a fine collection of named varieties of *Dendrobium nobile*; specimens of *D. Ainsworthii*, *D. Dalhousieanum*, and other *Dendrobies*, and several specimens of *Vanda teres* in bloom. Here the *Dendrobies* make marvellous growth, some of the forms of *D. nobile* being 3 feet 6 inches in height. This is due to the fact being grasped that with these, as with all Orchids, a strong growth in a reasonably warm temperature must be given, and then a good show of flowers may reasonably be expected. In these warm-houses, too, seedling Orchids find a place, and some interesting crosses with *Cattleya Lawrenceana* and other

species have been effected. Gardening being the chief pleasure at Arddarroch, it is not surprising that good results at all points should be achieved. *J. O. B.*

NEW OR NOTEWORTHY PLANTS.

CIRRHOPE TALUM WENDLANDIANUM, n. sp.*

IMAGINE a *Cirrhopetalum*, which is a combination of *C. Medusæ* and *C. fimbriatum*, the enormous tails of the former being attached in this case to the petals, which has given the general appearance of the sepals, but not the fluttering leaflets of the top, and then this flower, coloured in the way of old *C. auratum*, and you will have an idea of a very striking plant. To give a correct description, we must add the following characters:—The bulbs are small, three-quarters of an inch high, about half-an-inch broad, and a quarter-of-an-inch thick, crowned by a single lanceolate leaf. The flower-stalk rises from three or four brownish-green sheets, grows to a height of 3 or 4 inches, and bears a little umbel of three to six flowers. The sepals are ovate, concave pointed, and with long hairs on the whole margin, as is observable in many other species of *Bulbophyllum* and *Cirrhopetalum*. From the top or point of the sepals rise five or six fluttering, very tender, serrulate leaflets of about the same length as the sepals, of a deep claret-red colour. The petals are ovate at the base, protracted into tails from 6 to 7 inches in length, longer than the pedicel itself. The labellum is very small, triangular, blunt at the top, and bent downwards. The column is short-winged above, and also bent downwards to the lip; the colour of both is purplish, with deep red spots or little blotches.

This curious plant flowered for the first time in the March of this year at Mr. Wendland's, Herrenhausen, near Hanover, but it was bought in England, being imported from British Burmah. We received from Mr. Wendland a splendid flower-stalk, and a very characteristic drawing of the whole plant, which is to be published in Part V. of the *Xenia Orchidacea*. [See *C. Colletti*, p. 614. Ed.] *Dr. F. Kränzlin, Berlin.*

EUCRYPHIA PINNATIFOLIA.

THIS grand flowering shrub (see fig. 121) was introduced from Chili about the year 1876, where it is a comparatively rare plant. The flowers, which have a very powerful perfume, are large, pure white, and they are borne in pairs on the upper parts of the branches, standing well up above the dark green foliage. There is a very thick cluster of stamens in the centre of the bloom, and the foliage is pinnated and deeply serrated. It is a really grand shrub for the southern and south-western counties, where it will stand out all the winter, and be sure to please. *A. P.*

KEW NOTES.

AMORPHOPHALLUS CAMPANULATUS.—There are about a dozen plants of this Aroid in flower now at Kew, where it has formed an annual feature of the collection of tropical tuberous Aroids for many years. It is easily cultivated, treatment such as that usually given to *Caladiums* perfectly suiting it. The flowers vary in size and form, the largest examples having a bell-shaped spathe (mouth uppermost, of course), about 8 inches deep, and a foot across the top. The thick, mis-shapen spadix forms a kind of huge clapper to the bell. Botanically, this plant has its attractions, but for those who require

* *Cirrhopetalum Wendlandianum*, n. sp.—Bulbis subcompressis oblongis monophyllis; foliis oblongo lanceolatis acutis coriaceis; sepalis ovatis cucullatis acutis margine pilosis, apice appendicibus (sepalis) fere æquilongis serrato laceris ornatis; petalis longissimis basi ovatis caudatis toto scapo longioribus; labello parvo basi cordato ovato triangulo antice retuso emarginato; gynostemio supra alato. Sepalis petalisque luteis purpureo striatis, labello et gynostemio purpureis. *Dr. F. Kränzlin.*

flowers to possess either beauty of form or grateful perfume, it will have no charms whatever, as its colours are dull, and its odour fetid. For figure, see *Gardeners' Chronicle*, vol. v., 1889, p. 755.

Rosa berberidifolia.—There are two large specimen

which are thrown out in all directions, sometimes to a distance of 6 feet, had been allowed to remain and grow, the bed by this time would have been entirely covered by this Rose. The plants are bereft of foliage in autumn, and no water is afforded until the

near the base. Last year the flowers were distinctly blotched, the year before they were pure yellow, and this year again, there is no trace of crimson in the petals. The other peculiarity is the duplication of petals, the rest of the parts of the flower being



FIG. 121.—*EUCRYPHIA PINNATIFOLIA*. (SEE P. 612.)

plants of this interesting Rose in one of the cool greenhouses at Kew, which are planted out in a raised bed of rich loam, within about 1 yard of the roof glass. Here they have grown, in four years, from tiny seedlings into dense bushes of 2 feet in diameter, and if the numerous stoloniferous suckers,

following April, when they rapidly push into growth. Both plants are in flower at the present time.

Two curious facts in relation to the flowers of this Rose deserve to be recorded; one is that the colour of the petals is sometimes wholly yellow, and sometimes a blot of crimson brown is found on the inside,

apparently normal. Flowers with the central axis prolonged into a leafy branch are also frequent on the plants at Kew. See *Gardeners' Chronicle*, 1889, vol. vi., pp. 8 and 9.

Rosa gigantea has stood the past winter on a south wall outside at Kew, where, in very severe weather

it was sheltered by a hand-light being placed against the wall in front of it. From the vigour of its growth this spring, there is every prospect of its becoming a gigantic plant in a short time, and, we may hope, flowering freely. See *Gardeners' Chronicle*, vol. vi., 1889, p. 13.

Aristolochia Goldieana.—By the time this note appears in print, a flower of this gigantic Birthwort will be about open. Although its flowers are now fairly well known to English cultivators, owing to their having been before produced at Kew and elsewhere, yet it is quite as wonderful in the form and size of its flowers as anything in the vegetable kingdom, not even excepting the gigantic Aroids. A long tortuous tube, suggestive of the old-fashioned Dutchman's pipe, is expanded near the top into a huge "bowl," like an ordinary coal-scuttle, and coloured deep crimson-brown, with numerous reticulating lines of tawny-yellow. In the matter of odour, the flower rivals the *Amorphophallus* and *Stapelia gigantea*. How is it that these enormous mis-shapen, tawny-coloured flowers have such a disagreeable odour? True, the *Victoria regia* flower, which is as big as a Cabbage, is deliciously fragrant, but then it is not mis-shapen, and it is white. See *Gardeners' Chronicle*, 1867, p. 1143.

Solanum Wendlandi.—The Water Lily House at Kew is not now so full of attractions as it will be in a month or so, but the large specimen of this *Solanum* which may be seen on the roof of this house is now finely in flower. It bears some dozens of its large cymose racemes of purplish-lilac flowers, which are larger than those of any other of the many *Solanums* known in gardens. There are not many stove climbers which rival this plant in producing a beautiful floral picture so early in the year, and at the same time continue attractive almost the whole summer. If anyone requires a free-growing, vigorous stove climber, which will flower early and continuously, and always be beautiful, he cannot do better than procure a plant of this *Solanum*.

Cirrhopetalum Colletti.—This distinct and beautiful Orchid has recently been described and figured by Mr. Hemsley in the *Journal of the Linnean Society* (vol. xxviii., p. 131, fig. 20). It is one of the many interesting plants discovered by Brigadier-General H. Collett in 1887-8 in the plains of Upper Burma and the Southern Shan States, and which he brought as living plants to Kew. One of these is now flowering, and as it is certainly the largest flowered and handsomest of all the Indian *Cirrhopetalums*, it is likely to specially interest Orchid growers. In his notes, published in the *Linnean Journal*, General Collett states that *Cirrhopetalum Colletti*, Hems., is a most singular plant, bearing five or six dark purple flowers in an umbel at the summit of a scape 2 or 3 inches high. The flower has little or no odour, and is remarkable for its extremely long attenuated sepals, which are highly mobile, and are wafted about by the slightest breath of air. They are also furnished with a number of little streamers, or banner-like appendages, which, as Darwin remarks of an allied *Bulbophyllum*, "when blown by a breath of wind, wriggle in a very odd manner. . . . The spectacle of the long narrow sepals and the little streamers all waving about together, is extremely fantastic and curious, and will, I hope, soon be seen in England, as there are some healthy plants of this species now growing at Kew."

In the *Flora of British India*, Sir Joseph Hooker places *C. Colletti* next to *C. ornatissimum*, which is well-known in gardens; but the flowers are larger than in that species, the lateral sepals being fully 5 inches long. The rhizome is as thick as a goose-quill; the pseudobulbs are ovate, and about an inch long, and the one leaf is ovate, thick, and dark green, and about 2 inches long. The habitat of the plant is on the Shan Hills, in Eastern Burma, at an altitude of 6000 feet.

Cycas revoluta.—The male plant of this popular garden Cycad is rarely seen in cultivation; at any rate, the number of recorded instances of the production of male cones by cultivated plants is very small. In the *Gardeners' Chronicle* for August, 1888,

p. 162, Mr. J. Nicholson, gardener to J. Hutton, Esq., Northallerton, describes a fine specimen which had just developed a large yellow cone, "like a very large Pineapple;" after having sulked and almost died in consequence of its having coned with him fifteen years previously. This plant when it coned the second time was supposed to be forty years old, and it had a stem 3 feet high, with a head consisting of sixty-seven leaves. Shortly after the appearance of Mr. Nicholson's note in the *Gardeners' Chronicle*, the plant was procured for Kew, where it may now be seen in the Palm-house, with a handsome head of leaves, and bearing a beautiful new cone. Female plants of this Cycad are common enough, and their clusters of felted, brown, leaf-like "carpophylls" are frequently seen in gardens. W. W.

ORCHID NOTES AND GLEANINGS.

PHAIUS HYBRIDUS COOKSONI.

This splendid hybrid was described in our columns by Mr. Rolfe, March 15, 1890, and March 29, 1890, fig. 57. It was raised in the collection of Norman Cookson, Esq., by Mr. Murray. The plant reached the flowering state in a little over two years. It was raised from *P. Wallichii* by *P. tuberculatus*. Mr. Sander recommends that they should be potted when the young growth is starting, in a compost of equal parts of fibrous peat and loam mixed with silver-sand. Before the young growths are far advanced, the plants may be syringed once a day and placed in a shady position in the stove. It is well figured in *Reichenbachia*, t. 14.

CATTLEYA MENDELII VARIETIES.

These form a prominent feature in the collection of R. B. White, Esq., Arddarroch, Garelochhead, Dumbartonshire, who has himself imported large quantities of this, his favourite Orchid. A fine series of blooms from plants whose flowers I have seen before, comes from Arddarroch, and as some of the forms are very extraordinary and handsome, and worthy in every way to take rank with *C. M. Prince of Wales* and *C. M. Rothschildiana*. I enumerate the best under garden names. Apollo has flowers 8½ inches across; petals 3 inches wide. Sepals and petals deep blush or pale lilac. Lip white on the tube and sides of the front lobe, which is, for the remainder purplish-crimson; throat yellow and bronze with white lines. Venus, a twin-flowered scape of beautifully formed flowers, with the petals almost as broad as long. Sepals and petals white with the faintest tint of lavender. Tube and the upper half of the front of the lip white; stained inside with yellow. Front of the lip carmine-crimson, paler towards the edge; front of lip circular, and beautifully fringed and crimped. Phryne, flowers 8 inches across; the sepals unusually broad, viz., 1½ inch. Petals large and curving back. Sepals and petals white, tinged with lavender. The lip has the tube white, the white extending nearly to the front of the lip, confining the light purplish colour on the front of the lip to a triangular patch, which is also veined with white; base of the lip orange tinged with crimson. Argus has pale lilac sepals and petals. Lip white with a crimson blotch, edged with half-inch border of white. A very distinct and attractive variety. No. 293 is in the way of Morganæ, but larger and better in every way. No. 609, a typical Mendelii, with pale rose sepals and petals. The rosy-crimson colour on the front lobe of the lip extends up to the tube. Throat rich yellow with crimson and white veining.

It is pleasant to see so many fine varieties coming from the same place. J. O'B.

LIST OF GARDEN ORCHIDS.

(Continued from vol. viii., p. 651.)

SCHOMBURGKIA.

87. SCHOMBURGKIA, Lindl., *Sert. Orch.* (1838), t. 10; Benth. et Hook. f., *Gen. Plant.*, iii., p. 534.—Closely allied to *Lælia*, and chiefly differing

in the large, fusiform, fleshy, generally hollowed pseudobulbs, bearing two or three leaves at the summit, and some slight floral differences. Generally speaking, the sepals and petals are more nearly equal, and more or less undulate, and the side lobes of the lip less convolute over the column. To these characters, however, there are some slight exceptions, and the differences between the two genera are hardly definable when applied to all the species of both. The scapes are long and slender, with numerous sheathing bracts. Species about eleven, of which all but *S. rosea* appear to have been in cultivation, most of them still remaining so. The genus ranges from South Mexico and the West Indies, through Central America to Columbia and Guiana. It is dedicated to Dr. Robert Schomburgk, who discovered the two original species during an expedition to British Guiana about the year 1837.

S. Brysiana, Lem. = *S. tibicinis*.

S. carinata, Griseb. = *S. LYONSII*.

(1.) *S. CHIONODORA*, Rchb. f., in *Gard. Chron.*, 1886, pt. 1, p. 73.—Central America. A species allied to *S. Humboldtii*, Rchb. f., which was imported by Messrs. F. Sander & Co., of St. Albans. The flowers are said to be numerous, borne in panicles, larger than those of *Epidendrum atropurpureum*, their colour white, with a purple spot on the disc of the lip. It was described from dried specimens, but the following variety is in cultivation, though I have not seen either species or variety.

Var. *KIMBALLIANA*, Rchb. f., in *Gard. Chron.*, 1888, pt. 1, p. 136.—A variety with light purple flowers, which appeared in the collection of Mr. W. S. Kimball, Rochester, New York, in 1888.

(2.) *S. CRISPA*, Lindl., *Sert. Orch.* (1838), t. 10; *id.*, *Bot. Reg.*, xxx., t. 23. *S. marginata*, var. *β*, Hook., *Bot. Mag.*, lxxi. (1840), t. 3729. *S. gloriosa*, Rchb. f., in Otto, *Hamb. Gartenz.*, xvi. (1860), p. 178. *Bletia crispina*, Rchb. f., in Walp. *Ann. Bot.*, vi. (1861), p. 419. *B. gloriosa*, Rchb. f., *l.c.*, p. 419.—British Guiana. Discovered by Dr. Robert Schomburgk, about the year 1837, growing on the trunks of trees along the banks of the Essequibo and Berbice Rivers. It is one of the two original species of the genus, and appears to have first flowered in this country in the collection of Mr. Brocklehurst, near Macclesfield, from a specimen brought from Surinam by Mr. Lance. There has been some confusion respecting the species. Lindley at first confounded the cultivated plant with his *S. marginata* (of which it was also figured as a variety in the *Botanical Magazine*), but afterwards corrected the mistake; while Reichenbach gave it the rank of a distinct species under the name of *S. gloriosa*. I am, however, quite unable to separate the cultivated *S. gloriosa* from the wild *S. crispa*.

S. Galeottiana, Rich. et Gal. = *S. tibicinis*.

S. gloriosa, Rchb. f. = *S. CRISPA*.

(3.) *S. HUMBERTII*, Rchb. f., in *Bonplandia*, iv. (1856), p. 328; Veitch, *Man. Orch. Pl.*, pt. 2, p. 101. *Epidendrum Humboldtii*, Rchb. f., in *Linnaea*, xxii. (1849), p. 836; *id.*, *Xen. Orch.*, i., p. 159, t. 53. *Bletia Humboldtii*, Rchb. f., in Walp. *Ann. Bot.*, vi. (1861), p. 430.—Venezuela. Originally discovered by Humboldt and Bonpland, near Puerto Cabello, in Venezuela, very early in the present century, and subsequently gathered by Wager in the same locality. Messrs. Veitch remark that although introduced into British Orchid collections some years previous, they find no evidence of its having flowered in them before 1887, when specimens were received from Messrs. Backhouse, of York.

(4.) *S. LEPIDISSIMA*, Rchb. f., in *Gard. Chron.*, 1889, pt. 1, p. 72. *Bletia lepidissima*, Rchb. f., *l.c.*, in note.—Habitat not recorded. Imported by Messrs. F. Sander & Co., of St. Albans, and flowered in the collection of Mr. C. Dorman, The Firs, Lawrie Park, Sydenham, in 1889. It is said to be allied to *S. chionodora*, to have precisely the habit of *S. tibicinis*, while the flowers resemble those of *Læliopsis domingensis*. I have not seen it.

S. Luddemanni, Prillieux = S. UNDULATA.

(5.) S. LYONSII, Lindl., in *Gard. Chron.*, 1853, p. 615; *Bot. Mag.*, t. 5172; *Flore des Serres*, t. 2130. S. carinata, Griseb., *Fl. Brit. W. Ind.* (1864), p. 621. *Bletia Lyonsii*, Rchb. f., in *Walp. Ann. Bot.*, vi. (1861), p. 418.—Jamaica. Originally described from the collection of Mr. J. C. Lyons, of Ladiston, near Mullingar, in 1853, its habitat being then unknown. It appears to have been originally discovered by Purdie, growing on trees at St. Anne's, Jamaica, in September, 1848. He calls it a most beautiful plant, and, from the ticket attached to his dried specimens, appears to have sent home living plants, so that Purdie may have been the actual introducer of this species. It has since been collected by Dr. Prior, growing on trees in the same parish. Reichenbach observes that Mr. Wright collected it in Cuba, in bunches on the ground, but probably fallen from some tree.

(6.) S. MARGINATA, Lindl., *Sert. Orch.* (1838), sub t. 10; *id.*, t. 13; *id. Bot. Reg.*, xxx., sub t. 23. *Bletia marginata*, Rchb. f., in *Walp. Ann. Bot.*, vi., p. 419. British Guiana. Discovered by Dr. Robert Schomburgk, about the year 1837. Specimens were soon afterwards brought from Surinam by Mr. Lance, also a coloured drawing, from which the plant was figured in the *Sertum Orchidaceum*, in 1838. Many living plants were also brought, but all died. In 1844, Lindley remarked of it: "Formerly in cultivation, but now lost, unless the 'Spread Eagle' plant, of Jamaica, should prove to be it." This, however, I suspect, is S. Lyonsii, though it does not appear to have flowered in this country before 1853.

Var. IMMARGINATA, Rchb. f., in *Gard. Chron.*, 1887, pt. 1, p. 447.—A variety which flowered with Major Lendy, and is said to differ chiefly in the absence of yellow margins to the sepals and petals, which are of a fine brown colour, while the lip and column are white.

(7.) S. SANDERIANA, Rolfe, in *Gard. Chron.*, 1891, pt. 1, p. 202.—Habitat not recorded. A handsome species, allied to S. Humboldtii and S. lepidissima, with branching panicles of rosy-carmine flowers. It was introduced by Messrs. F. Sander & Co., of St. Albans, about three years ago, and flowered for the first time during January of the present year.

(8.) S. THOMSONIANA, Rchb. f., in *Gard. Chron.*, 1887, pt. 2, p. 38; Veitch, *Man. Orch. Pl.*, pt. 2, p. 102.—West Indies. A species allied to S. tibicinis, but smaller in all its parts. It flowered in the collection of Mr. W. J. Thomson, at St. Helens, Lancashire. Nothing is recorded of its origin. A flower from the type plant was received at Kew, through Messrs. James Veitch & Sons, of Chelsea, with which I was able to identify some dried specimens collected in the Cayman Islands, West Indies, by Mr. W. Fawcett, F.L.S., Director of the Jamaica Botanic Garden, and by him sent to Kew. Living specimens were also received from the same source, though they have not yet flowered. It may, perhaps, occur in other of the West Indian Islands. R. A. Rolfe, *Herbarium, Kew.*

(To be continued.)

CULTURAL NOTES.

CASSIA CORYMBOSA.

How seldom it is one sees this plant in gardens, and yet it is one of the handsomest in the conservatory or greenhouse, or, for that matter, for outdoors, when planted in sheltered sunny spots, when danger from frost is past. Being somewhat hard-wooded and deciduous, this plant may be wintered almost anywhere, so long as the ball is kept just moist, like a Fuchsia, and then started in spring. Before a plant is started to grow its branches, it should be stood in a warm house to start, when, if cuttings are required for increase, they should be taken off 4 inches long, and with a heel, and put singly in small pots in sharp sandy soil. As soon as the cuttings are struck, have the points nipped

out, and when they break again, repotted in good fibry loam mixed with just a little peat, and some sand. To get short-jointed shoots that will flower freely, the plant should be grown in a sunny position near to the glass, a pit or frame being a very good place for them, as the lights can be drawn off these, and the plants have full exposure. J. S.

WHITE EVERLASTING PEA.

This is a valuable perennial for furnishing cut flowers, it yielding a wonderful quantity of these for a long period. But it was not to its general worth as a cut flower that I wished to draw attention so much, as its propagation which at the present moment is of importance. It comes fairly well from seed, but the seedlings do not always produce fine flowers; hence, the reason for taking suckers at this season. Where old stools exist, it is an easy matter to secure cuttings of the right stamp, those which are just issuing from the base of the plants. Slip them off with a heel, and insert them in pots of sandy soil, and place in a frame or hand-light, having a gentle bottom heat, and with attention to watering and shading, the majority will root in about three weeks; and then, if they be potted without delay, will quickly make fine plants. J.

FLORISTS' FLOWERS.

PAGE'S CHAMPION GREEN-EDGED AURICULA.

THE *Florists' Magazine* for July, 1835, a monthly publication edited by Frederick W. Smith, and published by Orr & Smith, of Paternoster Row, contains an admirably preserved coloured illustration of the above green-edged Auricula, the truss carrying nine expanded pips. I should think it may be accepted as a very good representation of the flower. It was raised by a Mr. Page, and first sold in Covent Garden Market at a very low price, considering its beauty; but being noticed by some who had a taste for Auriculas, by them it was purchased. It received the attention its great merits deserved, and its price soon became high. It is now very scarce, and, as the Rev. F. D. Horner points out, it is one of the few Auriculas that will not grow in an impure air. It is thought by some of the old growers that Page's Champion was a seedling from the once celebrated Cockup's Eclipse. The old growers also thought Page's Champion a good variety to seed from, and probably it has been employed as a parent by some of our modern raisers of new show Auriculas. R. D.

CARNATION MARY MORRIS.

I do not know to whom we are indebted for raising this fine self Carnation, but it is one well worthy a place in every garden. It is of robust constitution, a vigorous grower, and adapts itself to any kind of soil that will grow a Carnation; it is nearly as large in size as Souvenir de la Malmaison, but does not burst its calyx so badly, although not entirely free from this defect; the flowers are of good form, and of a rich bright rose colour. Of all the Carnations I grew last year in the open ground of my garden at Ealing, this pleased me most; it is very free of bloom, and invaluable for cutting from. I am this season trying it in pots with other selfs, and it quite leads the way in vigour of development. It makes an excellent button-hole flower, and though bright in colour, is yet soft, pleasing, and fascinating. I think it was sent out by Mr. H. G. Smyth, of Drury Lane, but I am not aware who has the credit of raising it. R. D.

THE AURICULA.

The intensely cold winter weather, which denuded the plants of their leaves, was followed by very cold spring weather, which kept back the bloom very much indeed. The flowers opened slowly, and the cold weather lasting all through the blooming period, the flower-trusses continued for a long time in good condition. I was greatly interested in the exhibition

of show and alpine Auriculas at Newcastle-upon-Tyne, held this year on April 15. The weather had been as cold in the north as in the south, but gardeners and amateur cultivators bravely faced the difficulties of the situation, and had their Auriculas in flower in fine condition with the Hyacinths and Tulips. When growers in Durham, Northumberland, and Northern Yorkshire are able to exhibit fine Auriculas on April 15, there ought to be no difficulty in getting them in for April 21 in London. The Newcastle flowers were certainly the finest I have seen at the spring exhibitions in that town for the last fifteen years. The competition for the prizes was also much keener than formerly, and the quality of the prize flowers was of the highest point of excellence. It was remarked at p. 535 that these exhibitions had been of immense service in improving the quality of the dinner-table epergnes and other arrangements of cut flowers. The same remarks equally apply to the Auriculas, for better varieties are now exhibited, and the plants are more tastefully set up, and the arrangements are more pleasing. It was also evident to frequenters of the National Auricula and Primula Society (southern section), that improvements had likewise been made in the south. Very slowly indeed are new varieties of merit introduced to the public; but as soon as they appear, they are not slow to be recognised. In the green-edged class, there are no new ones yet in commerce to equal Prince of Greens and Rev. F. D. Horner. Nor has the grey-edged class received any additions since Marmion and Mabel were sent out; the first-named, though not thought so highly of when first exhibited, has proved to be the better variety of the two. In the white-edged group, Mrs. Dodwell, Rachel, and George Rudd have considerable merit, and the two last-named are evidently from the same seed-pod. The first-named is the best of the three, and of pure white on the margin, with a very dark ground colour, which contrasts well with the other parts of the bloom. Rachel and George Rudd are sometimes grey-edged, and in that condition they are not so beautiful. They are the productions of the late Mr. Woodhead.

In selfs, Mrs. Potts and Heroine are now being grown in every collection, and they are far ahead of any other selfs. They both emanated from Mr. Horner's collection at Lowfields, Burton-in-Lonsdale, Heroine being raised there; and Mrs. Potts, in Mr. Barlow's garden at Stakehill House, from seed supplied by Mr. Horner. All those which I have named, should be included in every collection of Auriculas. The Alpine Auriculas have made great advances during the last few years, and this year a number of especially fine varieties have been exhibited by Mr. C. Turner, Slough, and Mr. T. E. Henwood, Reading. The alpinas have, in some respects, an advantage over the show Auricula proper, in that they are more easily grown; and, at first sight, their rich and brilliant colours are even more enchanting than soberer green, grey, and white-edged types. The two types of alpine Auriculas, the self proper, and those with shaded edges, were represented; but in all the recent seedlings, the self-edged have been discarded in favour of the edged, which have an intense crimson or purple maroon colour, shading off to the edge of the calyx in paler tints of the same colour. Of Mr. Turner's flowers, the best are Roland, creamy centre, good eye; the segments of the calyx well-rounded, without any notches in them, the colour a shade of purplish maroon, well-shaded.

Defiance has a magnificent truss of large, well-formed pips of a deep purplish colour, and also a shaded edge.

Charles Turner produces a noble truss, if the plant be vigorous; the pips large, and the segments a little notched; the colour is a deep chestnut red, shading to paler red. The flowers of this variety have not maintained their first high state of refinement.

Countess has all the properties of a well-formed flower, and has a distinct character—a white or

a cream centre, edged with purplish-maroon, shading off to pale purplish-red.

Alarm has a deep yellow-coloured centre, that is quite circular, deep chestnut-red, shading to a paler tint of the same.

Maud Fellowes is a distinct variety of considerable refinement of form and marking, with a white centre, and, like all of those Auriculas with white or cream centres, it is of a purplish tint, and the margin paler.

Mrs. Martin (Henwood) has a rich yellow-coloured centre with a margin of maroon, shading off to bright yellow; the flowers are of good form, and the plants of vigorous growth. It is a distinct and pretty variety.

Mrs. Douglas (Henwood) is a cream centre, reddish-purple, shading to a much paler purple; the flowers are well formed, and quite distinct.

Miss Moon (Douglas) is a vigorous grower, and forms good trusses of large well-coloured pips, which are slightly notched; the colour is a crimson-maroon, shading off to pale crimson.

The alpine Auriculas are not only more easily raised from seeds than the show varieties, but they do not require nearly so much attention when growing; their place in the garden is not so much as interesting subjects for pot culture as beautiful hardy flowers for the rock garden or in the front row of herbaceous borders, and for these objects seedlings are well adapted, being more vigorous in growth than the named varieties, and standing the vicissitudes of our uncertain winters better. Even the Auricula proper can be grown well in the open borders in a seedling state; there is no difficulty in digging them up and placing them inside the house to develop their flowers. The alpine may also be lifted in the same way when it is found that the flowers are of high quality. All Auriculas which have been flowered in a greenhouse should now be taken out, and placed in frames, and the lights removed whenever it is not raining heavily. Rain does not injure the Auriculas if they are exposed to it in the summer, but the leaves when well covered with the fine white mealiness are badly smeared when exposed to heavy spring rains. The green-leaved varieties are not injured in that way, and it is certain that all of them ought to have full exposure to the air whenever it is practicable. *J. D.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

PEACHES AND NECTARINES.—In the early houses the fruit will fast be colouring, and all useless shoots, and such leaves as throw shade on the fruits, should be removed forthwith, or the desirable high colour will be lost. A sharp outlook should be kept, previous to the ripening of the fruits, for red spider, and means taken to check its increase, as, once allowed to get a good hold, it cannot be got rid of till the fruit is gathered, and, meantime, the trees suffer a good deal. If previous calendrical notes have been followed out, and Quassia water used as advised, there should be no trouble with red spider. Trees having fruit in a forward state, should have no overhead syringings after colour is seen in it. Afford the border a thorough watering with liquid manure at this period, which, with a mulching afterwards, will carry the trees over the ripening stage of the fruit. The water or manure-water should be, when applied, as near the temperature of the house as it is possible to get it. More ventilation will now be necessary, but it should be given cautiously, so as to avoid lowering the heat much, or making the air too arid; and, to be able to do this safely, the hotwater apparatus must be made of use for some time longer.

THE SECOND PEACH HOUSE.—The fruit in this division should have been finally thinned, and the final disbudding and cutting away of useless shoots followed up, always taking care that those which are left have space for full development; and in thinning the shoots, give those which are required for next season every chance of making robust growth, and of becoming well ripened. The shoots for extending the size of the trees, if that be desired, and bearing-shoots, may be shortened so as to afford

the others space. The temperature may now be increased in this house by day 5° to 7° , and range from 60° to 65° by night, closing the houses with plenty of moisture on floors, walls, &c., and syringing heavily early in the morning. A small quantity of air may be afforded by the upper lights or ventilators by night. Now is the time to place supports under the fruits, lifting misplaced ones to spots where there is more direct sunlight. The border must be attended to as advised for the earliest house.

LATE HOUSES.—Disbudding and thinning of the shoots will need daily attention; also fumigation for aphids, and dusting with sulphur for the Peach mildew if it be present. There should be free ventilation, and plenty of moisture afforded the roots, with syringing of the trees twice daily in bright weather.

FIG-HOUSE.—The earliest fruits will now be approaching ripeness, and less aerial moisture will have become necessary. Borders must be well supplied with water, and have a mulching of manure, except where the plants are growing with too much vigour, and in this case no manure must be afforded them in any form. Late Figs should have a moist atmosphere, the shoots stopped, and the fruits on the second growths thinned. Do not overcrowd the trellis with wood, or overcrop. Trees in pots will require plenty of water, and it is a good plan to plunge the pots at this season. Continue to stop the shoots on trees making vigorous growth, and surface dress with good loam and manure. *G. Wythes, Sion House.*

PLANTS UNDER GLASS.

THE GREENHOUSE AND COOL PITS.—The summer and autumn-flowering Lilies which are grown in pots may now be stood out in the open air, as after this date there is little danger to be feared from frost, and the growth will be much more robust than if kept under glass. Pay attention to the staking of the stems as growth proceeds, as when neglected in this respect they are liable to get broken by the wind, and the bloom is then lost; also, the leaves get set in a certain position when the stems are allowed to droop, which gives the plants an unsightly appearance. Plants which are growing freely will require to be liberally watered with weak manure about this date, as, unless the stimulant is applied early, it has little if any effect on the size of the flowers.

As the plants of *Lilium longiflorum* var. *Harrisii* and *L. eximium* which have been forced go out of bloom in their turn, they should be placed in a cold pit or frame for a few days, so as to harden them a little before plunging in a bed of coal-ashes out-of-doors. The plants should not be allowed to suffer for want of water, but have the same care and attention as before.

BERRIED CAPSICUMS.—Plants raised from seed sown in March will now be ready for potting off into 48's in a light friable loam, and sufficient sand to keep it open. Pot firmly, and keep the plants well up to the glass, so as to ensure a sturdy habit of growth.

Cuttings of *Eupatoriums*, *Salvias*, zonal *Pelargoniums*, &c., which were put in early will be well-rooted by this time, and should be potted off into 48's, later into larger-sized pots, according to the strength of the respective plants. Keep them close for a few days after shifting, afterwards gradually accustoming them to free ventilation. As these plants will be found very useful during the autumn, and even later in the year, they should be encouraged to make as free a growth as possible, so as to procure good strong plants before that time, the blooms being removed all through the summer from such as are required for autumn flowering.

THE STOVE.—To have large heads of Poinsettias, it is necessary to propagate the plants early, which will admit of the plants getting strong before the autumn arrives, and growth generally ceases. When the young shoots have reached a length of from 4 to 6 inches, take them off within one joint of the old wood, and in making the cuttings, cut close below a joint, and apply a little dry sand to prevent the sap flowing too freely; or bury them, butt end uppermost, in dry sand, and leave them for a few hours. In the meantime, prepare the required number of pots, draining them well, and filling them with a compost of loam, peat and leaf-soil in equal parts, and plenty of silver-sand. When ready, insert the cuttings singly, without delay, and place them in a propagating-frame, keeping them close and well shaded till they are struck. Whilst there, dew them over with the

syringe or fine-rose water-can once or twice a day, or as often as it may be needed to keep the leaves from flagging. As soon as they are well rooted, move them into 6-inch pots, and grow them during the summer in a warm pit, and as close to the glass as may be. When the old plants have produced as many cuttings as may be wanted, shake off the old soil, and repot them in pots two or three sizes larger than those in which they grew.

GARDENIAS.—Cuttings of *G. floribunda* and *G. radicans* which were taken in early spring, will now have got well rooted, and should be taken out of the propagating-pit, potted singly in brown fibrous peat, or good fibrous loam, rotten manure, and sharp sand, and grown on in brisk heat in a close pit, giving them the same kind of treatment as the other inmates of the stove receive. The flowers of Gardenias appearing mostly at the ends of the shoots, and the more ramified the heads are with these, the more numerous will be the flowers; and therefore it is necessary to stop the shoots by nipping out the points up to the end of July. Take care that in potting the plants, there is ample space left above the ball for the reception of water, failing this, the ball will get dry in the middle, and growth will in consequence be unsatisfactory. The drainage should be good, but not excessive in amount. Old plants of Gardenias which have been in flower throughout the winter and spring, and are getting straggling, should be allowed to get moderately dry at the root for seven or ten days, and then be cut in, but not hard, and stood by themselves in a close pit to break. Re-potting may be done in the case of any that need it, after a start into fresh growth has been made. Gardenias are very liable to be infested by mealy bug and brown scale, and require constant attention during the summer to keep them clean. If a black fungus or mould appear on the leaves, wash them well with a sponge and warm soapy water. *R. Milner, Penrice Castle, Swansea.*

THE HARDY FRUIT GARDEN.

FIGS.—If these have not yet been pruned, no time should be lost in getting the work completed. Unfortunately, many of the trees have suffered from frost, and, in some instances, are almost killed. These may be left as they are for the present, and cut back later to those parts that are alive. Planting may be done, but it is not prudent to use a too rich soil; plant the trees very firm in the earth, but keep the roots near to the surface—say 4 to 6 inches below it—and allow to each plant plenty of wall space.

DISBUDDING.—All fruit trees on walls and fences will now demand daily attention, including Gooseberries; Red and White Currants, Plums, and Sweet Cherries. The latter, I may say, are blooming very abundantly, and the flowers are individually very large. Where there is much blossom, little wood will be made for the present; but young trees will be all the better for the removal of some of the shoots where these are much crowded. These trees should not at any time be too severely dealt with. Pinching the shoots, so as to form them into fruit spurs, should be practised on most trees, and in doing this always leave four or more buds on the spur, or the back bud will break during this season. Lay in shoots for filling up gaps, and keep together a healthy lot of fruiting wood.

Currants will be benefited by the removal of shoots in the more crowded parts, and the shortening back of others not required for giving form or extension, and the same holds good for the Gooseberry on walls. With cold winds, insects of many kinds are sure to prove troublesome. The Gooseberry Sawfly caterpillar may be got rid of by dusting the bushes with hellebore powder when the leaves are wet after rain, afterwards cleaning the bushes by syringing them with water.

STRAWBERRY BEDS will, in some places, stand in need of watering, and when this is the case thoroughness should be the rule, liquid manure being used as well on poor land. With this kind of treatment, the blooms will open strongly. Keep the hoe going between the rows of young plants to kill weeds. The prospects of a great crop look good at present, but our hopes may be very soon dashed. *H. Markham, Mereworth Castle, Maidstone.*

THE FLOWER GARDEN.

A few years back, almost everything had to make way for summer bedding, and the bulbous and other spring-flowering plants were hustled out of the ground long before they should have been, to make

room for the summer occupants of the beds; and though this has in some measure to be done now, it is in a more modified manner, a generally better system prevailing. This, in most cases, admits of bulbous subjects being left undisturbed—itsself a great gain to them; for however carefully the bulbs are lifted, much damage is always done, and that, too, at an early period of their growth. Another matter which tells unfavourably with bulbs, is the way in which their foliage is reduced in bulk, especially that of Crocuses, which ought to remain till it dies away naturally. Primroses and Daisies are benefited by removal soon after blooming, and if they are divided, and planted on well-prepared ground, in a half-shaded situation, fresh strong crowns are soon made.

BOX AND OTHER EDGINGS.—Previous to bedding-out being begun, Box or other edgings should be trimmed, as then all trampling of the ground being over, the beds may be dug, and when the plants have been put out, the gravel should be put back in its place, rolled, and put into good order. Grass verges are better if left till the bedding-out is done, and then the first opportunity after rain should be seized upon to cut them sharp and trim.

STOCKS, ASTERS, AND ZINNIAS.—All of these require a deep rich soil, and to be planted while still small, as they move better and make roots quicker than when they are large; but it is advisable to select a showery time for the work, as then they get hold of the soil at once.

HARDY ANNUALS.—Any of these which have been sown where they are to remain, will now need to be thinned, the stronger growers being left standing well apart, and all with plenty of space in which to grow. If slugs are troublesome, soot dusted over the seedlings will be found a good preventive of their ravages, not only with these plants, but with perennials, &c.

GENERAL BEDDING PLANTS.—Excepting in backward districts, it will now be safe to make a commencement with most kinds of bedding plants, but it is always advisable to start with the hardiest first, holding back *Iresine*, *Alternanthera*, *Coleus*, &c. One important matter with bedding plants in pots, is to see that they are thoroughly soaked with water before turning them out of the pots. Plants that have not been potted but pricked out, will, in most cases, need some shade and shelter, and nothing answers better than Laurel branches, as the big leaves break the sun's rays and temper the wind.

HERBACEOUS BORDERS.—These are already beginning to look gay, which shows the value of plenty of hardy perennials, as there are the gorgeous *Pæonies*, *Doronicums*, and *Pyrethrums*, that are now, or soon will be, making a very fine show. As the blooms of *Pæony* have great weight when open, the stems should be neatly staked and tied, but the better way with *Pyrethrums* is to stick in some twiggy bits of Hazel or Birch, to hold erect and support the flowers, as they are so many in number. *Pyrethrums* are moisture-loving subjects, and to have them good it is necessary to water them freely, or give frequent soakings of weak liquid manure. *Pæonies*, too, will be much benefited by the same kind of attention, as, when dry at the root, they soon flag, and cast their blossom.

ROSES.—These will require close watching to keep them free from aphid and the Rose-maggot. In cases where very fine blooms are desired, the plants should be freely plied with liquid manure, and occasional overhead washings with clear water. *J. Sheppard, Woolerstone Park, Ipswich.*

THE ORCHID HOUSES.

THE EAST-INDIA HOUSE.—Plants of *Epidendrum Stamfordianum*, now in flower—a very charming variety—I find to do best when grown in baskets of teak, the flower-spikes coming out from the base of the last-made pseudobulb. They grow very well in equal parts fibrous peat and sphagnum moss, with some clean but coarse silver-sand added to these, but fainting the last, as a substitute I have found finely-broken crocks to answer the same purpose. *Vanda Sanderiana* should have started into growth, and will need to be surfaced with fresh sphagnum moss, or repotted—this being done forthwith. I find that this plant delights in strong heat, and much moisture in the air, but very little water at the roots whilst at rest, from November to April. The watering of these plants is readiest accomplished by means

of the syringe, which should effectually moisten the stems, thus encouraging new roots to break forth, which would otherwise remain dormant in the hard stems. *Vanda Sanderiana* is subject to few insect pests, two only so far as I know infesting them: cockroaches, which are fond of the young roots, and brown-scale, which makes its appearance upon the leaves. I find that this species of *Vanda* grows equally well in a pot or a basket. I prefer the latter, as the roots grow fast and soon attach themselves when in pots to the stages and flower-pots that may be standing near, with the result that the roots get broken, even if removed with the utmost care; but suspended from the roof in baskets, the roots can extend themselves without danger. *Phalænopsis speciosa* now in flower, is a plant that every one should procure, and like most other species of *Phalænopsis* hardly two plants can be found that do not vary in point of colour or form. It is a plant of the best constitution, growing and flowering freely every year. I find that plants of it do well either in baskets, on rafts, or in cylinders; I have them growing in all, without any apparent difference being visible. They enjoy a copious supply of water overhead, and at the roots whilst growing. The slightly sprinkling of all the *Phalænopsis* should not be neglected now that warm weather has come, and it is best when done quite early in the morning; the shading being run down as soon as the temperature has reached 75°. When the leaves feel warm to the touch, shading should be at once put on the house, dry heat being very injurious. More moisture will be necessary in each department, accompanied by a gentle rise of the temperature at night. For the present let the East India house stand at 70° by night, the Cattleya house at 65° to 68°, the Intermediate house at 60°, the *Odontoglossum* house at 50°; and air must be given at all times, more especially in new or newly-repaired houses. *A. G. Catt, Parkfield Gardens, Hallow, Worcester.*

THE KITCHEN GARDEN.

VEGETABLE MARROWS, RIDGE CUCUMBERS, ETC.—The beds or ridges may now be got in readiness for the above, throwing out the soil to a width of 4 feet, and a depth of 1 foot, and putting in fermenting materials, preferably stable-manure and tree leaves, to a depth of 2 feet, after the materials are trodden. When the bed is made level, cover it with the soil which was thrown out, making it into small mounds, standing 3 feet apart; these give the ridge a more finished appearance. If the heat be not more than 75° or 80°, the plants may be put out, and handlights, cloches, or other protectors, put over them, and a covering of mats when frost threatens. Failing plants fit to place out, seeds of Marrow, &c., may be sown on the ridges, and covering them with inverted flower-pots until germination takes place.

The watering, training, and regulating of the growths of Vegetable Marrow plants in hotbeds, will require constant attention. Always use water a few degrees warmer than the hotbed itself, and be careful not to wet the foliage when the sun is shining directly on it.

CABBAGE PLANTS.—These should be earthed-up by degrees as they advance in growth. Plants raised this season should now be planted out in the open quarter, some being also planted between the rows of Peas or Runner Beans; but where there is ground to spare, it will be better to keep cabbages apart from other crops.

ASPARAGUS.—The beds will now be in full bearing, and the heads should be cut or pulled on alternate days, those that are fit for table use being kept with the butt-ends in water in a cool place until sent to the kitchen. The small heads are useful in various dishes. There are different ways of gathering the heads of Asparagus. In many places, it is done by thrusting a sharp-pointed knife, or one having teeth, close to the shoot to be cut, making the shoot slanting about 3 inches below the ground-level, but I find it better to pull the shoots by hand only. It is a method that is soon learned, as it consists in giving it a sharp twist and tug combined, doing this ensuring a long stalk and the freedom of the budding shoots that are invisible, from injury. Keep the beds clear of weeds by hand-pulling, and afford them slight dressing of agricultural salt; and unless really heavy rains soon fall, copious waterings must be afforded. Asparagus roots intended for forcing should not have the shoots removed, and some kind of support should be given them. A free use of light, feathery Pea sticks are

good for this purpose. Failing Pea sticks, stout stakes, placed at suitable distances apart, to which lengths of stout twine are fixed, will answer very well.

POTATOS.—In warm positions these plants are well above the soil, and the hoe must be freely plied between the rows. When sets have thrown up more than three shoots, the weaker ones should be pulled up, this being one means of allowing the sun to penetrate the foliage and stems, which is so essential to obtaining large tubers, and diminishing the ravages of the disease.

CARROTS.—Those which are growing on warm borders should be thinned to 3 inches apart in the rows, the others to be pulled for use when large enough, and finally leaving the crop standing at 6 inches apart, which will be ample for the small growing varieties. Main crops of Carrots, Onions, and Parsnips, are now growing freely, and the hoe should be kept in constant use. The hoe can be used with less injury to the young plants now than after their surface roots have commenced to spread abroad; and the seedling weeds soon die. Whatever kind of hoe be used, it should have a keen edge, so that the work may be done expeditiously. Blunt tools mean waste of time and inefficiency. In using the hoe the blade should travel along under the surface of the soil, lightening it up, dislodging and cutting asunder the roots of weeds.

GRAVEL WALKS.—These should be dressed in dry weather with one of the weed-killing solutions, to ensure their remaining clean for a long time afterwards. I find Smith's Weed Killer cheap and very efficient in use, and one dressing afforded, according to the instructions given, *i.e.*, 1 gallon of the Killer, mixed with 25 gallons of cold water, keeping the walks clean for the season. It should be carefully kept away from turf or Box-edgings, which may be done by placing a sloping board on each side of the edgings, at 4 inches distant from them, and not allowing the liquid to go beneath the boards. Gloves on the hands and a galvanised water-can wherewith to distribute it, are very necessary. *C. J. Waite, Glenhurst, Esher.*

THE APIARY.

QUEEN EXCLUDER ZINC.—The name, queen excluder, applied to the material sold for this purpose, has been hitherto found to be somewhat of an anomaly, owing to queens frequently having been able to squeeze through the perforations and deposit eggs in the supers. No doubt, this has been owing, in some measure, to queens varying in size, especially in the case of some of the foreign races. But, on the other hand, it has been discovered that the zinc in use has been at fault as well, the perforations not being all alike; and to remedy this defect in the future, a new pattern, as near perfection as can be, is, or shortly will be, in the market. It will be known as the "B. B. J." pattern, and is a facsimile of one made by Dr. Tinker, an American bee-keeper, and used in that country.

VASELINE FOR USE IN HIVES.—This is a good thing to use to prevent the working part of hives, such as bottoms of section-crates, joints of hives, bodies, &c., from being propolised, as the bees have a great aversion to it. I have often wondered if rubbing the working parts with paraffin wax would have the same effect; it is a splendid lubricant for wooden articles, and if it answered, would not be so messy as vaseline.

CANE VERSUS BEET-SUGAR FOR FEEDING BEES.—Some amount of attention has of late been directed, in American and English Bee publications, to the respective values of cane and beet-sugar for feeding purposes, and an instructive article on the subject is contained in a late number of one of the latter papers. The writer is of opinion that beet-sugar is totally unfit for food for bees, for the reason that it is said to contain a large percentage of potash salts, which renders it liable to fermentation, and that chemicals and dyes are used in its manufacture, in order to make it more closely resemble cane-sugar. It also is said to have a much lower sweetening power than cane, and jams made with it soon go mouldy. It is stated that three-fourths of the sugar sold in London as cane is probably beet, and the difficulty in obtaining the genuine article lies in the fact that beet-sugar can be sold at greater profit. The question is, would not pure cane sugar be better for human digestion as well as bees? *Expert.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

SATURDAY, MAY 23 { Royal Botanic Society: General Meeting.

SHOWS.

WEDNESDAY, MAY 20 { Royal Aquarium, Westminster (two days).

SALES.

WEDNESDAY, MAY 20 { Plants, at Protheroe & Morris' Rooms.

THURSDAY, MAY 21 { Imported and Established Orchids, and Liliun auratum, at Stevens' Rooms.

FRIDAY, MAY 22 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—55°.8.

It is a matter of regret that the history of the origin of many of our florists' productions has not been recorded. Being cultivated for commercial purposes, it is rarely that any record has been kept of the successive parentages of the hybrids and crosses raised. It would have been not only interesting to know the complete genealogy of *e.g.*, our *Pelargoniums*, but many points in the physiology of cross-breeding might have been studied, if the effects had been critically examined at every stage.

In the case of Orchid crosses, the necessity for systematic examination and record has already become urgent, owing to the great number of crossed and hybridised plants already produced, and the vast number which are waiting their turn. These artificial crosses and hybrids often give the clue to many so-called "natural hybrids," whose origin and parentage are doubtful. Moreover, the physiological and morphological questions involved are of very great interest, quite apart from questions of commercial importance and decorative value.

With a view of gaining information on some of these points, Mr. HENSLOW has made a study of what are now known as the "Greenhouse Rhododendrons," mostly raised by Messrs. VEITCH. Messrs. VEITCH & SONS supplied Mr. HENSLOW with the flowers and foliage of the hybrids and crosses which they had raised between seven

species of East Indian *Rhododendron*.* He gave some account of his investigations at the meeting of the Royal Horticultural Society on Tuesday last.

Mr. HENSLOW's object was to endeavour to trace the effect of each parent in the offspring, and, if possible, to deduce some practical results. He first described the seven species,† calling attention to the various forms and colours of the flowers, and the different shapes of the leaves.

First Generations or True Hybrids.—These seven species are, it appears, perfectly fertile together; and four generations have been raised up to the present time, by crossing the descendants, and re-crossing them with the original species in various ways. About 180 have now flowered. These have formed two well-marked sections, one being larger, and the other smaller-flowered. The latter group is due to the introduction of the species *R. multicolor* (lemon-coloured), and its variety *R. multicolor* var. *Curtisii* (crimson), which gives the name multicolor to the section. A third section is called *balsaminiflorum*, from the resemblance to double *Balsams*, as the members of this group are all semi- or quite double.

The first true hybrid was raised by Mr. JAMES VEITCH, in 1850, between *R. jasminiflorum* (white) and *R. javanicum* (orange). The combination gave a totally new type of form. The long tube of the corolla of the female, and the broad limb of that of the male parent, were combined, and resulted in a new and elegant type of flower. It was named *Princess Royal* (pink). This result in colour illustrates a fact which occurred again later, as well as with other flowers, as, *e.g.*, *Abutilon* and *Begonia*; namely, that when orange is crossed with white, one of the two colours, included in the former, is generally eliminated. It is usually the yellow; pinks of various shades remaining. Sometimes, but seemingly less frequently, it is the reverse, the yellow being left; as in the cross called *Minerva*, between *Princess Alexandra* (white) and *R. javanicum* (orange); nine other sister-crosses being rose-coloured, of various tints.

The next hybrid of importance was obtained by crossing *R. Lobbii* (crimson) with *R. Brookeanum*, var. *gracile* (straw-coloured). The combination of yellow with crimson produced brilliant scarlets; while the long and curved tube of *R. Lobbii* was much improved, the border being greatly enlarged, and the curvature of the tube straightened.

R. multicolor (lemon), and its variety *Curtisii* (crimson), were used in crossing *R. jasminiflorum* (white), *R. javanicum* (orange), and *R. Teysmanni* (golden yellow), as well as several crosses, with the result that this small-flowering species greatly reduced the size of the others with which it was united, at the same time imparting its own form. These crosses have formed the "Multicolor section." They might be called the "pompons" of the entire group.

Second generations.—Of these the first raised was *Princess Alexandra* (white). This was obtained by re-crossing *Princess Royal* (pink) with *R. jasminiflorum* (white). The result was that the white now eliminated the pink; the form of the corolla of *Princess Royal* being

retained. These two were the sources of numerous others of subsequent generations. Thus, besides *Princess Alexandra*, six other results were obtained by crossing *Princess Royal*. Of the most important are the offspring of *Princess Royal* (pink) with *R. Brookeanum*, see fig. 123, p. 621 (yellow). They are called *Princess Frederica*, *Crown Princess of Germany*, and *Duchess of Teck*. In these the yellow has prevailed, scarcely any trace of pink being discernible, except in the anthers; though it has just prevented the yellow from being true. These three laid the foundation of a fresh series of the third generation.

Mr. HENSLOW next proceeded to give some account of the different effects produced, as follows:—

1. *Elimination of Colour*.—It has been already observed that while crossing orange with white, it generally gave rise to pink but sometimes to yellow; yet it is not infrequent for pink when crossed with orange, to produce a nearly similar effect, in so far as the colours of the parents may be greatly reduced if not quite eliminated. This was the case when *Princess Royal* (pink) was crossed with *R. javanicum* (orange), as well as by *R. Teysmanni* (golden yellow). The result was the very palest primrose colour. The same effect was produced when *R. Teysmanni* was crossed by *R. Tylori* (pink) as the pollen-bearing parent. The offspring is called "Purity," a plant of the fourth generation. This, therefore, affords a second practical hint, for two series of very delicate shades of pink and cream, varying to Primrose-yellow, were raised. In both cases, by combining the pink and yellow in the parents.

2. *Restoration of Colour*.—Another interesting effect is the restoration of colour. It has already been seen that *Princess Alexandra* (white) was obtained by re-crossing *Princess Royal* (pink) with the original species, *R. jasminiflorum* (white). But when *Princess Alexandra* was crossed with the pure yellow-coloured *R. Brookeanum*, not merely was the yellow totally eliminated, but the pink from the grandparent, *Princess Royal*, was more or less completely restored in the offsprings called *Tylori* and *Maiden's Blush*.

3. *Prepotency*.—The fact was not unknown in the experience of raisers of crosses in other plants, that the flowers of the offspring may be identical with those of one or other of the parents, and show no intermediate characters. As illustrations of this fact, the following cases may be mentioned:—*Maiden's Blush*, of a pinky-cream colour, when crossed by the golden-yellow *R. Teysmanni*, bore one scarcely distinguishable from the latter. Again, when the large-flowered orange-coloured *Monarch* was crossed by the very small-flowered and cerise-coloured *R. malayanum*, the offspring were practically identical with the latter. Similarly, *R. multicolor* var. *Curtisii* (crimson), is prepotent over nearly every form with which it is crossed; so that, whether it be a true species, a hybrid, or subsequent cross of any generation, the result is almost identically the same in each case.

4. *Dissociation of Colours*.—There are no instances of spots or streaks occurring; but there is occasionally a marked difference in colour between the border or limb and the throat of the tube. The crosses between *R. multicolor* var. *Curtisii* and *R. Teysmanni* illustrate this feature.

5. *Effects of Multifold Crossing*.—Mr. VEITCH has raised several crosses of the fourth generation, combining four or five species in the results. The following is a selection to illustrate the fact that the species first used frequently retain no visible trace of their existence in the latest offspring, which is much more conformable to the colour of the species last introduced. *Hippolyta* is the offspring of *Queen of the Yellows* and *R. multicolor*, var. *Curtisii*. It contains *R. jasminiflorum*, *R. javanicum* (twice), *R. Brookeanum*, and *R. multicolor*, var. *Curtisii*. The form resembles that of *R. multicolor*, only larger; the increased size being originally

* A list of hybrids and crosses between North American species and Old World *Rhododendrons* was published by Mr. STANDISH in *Deek's Florist*, 1851, p. 170; and in *The Florist*, 1856, p. 246.

† These are:—1, *R. jasminiflorum* (white), from Malacca; 2, *R. Lobbii* (crimson), Borneo; 3, *R. Brookeanum* var. *gracile* (straw-coloured), Borneo; 4, *R. javanicum* (orange), Java; 5, *R. Teysmanni* (golden-yellow), Sumatra; 6, *R. malayanum* (cerise), Sumatra; 7, *R. multicolor* (lemon), and var. *Curtisii* (crimson), Sumatra.

due to *R. javanicum*. The leaf is an enlarged form of *R. multicolor*. Little Beauty and No. 29 are the offspring of Monarch and *R. malayanum*. They contain five species, and one of them twice, viz., *R. jasminiflorum*, *R. javanicum* (twice), *R. Lobbianum*, *R. Brookeanum*, and *R. malayanum*. Yet the result is almost purely *R. malayanum*, the leaf only being large, and even that has russet-brown scales similar to this species.

6. *Balsaminiflorum* Section.—The origin of this was as follows:—A single stamen in one flower only, on a single truss of a member of the second generation (probably Princess Frederica or sister cross) was slightly petaloid. The pistil of that flower was fertilised by pollen taken from the other

parent prevails over the reproductive system, thereby imparting the characteristics of the corolla, &c., while the female transmits any specialties in the foliage. Though this is sometimes true, as *e.g.*, in the "bigener" raised by Mr. Veitch between the *Rhododendron* "Lord Wolseley" and *Azalea indica* "Stella"; it was the reverse with Princess Royal, and it would be more correct to say that the offspring may resemble either parent in either way and in various degrees, according to unexplainable prepotencies within them, respectively.

1. The Combination of Colours: Red and yellow may combine, and produce colours ranging from a bright yellow-orange to scarlet-crimson.—2. The Reduction of Colours: White and crimson may pro-

some previous generation, whether in the corolla or anthers and filaments only.

Effects of Form in Crossing.—Starting with *R. jasminiflorum* and *R. Lobbianum*, which have long tubes and small borders, and *R. javanicum*, *R. Brookeanum*, and *R. Teymanni*, with short tubes and broad borders, a large number of the forms raised have corollas intermediate in so far that they have long tubes and enlarged borders. This is the characteristic feature of many of the larger forms. An additional result is obtained with *R. Lobbianum*, which has a long but curved tube and small border, when crossed with other large-flowered species. In this case the curvature soon disappears. When the small-flowered *R. multicolor* is used in combination with the large-flowered

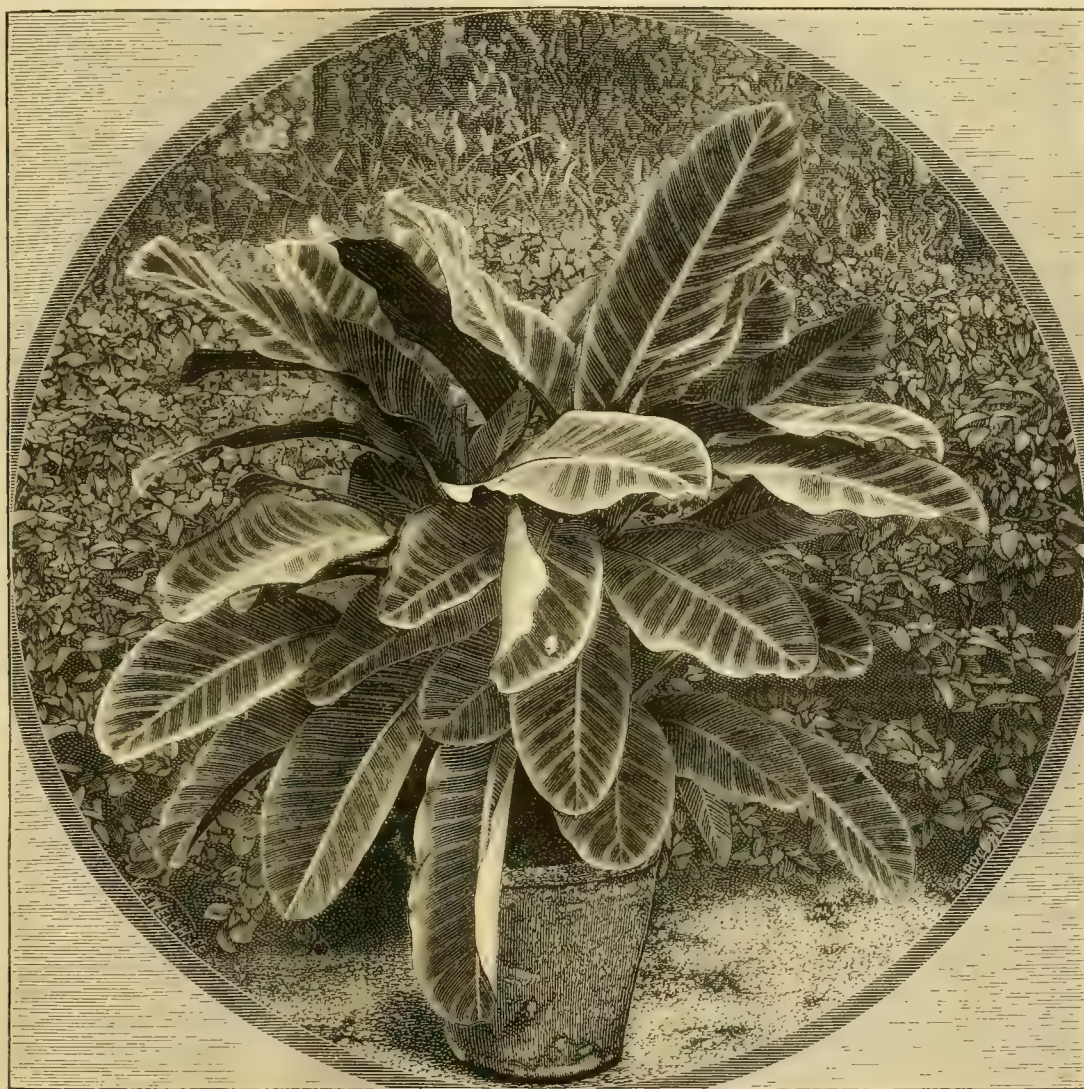


FIG. 122.—MARANTA ZEBRINA. (SEE P. 620.)

anthers of the same flower, being thus "self-fertilised." Fifteen seeds were obtained, all of which proved to be semi- or quite double. Dissociation took place in colour and form, revealing the ancestry, as types illustrating Princess Royal, Princess Alexandra, *R. javanicum*, &c., appeared, the colours being white, pink, yellow, and orange.

A practical result is here obviously disclosed, for this interesting experiment reveals how "doubles" may be fixed (but not created) by self-fertilisation. Just as it is well-known that the rule applies to other peculiarities which it may be thought desirable to retain. Self-fertilisation being comparable to multiplication by buds, such as "cuttings," &c.

Summary of the General Effect of Colours on Crossing.—It is frequently asserted that the male

produce pink. Pink and crimson may produce shades of pink or rose. Light yellow and golden-yellow may produce primrose-yellow.—3. The Separation and Partial Elimination of one of the Colours: White and orange may produce pink or yellow. Pink and orange may produce yellow.—4. The Elimination of all, or nearly all, Colour: White, orange, or yellow, crossed with pink, may produce white.—5. The Dissociation of Colours: A crimson or yellow crossed with orange may produce reddish lobes and a yellow tube, or *vice versa*.—6. The prepotency of Colours: Crimson or yellow may completely overpower yellow and orange, one or other alone being transmitted.—7. The Restoration of Colours: Reds and yellows can be restored without a fresh infusion, if the tint be "in the blood" from

species, the effect is to reduce the size, so that by means of this species a smaller-flowered race has been obtained, called the "Multicolor section," analogous to the pompons among Dahlias and Chrysanthemums. Besides the fact that the size of a flower may be greatly reduced by crossing it with a small-flowered species, the effect is sometimes to produce a corolla larger than that of either parent. An example is found in No. 158, which is the offspring of Pr. Frederica and *R. javanicum*. In this case not only are the lobes greatly enlarged, but, as far as experience goes, permanently increased in number from five to six, or even seven.

Another practical result may be here mentioned, that, as a rule, better forms and colours are secured by recrossing crosses by a true species rather than by

a form which is itself a cross. Though it is not an absolute rule, some exquisite results being obtained by combinations of crosses, as *e.g.*, in several of the offspring of Princess Alexandra (second generation) with Duchess of Edinburgh (true hybrid).

Effects of the Leaf in Crossing.—It is by no means the rule, as far as these Rhododendrons are concerned, that the female parent affects the foliage, while the male influences the flowers of the offspring, as has been often asserted. Thus, the first hybrid raised negatives this idea; Princess Royal possesses the foliage of the male parent *R. javanicum*, the elliptical leaf the other, *R. jasminiflorum* being completely ignored, this being very blunt at both ends, while it is tapering in the others.

MARANTA ZEBRINA.—The subject of our illustration (fig. 122), is a good representative of a large and varied genus of fine foliage plants, which used at one time to be extensively cultivated for the purposes of decoration, and also for the show-stand, and which even now are found in more or less quantity in most gardens. Few of the newer introductions can compare with the old *Maranta zebra* for majestic proportions, or for beauty, its large leaves being of various tints of green, with silvery bands thereon. As will be seen by reference to our illustration of a plant grown by Mr. CUNDY, of Sunbury, Suffolk, it is a very effective specimen when well grown, and the culture of all Marantas is not difficult, all that is required being a fairly warm, moist house, when the foliage is in the course of formation; and careful tending, of course, at all times.

DR. SCHOMBURGK.—With very great concern we hear of the death of one of our oldest contributors, and a man of eminence as a botanist and explorer. He raised the Adelaide Botanic Garden to a high pitch of excellence, and did much to develop the resources of the colony he had made his home. Up to the present we have received no further intelligence than that which is conveyed in the following extract from the *Sydney Bulletin* of April 4:—"Dr. SCHOMBURGK, the octogenarian Curator of the Adelaide Botanical Gardens, who died suddenly last week in the arms of his son Otto, was an ideal scientist—a simple-minded; single-hearted genius. He came to Adelaide more than a generation ago, with a younger brother, both being political refugees from Germany. Another brother, Sir ROBERT SCHOMBURGK (who discovered and named the Victoria regia in the Brazils), was a fellow-traveller with the immortal HUMBOLDT, botanist and naturalist, and it was through the powerful interest of HUMBOLDT that the escape of the two SCHOMBURGKS was connived at. The deceased controlled the Adelaide Gardens for a quarter of a century. He was as unaffected as a child, and nobody could be out of ease with him; but start him on a hobby, and the world's mealtimes faded from his ken, though he was hospitality itself. Rouse him on any question of humanity's wrongs, and his eyes would kindle, while his fluent English struggled for utterance, and lost itself in a maze of German gutturals."

ROSE SHOWS IN 1891.—We have received a further list of these shows from Mr. ED. MAWLEY, who says that no further list will be published this season, unless it should become necessary, owing to change of date:—June 24, Wednesday, Richmond (Surrey), and Royal Aquarium;—July 1, Wednesday, Croydon, and Lee (2 days); 2nd, Thursday, Farningham and Norwich; 4th, Saturday, Crystal Palace (N.R.S.); 8th, Wednesday, Dursley, Sutton, and Tunbridge Wells; 9, Thursday, Bath and Woodbridge; 18th, Saturday, Manchester;—August 1, Saturday, Ripley (Derby).

ALEXANDRA COLLEGE, DUBLIN.—The lady students of this College had a field-day on the 9th inst., at Strafford, co. Kildare, at the instance of the Hon. Mrs. and Major BURTON. The students were delighted with what they saw, and with the kindness shown them.

PLANTS FOR GROWING IN LIVING ROOMS.—According to a *plebiscite*, the results of which are published in the last number of the *Revue de l'Horticulture Belge* for May, the twenty best plants for apartments are as follows in the order in which they are placed:—

Aspidistra elatior, and the variegated form
Clivia miniata, &c.
Pourretia mexicana
Araucaria excelsa, &c.
Ophiopogon jaburan
Kentia Fosteriana
Rhoeo japonica
Chamaerops humilis
Reineckia japonica
Phoenix canariensis

Dracena congesta and var. discolor
Ortgiesia tillandsioides
Phormium tenax, fully exposed to light
Bambusa Metake
Phenix reclinata
Cocos Weddelliana
" *Bonnetii*
Pteris arguta, or *tremula*
" *serrulata*, &c.
Ficus elastica

A second list comprises:—

Aspidistra elatior
Farfugium grande
Clivia miniata
Kentia Belmoreana
K. Fosteriana
Begonia vex. and vars.
" *metallica*
" *manicata*
Aralia Sieboldi
Fatsia japonica
Aralia argentea
Phalangium lineare
Tradescantia zebra
Pourretia mexicana

Tradescantia, with green leaves
Mesembryanthemum grandiflorum
" *violaceum*, &c.
Ornithogalum longibracteatum
Aloe angulata
" *variegata*
" *margaritacea*
Pteris serrulata
" *cretica*
" *Ouvardi*

Of plants that will flower under such conditions may be mentioned:—

Clivia miniata
Pelargonium hederifolium, fl. pl.
Mesembryanthemum grandiflorum
" *violaceum*

Begonia metallica
Tropaeolum tricolor
Valloia purpurea
" *Cereus*, scarlet flowers
Ornithogalum longibracteatum (Onion plant)

Other plants mentioned are *Acacia lophantha*, *Hoya carnosa*, *Dracena indivisa*, *Asparagus plumosus*, *Fuchsia Sunray*, *Adiantum formosum*, *Cyrtomium falcatum*, *Woodwardia radicans*, *Myrtus communis*. The following plants may be propagated in domestic rooms by seeds, cuttings, or divisions: the Chinese Primrose, Mignonette, *Epiphyllum truncatum*, *Begonia carminata*, *Anthemis frutescens*, *Echeveria retusa*, *Habrothamnus Newalii*, *Begonia semperflorens*, *Oxalis*, Bengal Roses, perpetual Carnations, and *Pelargoniums*.

PARK FOR HANLEY, STOKE-UPON-TRENT.—

We are pleased to learn that it is proposed to form a park in the very centre of the town. As we have often pointed out in reviewing the accommodation provided in our towns in the way of open spaces, it is the multiplication of breathing spaces in the centre, and in the crowded parts of our towns, that is most needed for sanitary purposes. Messrs. SUGDEN & SON, of Leek, and Mr. JACKMAN, of Woking, have prepared plans; and local nurserymen, such as Messrs. MATTHEWS & SONS, of Milton, assert, as we know to be the case, that if a judicious choice of plants be made, it is quite possible to grow a large number of trees and shrubs even in a smoky locality like Hanley.

PROTECTION.—The French Government, it is said, propose to place a duty of 10 francs per 100 kilogrammes on all plants imported into France, whilst the Central Horticultural Society proposes an *ad valorem* duty, though how that is to be estimated is not obvious. Such proceedings, instead of being *fin de siècle*, appear to belong to barbarous times, when every foreigner was considered, *ipso facto*, to be an enemy. The more modern view is to treat him as a potential customer, and to purchase from him what he can produce better and cheaper than we can, to the reciprocal advantage.

AUSTRALIAN SALSOLACEOUS PLANTS.—We have received from Baron FERD. VON MUELLER, the first six decades of his *Iconography of Australian Galsolaceous Plants*, and we hope shortly to be able to award it a longer notice than we can at present find room for.

L'ORCHIDÉENNE.—A special exhibition of *Cattleya*, *Lælia*, and *Odontoglossum* will be held in the Parc Leopold, Brussels, on May 17, 18, and 19, by the Society of Amateur Orchidists, known as the *Orchidéenne*, in connection with the monthly meeting of that body.

HERR WENDLAND.—The learned and highly-esteemed Director of the Royal Gardens of Herrenhausen, a traveller and a botanist, and a leading authority on Palms, celebrates this year the fiftieth year of his entrance into garden life. An appreciative notice of his career, from the pen of His Excellency, Director REGEL, appears in the *Garten Flora* for May.

SIR TREVOR LAWRENCE.—We regret to hear that the assiduous President of the Royal Horticultural Society is suffering with Influenza.

MR. BRYMER has been elected member for South Dorsetshire. He will re-inforce the Orchidic contingent in the House of Commons, which happily comprises members on both sides of the House.

PARASITISM IN PLANTS.—The second lecture of the session, open to all visitors, in the Royal Botanic Gardens, was delivered on Saturday in the Museum in the gardens by Professor MARSHALL WARD, F.R.S. Continuing the study of the "Problems of Parasitism in Plants," which he regarded as having first arisen from want of food, Professor WARD said he believed the habit to be dying out in the higher classes of plants, but increasing among the lower—a fact of extreme importance to mankind in a variety of departments, not only those relative to the preservation of organised material from attacks of fungi, mildew, moulds, &c., but perhaps in a far more important line—the germs of disease.

THE FLOWER GARDENS IN REGENT'S PARK.—The display of spring bedding in these gardens is now at its best. Some notable mixtures are, a large bed of *Narcissus princeps*, edged with the *N. bicolor Horsfieldi*; one of hollow triangular shape, filled with Keizer Krown Tulips and *Doronicum austriacum*, interspersed; a belt of *La Belle Alliance*, edged with London Pride (*Saxifraga umbrosa*); some circular beds of *Auriculae* next match beds of *Hyacinth Grandeur* à Merveille and *La Belle Alliance* Tulip, very effective; a large bed of *H. Grandeur* à Merveille, Gertrude, and Tulip Imperator rubrorum, with patches of *Polyanthus*, another *Hyacinth Regulus* and King of the Blues, and planted to match; some oblong shape of *H. Robert Steiger* and Gertrude; circular beds of yellow *Tourneol* and Yellow Prince Tulips, next some of *Hyacinth Norma*. In front of the borders, a fine corner patch of *Narcissus princeps*, with *Aquilegia* coming up at the bottom; a beautiful bed of mixed-coloured Primroses. On the grass, patches of the common Daffodil and beds of mixed *Hyacinths*. Other beds, by the walks, of *Hyacinths*, edged with *Arabis alba*; another of *Grandeur* and *Gigantea*, edged with mixed *Polyanthus*.

GRASS SEEDS.—Few continental cities can show such beautiful lawns as those of England. The turf at the German exhibition is English, having been sown down with Suttons' Grass seeds. We also learn that the seeds sown to form the velvety carpet of the arena at the Naval Exhibition, which was the only cheerful sight out-of-doors on the opening day, were supplied by the same firm.

DR. LEIDY.—We regret to learn of the death of this distinguished naturalist, who died at Philadelphia on April 30, in his sixty-ninth year. He was eminent as a surgeon, an anatomist, a zoologist, and a palaeontologist, but though possessed of considerable botanical knowledge, he published little on that subject.

STEM-FORM IN CACTI.—A correspondent lately sent us stems of a hybrid between *Phyllocactus crenatus* male and *Cereus speciosissimus* as the female parent, with the remark that the seedlings all produce angular stems at first, but that subsequently they become flattened, as in the male parent. It was not unnaturally supposed that this change of form was the result of a dissociation of hybrid characters (a sport); but, unfortunately for this interpretation, we find that the stems of *Phyllocactus* frequently produce angular branches without any crossing at all.

PARCEL POST FOR AGRICULTURAL PRODUCE.

—On the 11th inst., a deputation consisting of Sir H. SELWIN-IBBETSON, M.P., Mr. ROUND, M.P., Sir EDWARD BIREBECK, M.P., Rev. Prebendary JONES, the Rev. H. W. P. STEVENS, and other gentlemen connected with agricultural and horticultural interests, waited upon the Postmaster-General, at the House of Commons, to urge him, by means of the parcel post, to give increased facilities for the conveyance of flowers, eggs, and other produce of small allotments. The Postmaster-General, in reply, said that he understood that the deputation asked not so much that the speed of

from the south of Ireland, he suggested that possibly a special express service might be arranged, so that the articles might be delivered in London earlier than at present.

BOUILLIE BORDELAISE AND FRENCH WINES.

—We quote from the *Times* of May 12, the British Consul at Bordeaux in his report this year again refers to the effect on wine of the mixture of sulphate of copper and slaked lime sprinkled on Vines to destroy the mildew. Numerous scientific analyses, made some years ago, showed that the quantity of copper to be found in the wines produced from Vines

complete confirmation of the previous analyses made at Bordeaux, showing that the wines derived from Vines sprinkled with the Bouillie Bordelaise are quite innocuous.

LONDON BOTANICAL FIELD CLASS.

—Mr. SPENCER LE M. MOORE intends to hold a botanical class every Saturday afternoon from May 16 until the end of August, instructing his pupils while walking with them in country places within a few miles of London, instead of in a class or lecture-room. Microscope work will not be neglected, but rather encouraged as much as possible, the object of the "Field Discourses" being to familiarise students with many details of the life-history of well-known plants, which can only be properly learnt by studying them in their habitats, and noticing the conditions of their growth.

BOTANICAL DIAGRAMS.

—The Society for Promoting Christian Knowledge publishes an inexpensive and useful series of coloured botanical diagrams, suitable for the purposes of lecturer or schoolmaster. They are enlarged representations of familiar plants, Potato, Oak, Fir, &c. Details of parts of each are given, as well as a short description of its use and habitat, the only fault in which is that it is needlessly technical.

ARTIFICIAL MANURES.

—The Agricultural and Horticultural Association has published a list, showing the composition, price, and mode of application of various manures, chiefly based on the researches of M. VILLE.

PROSPECT HOUSE, WOODFORD GREEN.

—A fine specimen of the New Zealand Glory Pea, *Clanthus magnificus*, is in bloom here. It is several years old, and covers a large space on the roof of the conservatory, a position for which it is well adapted. In the same house was also noticed the pretty Clematis, Fair Rosamond. The intermediate-house contains several large Palms, to be used later outdoors, and here there is a *Cycas revoluta*, 7 feet through, and a *Monstera deliciosa*, in fruit. The Orchids are in good health, and of those in bloom and coming out, the following may be mentioned: *Odontoglossum citrosum*, *Cattleya Mossia*, *Schroderiana*, *Mendeli*, *labiata*, and *Saundersii*; *Lycaste Harrisonii*, *Dendrobium thyrsiflorum*, *Vanda tricolor*, *Oncidium papilio*, *Ada aurantiaca*, *Brassia verrucosa*, and *Cypripedium Lawrencianum*. The roof of the Fern-house contains a *Passiflora princeps* in flower. The grounds are prettily laid out, and are well kept by Mr. BARNARD, who has the charge of the place.

THE WEATHER.

—The previously chilly days were succeeded on Monday and Tuesday, the 11th and 12th inst., by great accession of warmth, 73° in the metropolis; and according to a correspondent at Atherstone, Warwickshire, 82° in the shade at that place. The change is a welcome one to the gardener and farmer, but rain is much needed, and the consequences of the prolonged drought may be serious.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

—The late Miss CRABTREE, of Halesworth, who gave a donation of £1000 to the above during her lifetime, in memory of a deceased sister, has now, at her death, bequeathed a further sum of £1000, free of legacy duty, to the same institution.

ROYAL BOTANICAL GARDENS, OLD TRAF-

FORD.—At the present time, there is, in the new Palm-house adjoining the Fernery, a plant about 30 feet high of *Seaforthia elegans* in bloom. The long spike of purple-coloured flowers is produced from the centre of the stem.

REVISED EDITION OF "A MODERN BEE

FARM.—A revised edition of this reliable book, which was so favourably received when first published in 1887, is being prepared by the author, Mr. S. SIMMONS, and is being issued by him, as ready, in a series of twelve parts. It should be read by every bee-keeper, who wishes to progress in the art.



FIG. 123.—RHODODENDRON BROOKEANUM. (SEE P. 618.)

delivery in connection with the parcel post should be accelerated, or that the maximum weight should be increased, but that the charges on small and perishable articles should be lessened. On that point he had already been in communication with the Treasury, and he thought there was a strong case, indeed, for the Post Office taking special charge of those perishable articles for which speedy conveyance was everything. He sympathised with the views which the deputation had expressed, and would again approach the Treasury to see if something could not be done to secure the realisation of their wishes. With regard to flowers, &c., sent

sprinkled with the mixture in question was so infinitesimal that no injurious effects could possibly arise therefrom for human health. Inasmuch, however, as renewed apprehensions of the same kind were mentioned again last year by some French newspapers, based upon the declaration by the Paris Municipal Chemical Laboratory, that a certain quantity of copper had been found by it in several wines submitted for analysis, the Agricultural Society of the Gironde, in the interest of the Bordeaux wine trade, caused a fresh and very minute investigation to be made into the matter a few months ago. The result of this investigation has been the

NURSERY NOTES.

CYCLAMEN AT GOULD'S GREEN,
HILLINGDON.

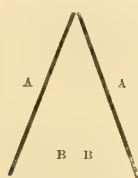
THOSE who admire these beautiful plants, and wish to see them in perfection, should pay Mr. Odell a visit, at Gould's Green, Uxbridge. I have had the pleasure in previous years of looking in, and admiring these plants; but if it is possible, they are, this season, better than ever. Here, one sees plants made a specialty of, and only the best of each variety is grown, and the colours kept distinct. Many houses are devoted to their cultivation, modern houses of good size, with large panes of glass, and only a small quantity of woodwork, so that there is little to obstruct the light.

The plants are not coddled in any way from the time the seed is sown until they flower, and the foliage and blooms are as large and healthy as I ever saw them. The colour of the flowers ranges from the purest white to deep maroon; and the leaves have short footstalks, thus showing off the blooms to the utmost advantage. Mr. Odell has on many occasions exhibited his plants, and always successfully; but, in doing so, there is a good deal of risk, when they have to be carried over long distances. Those shown are generally the best, and these are the ones that are required for seed, which Mr. Odell makes the one aim of his business, so that he does not now show far from home. The seeds are purchased by the biggest seed merchants, and can scarcely be produced in sufficient quantities to meet the demand.

Mr. Odell uses rather large pots; on the other hand, the plants are much larger than those usually seen. They are grown on stages, which bring them close to the glass, in the span-roofed houses chiefly, and great care is taken not to impoverish the plants by leaving too many seed pods on them. No novelties, except they be of sterling merit, are ever grown there, so that there is not much chance of the strain being spotted. Mr. Odell possesses plenty of the materials necessary to grow Cyclamens well, and all were thoroughly rooted. After seeing these fine plants, one could not but remark how few gardeners grow Cyclamens well, and yet they are the showiest of plants for the cool conservatory in late winter and spring, and worth all the attention that may be paid to their proper cultivation. *G. Wythes, Sion House.*

HOME CORRESPONDENCE.

GENERAL BERKELEY'S ORCHID POTS.—With reference to the slits shown in the pots figured on page 597 of your issue of May 9, the special nature



of the slits is not quite clear. These slits differ from all others in having the outside A. A. double the width of the inside of the same slit B. B. The special object is to enable the gardener to brush the slits easily, without disturbing the plant. *E. S. B.*

BIRDS AND APPLE-BLOOM.—Kept to the house because of an attack of the prevailing epidemic, I have during the past few days to watch through the windows the wonderful activity shown by small birds, evidently sparrows, in clearing the yet unopened trusses of Apple-bloom from insects. With what rapidity they dart their bills into every truss, apparently finding something to repay them, wipe their bills in the branches and proceed to the next truss of bloom. If the small birds are everywhere as active destroying insect life as they have been with these particular trees in front of my window, what

marvellous good must result. How much more ready do we seem, as a rule, to complain of birds than to give them credit for good qualities. At this moment a grand rain is falling, and will help to open the bloom in all its glorious luxuriance. *A. D.*

PRICES OF HOME-GROWN TIMBER.—Our old friend "A. D. W." must have been a bit "grumpy," if you will pardon the localism, when he sat down to tell us the prices of home-grown wood, or things must vary considerably at the opposite sides of London. Mr. McKinley has been kind enough to try and deprive us of the outlet for the smaller and rougher descriptions of Elm, but it is too early yet to gauge with any degree of certainty with what success. The best Elm goes to Bucks, chiefly for Windsor chairs; the second quality is cut into tinplate boxes for South Wales. It is this industry which is menaced by the heavy duty which comes into operation in the States on July 1. I have seen a little of the ups and downs of the Elm market, and in spite of the somewhat unfavourable outlook from the above cause, I cannot share "A. D. W.'s" view that it is not worth cultivating. With us Elm springs up almost as readily as Couch Grass does in too many places, and there is little or no expense attached to it, the fatal mistake too often being of cutting and slashing at it in what is by courtesy called "pruning." Of late there has been no difficulty whatever in disposing of a fall when offered, and at a fair figure according to what it is. *D. J. Yeo, Lynchem, Wilts.*

AUCUBAS.—I send you the largest leaf of Aucuba we have grown here. It came from a strong shoot that the shrub threw up from the root, owing to the wet season last year. I hope it may prove worthy of a place in your herbarium. The small leaf is from the same, a seedling from a berry of Aucuba latimaculata. *H. Rogers.* [The large Aucuba leaf measured 10 inches in length without the stalk, by 6 inches in breadth. *Ed.*]

RHODODENDRONS IN THE ISLE OF MAN.—I send you a truss of, I believe, an undescribed species of Himalayan Rhododendron. Two years ago I sent a truss and twig to Sir Joseph Hooker, who thought it must be a narrow leaved variety of *R. Falconeri*; the flowers are certainly nearly identical, but the leaves, buds, and habit of growth, are entirely different. Of *Falconeri*, I have the finest plant I have ever seen, it is more of a tree than a shrub, which has stood in the open air thirty years. Rhododendron arboreum, barbatum, and Thompsoni, also in the open air, have flowered well, and *R. Aucklandi*, is just expanding several flowers. This I believe has seldom bloomed in the British Islands, except under glass. *W. F.* [The plant sent is a variety of *R. Falconeri*, perhaps a hybrid. *Ed.*]

THE LATENESS OF VEGETATION.—After the very hard barren weather which has been prevailing everywhere, it is quite refreshing now to see the rapid strides vegetation is taking to right itself, as it were. Ten days ago, it was my lot to leave Annan and journey down by Newcastle and through Durham to London. I left my own fields as bare as I ever remember them to have been, the only appearance of green being the first show from the lime which had been put on them. The same arid look seemed to characterise the whole line of rail from Newcastle to London. I come back to find, at last, a change. Trees, though backward, are coming into leaf. A Lime tree on the riverside, well known to be the first to leaf, is already half out; but other Limes are only just breaking. Beech is freely coming out, Alders, the Chestnut also, Ash in strong swelling buds, but no sign of Oak, whilst the Elm is opening its leaf. The last two days have brought out the wild flowers in profusion—Wood Anemone, Yellow Celandine, wild Violets, Dutch Primroses go without saying; yellow water-side Ranunculus, and along the river bank I saw two or three potent Mar out, and a great promise of flower. As for birds, they are all busy; the oxeye, tomtit, lessertit, the wren, chaffinches, bullfinches, thrushes and blackbirds galore, the missel thrush, one pair of fieldfens not far from where I am writing, starlings in numbers—of course in separate pairs. I came on a waterhen which got off its nest, eleven eggs in it. Four others I know of. I know also of a robin which, for the third time, has built its nest close under a culvert, over which passes the whole traffic of the waterside. I dare not say where, as the Saturday schoolboy would harry it at once. Last of all, I have a chaffinch's nest in a *Pyrus japonica* outside my drawing-room

window. For thirteen years this has been the case, always in the pink—never in the two red japonicas. The tomtits have not come to the stable pump. They are investigating the site. Perhaps they may come. The gardener is not so good a house-agent for letting houses as his master. Some swallows have been sitting on the wire-fencing and looking at me as if they would like to build about if I would let them; they are welcome, if they only knew it. *J. A. C., May 10.*

BEES.—One is only too thankful, after passing through a winter and spring like those of 1891, to begin to take a more cheerful view of things in the garden, and that is why I take up my pen to say that I verily believe that we are going to have a good fruit year, for such a wealth of bud and blossom as is now to be seen is quite delightful to look upon; but although it is blossom to right of us and blossom to left of us, it requires sunny days and genial nights to set it. I believe in our having plenty of bees in the garden, for, apart from their musical hum, their proverbial industry, and their profitable returns, they are useful in helping to set the fruit blooms; and let any one who doubts this, spend a short time under an Apple tree in full blossom and watch the bees at work, and note the result in the autumn. Last year was a bad one for outdoor fruits, but I had sufficient Apples. Just now, the Apple blossom is not open, but that of the Damson, Pear, and Cherry is, and it is most interesting to watch the bees amongst it; and for a month past they have been busy on the Gooseberry bushes. The bees look in at the Peaches in the houses, and do not fail to visit the Strawberry shelves, and the golden blossoms of the Melons and Cucumbers. It is related of a Bishop who visited a poor clergyman and found a sumptuous repast, and reproved the latter for his needless expense; but when the minister explained that it was the profit from his bees that enabled him to do so, he (the Bishop) ever said to his poor curates, "Keep bees; keep bees;" and to all gardeners I repeat the same words, and in every garden and orchard I would say, "Keep bees; keep bees." *J. Rust, Eridge Castle.*

THE DOUGLAS FIR.—In regard to the remarks by "S. S." in your issue of May 2, I would ask your correspondent to read my note again, and he will see that so far from my having disparaged the planting of the Douglas Firs mentioned by me, it was the reverse; in fact, I remarked how well they were doing, simply saying that Dr. Lindley would have advised a much higher and dryer situation, and so he would, for in the late Dr. Lindley's time trees of many kinds were not so well known as regarded their requirements as they were later; and as will be seen in my last note, where I said there were many inferior varieties of the Douglas Fir planted, I also mentioned how well this Fir thrived when planted in damp places. I stated this from an experience gained in different parts of England, as well as at Albury. As regards the trees which were planted by my predecessor in the "rough," these were not mentioned by me at all, but the true Douglasses that are growing here in the woods and grounds, and mentioned in my note as being purchased from that veteran nurseryman Mr. Anthony Waterer, of Knap Hill, Woking, in the late Hon. Henry Drummond's time, that is more than fifty years ago, and planted by Mr. Morse, the gardener at Albury at that time. Mr. Morse, who I believe is still alive, has been here twice during the last six years, and it did his heart good, he said, to see these and other fine trees so well-known to him, including a *Sequoia gigantea* purchased by him from Knight & Perry's, of the Royal Exotic Nursery, Chelsea. Many gardeners who have visited Albury have remarked the great difference that exists in seedlings of the Douglas Fir; and that there is a very great difference, no nurseryman or gardener will deny. And in calling attention to such difference in my note, I did but do so for the good of all concerned; and as for wishing to disparage my predecessor, I had no such desire. *W. C. Leach, Albury Park Gardens.*

HORTICULTURAL FEDERATION.—Many, I feel sure, will have rejoiced and taken courage upon reading your article of the 11th ult., advocating co-operation in matters horticultural. I have looked for some further reference to the subject, and now write to say, that we shall always be glad to do anything in our power to advance such association or "federation" generally; and with regard to education particularly, we should be willing to arrange to apply scholarships in a manner conducive

to combined effort. Mr. Wilks replied favourably some time ago to my suggestion, that the Royal Horticultural Society should hold examinations, encouraging young gardeners and others to acquire a knowledge of the scientific principles which underlie their work, and I shall be glad to hear from Secretaries of Societies and others who may be of opinion that this institution can contribute in any way to the end in view. A. H. Bond, *Managing Director, Horticultural College, Swanley.*

FILMY FERNS.—Although the mortality and sickness has been so great among the majority of plants during the past winter, the Filmy Ferns at Kew seem as if they had, on the whole, rather enjoyed the severe and dark weather; and this fact helps to substantiate the late Mr. Cooper Foster's discovery of their partiality to a cool treatment. There are only a few species here that do well in the tropical fernery—these are, *Trichomanes pinnatum*, *T. membranaceum*, *T. Kaulfussii*, and *T. foniculaceum*. A large piece of *Hymenophyllum asplenoides*, imported from the West Indies in 1890, is becoming established, and seems quite happy in the Temperate Fernery in the same case as *Trichomanes radicans*, *Todea superba*, *T. Fraseri*, and other cool-growing varieties. The valuable piece of *Trichomanes reniforme* is doing extremely well, some of the fronds measuring $3\frac{1}{2}$ inches across. The rare and beautiful *Hymenophyllum pectinatum* superbum and *Todea grandipinnula* are growing nicely, also the original piece of *Trichomanes parvulum*. The more common varieties of Filmy Ferns, such as *Trichomanes radicans*, *T. trichodeum*, *Hymenophyllum demissum*, *H. caudiculatum*, &c., are growing as freely as could be wished; so that all lovers of Ferns will be amply repaid by giving them a visit. E. H., *Kew.*

FOREIGN BEES.—In reply to Mr. C. Russell (May 9, p. 597), will he kindly mention with what particular statement as to the Ligurian, Carniolan, or Cyprian races he disagrees, and in what way the Punic race has proved so valuable? My experience, as given, is borne out by most of our advanced bee-keepers, and opinions have long been inclining in favour of our native bee, as being best constituted for our variable climate, more controllable as regards swarming, and giving the largest and best yields of honey. I have not kept Punic bees, but this race comes from a district bordering on the Sahara Desert, and I fail to see how they can be suitable to our comparatively cold climate. They are said, also, to gather a great deal of propolis, or anything sticky, as a substitute, which is very objectionable, and, like other foreign races, to be great breeders—another objection, as, after all, it is honey, not bees, that we want. *Expert.*

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 12.—The meeting at the Drill Hall, James Street, Westminster, on the above date, was the occasion of a fairly bright display, which consisted mainly of Narcissus shown in response to Messrs. P. Barr & Sons' offer of prizes, and because the Narcissus Committee was sitting. There were also many small lots of Orchids, either plants or cut blooms, Polyanthus, Auriculas, Sikkim Rhododendrons, &c.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. H. Herbst, R. Dean, Walter Furze, W. C. Leach, G. Phippen, C. E. Pearson, W. Bain, J. Walker, T. Baines, C. Noble, H. Turner, G. Paul, B. Wynne, G. Gordon, G. Nicholson, H. H. D'Ombain, W. Goldring, C. T. Druery, F. Ross, and E. Mawley.

A fine show was made by Sir John T. D. Llewellyn, Bart., Penlengare, with a collection of hybrid Rhododendrons, including Broughtoni, a hybrid arboreum; another between Aucklandi and J. Waterer, raised by the late Captain Mangles; a hybrid of R. arboreum and R. ochroleucum; between R. Catawbiense and R. Wagner, &c., also blooms of Sikkim species as R. Edgeworthi, R. glaucum, with small crimson flowers; Thompsoni and others.

A fine bunch of a double-flowered Cardamine pratense, was shown by Mr. G. Cousins, Feltham; and a finely grown Adiantum Goadii, came from Mr. Standing, Patching Gardens, Worthing.

Messrs. J. Veitch & Sons, Chelsea, exhibited an elegant form of *Pteris cretica crispata*, in which the edges of the trifid fronds of this species are crisply frilled. The President, Sir Trevor Lawrence, Bart., M.P., showed the fine white-spathed Anthurium Laingi with a spathe 8 inches long and 4 inches wide, and cordate leaf 15 inches by 18 inches. The spadix is pink. Another fine Anthurium shown was Burfordiense X, a varnished crimson spathe, a white-tipped yellow spadix, and leaves 18 inches by 8 inches. A pretty Myosotis Bexley Gem, came from W. Marshall, Esq., Auchinraith, Bexley. It has a central double flower in each corymb, and this and the other flowers are sky-blue when open, and pink in bud. A pretty double-flowered Lilac, Leon Simon, pale lilac in colour, was shown by Messrs. Paul & Son, Cheshunt; and from the same firm came Prunus Planeri, fl.-pl., mentioned in another column.

Three beautiful forms of Canna were shown by M. Lemoine, Nancy. The plants were dwarf, and the colours of the blooms very striking.

Lord Penzance, Eashing Park (gr., Mr. Basket), showed a hybrid between the Sweet Briar and an Austrian Briar, the former being the seed parent. The seed vegetated in 1887, and flowers appeared in 1889. It is a single-flowered variety of bright crimson, and 2 inches in diameter. The foliage has the scent of the Sweetbriar.

A showy male flower-spike of *Chamaerops Fortunei* was shown by J. Bateman, Esq., Home House, Worthing. The singular-looking Puya Whytei was shown by Mr. Coppin, Superintendent, Battersea Park, the flower shaft was 6 feet high, and was surmounted with a spike of bright blue flowers; the leaves are a yard long, spiny at the edges, pendent, and of a grey-green tint. Two large baskets full of seedling Auriculas, both show and alpine types, and very good in markings, especially in colouring, were exhibited by S. F. Still, Esq., Lismore, Woodside, Wimbledon (gr., Mr. Curtis); they were very attractive, and found many admirers. Some finely-coloured seedling Hippeastrums came from the same exhibitor.

Mr. G. Phippen, nurseryman, Reading, showed wonderful Polyanthuses in clumps, gold-laced, shaded, white, yellow, crimson, orange, lilac, and other colours being found amongst them.

Mr. Phillips, gr. to F. A. Bevan, Esq., Ludgrove, Barnet, showed Bevan's variety of Anthurium Scherzerianum, a spathe of dull crimson, with an orange-scarlet spadix. Some excellent Roses, grown in pots of moderate sizes, came from J. G. Tasker, Esq., Middleton Hill, Brentwood (gr., Mr. Perry). From the Royal Gardens, Kew, were sent flowers of Narcissus Bernardi, which had been presented by Lady Godolphin Osborne; it was a showy N. incomparabilis, with a white perianth and bright yellow corona. A pretty white-flowered Spiraea, named multiflora argentea, of a profuse-flowering habit, and growing to a height of 5 feet, came from Messrs. Paul & Son's nurseries. Three plants of Arthropodium serratum, with two to three spikes of flowers on each, came from Mr. E. Chadwick, gr., Hanger Hill House, Ealing. The flowers are white, and freely produced, and in that way they make an effective plant.

W. E. Gambleton, Esq., Belgrove, Queenstown, exhibited a number of coloured drawings of Chionodoxa species and varieties; also Scilla biflora Hohenackeri, forms of Galanthus, and hybrid Narcissus. Messrs. Barr & Sons exhibited an unusually varied and large collection of Narcissus, &c.

In competition for Messrs. Barr's prizes on this occasion there were not many entries, and the 1st went to Rev. G. P. Haydon, Hatfield Vicarage, Doncaster; and the 2nd to H. J. Adams, Esq., Roseneath, London Road, Enfield (gr., Mr. May).

Orchid Committee.

Present: H. J. Veitch in the chair; and Messrs. J. O'Brien, H. M. Pollett, H. Ballantine, C. Pilcher, M. T. Masters, J. B. Haywood, F. Sander, L. Castle, Baron Schroder, and E. Hill.

Some good forms and varieties of Orchids were shown by Messrs. Seeger & Tropp, East Dulwich. We may mention a few *Cypripedium Arietinum*; Henderson's variety of *Masdevallia Harryana*, a rich purplish-crimson; a highly-coloured *Miltonia vexillaria*, also an almost white variety; *Oncidium sarcodes*, &c. A *Cattleya Mossia*, ornamental, with an unusually fine labellum, was shown by Malcolm Cook, Esq., Kingston (gr., Mr. Cullimore). A variety of *Cattleya Schroderae*, named Leyswood var., was exhibited by W. Temple, Esq., Leyswood, Groombridge (gr., Mr. Bristow). It has a well-frilled lip, which is rose-coloured, and the throat of

orange, the rest of the flower a pale rose; another C. S. was Temple's variety, differing from the former in having a pale purple lip, shading off to white at the edges. E. G. Wrigley, Esq. (gr., Mr. Beddoes), showed a finely coloured spray of *Odontoglossum crispum Wrigleyanum*, in which the ground colour is mauve, with dark brown blotchings, and a yellow crest.

B. Statter, Esq., exhibited *Cypripedium Lawrenceanum expansum*, in which the petiole is taller than in the type, and dorsal sepal much larger. *Cattleya Mendelii coelestis*, an almost white form, with a palish purple lip, came from the same exhibitor. F. Wigan, Esq., Clare Lawn, East Sheen (grower, Mr. Young), showed plants of *Laelia majalis*, with flowers that we have never seen matched for size. The plants were awarded, and deservedly, a Cultural Commendation. Two forms of *Phalenopsis speciosa*, always a variable species, were likewise sent. Other plants were a *Dendrobium clavatum*, and *Cymbidium tigrinum*, well-flowered in a small pot.

From R. B. White's garden, Arddarroch, N.B., came blossoms of twenty different varieties of *C. Mendelii*, and a few *Laelia purpurata*.

A fine *Odontoglossum Halli leucoglossa* and several *Tricopilia tortilis*, and a plant of *Odontoglossum nebulosum*, which had been certificated as excellens, besides a few others, came from the gardens of G. le Dux, Esq., Langton House, East Moulsey (gr., Mr. H. J. Chapman).

The curious green-flowered *Selenipedium viridiflorum* was shown by Messrs. F. Sander & Co., St. Albans; and a very striking flower was remarked in *Cypripedium Rothschildianum*, shown by Mr. W. Murray, gr., Oakwood, Wylam-on-Tyne.

Sir C. W. Strickland had a number of *Cattleya citrina* growing on rafts, blocks, cork, &c., and all in good bloom. A few Orchids came from F. A. Bevan, Esq., the best being a pure white *Odontoglossum crispum*, and a pale *Sobralia macrantha* with the name of delicate.

Narcissus Committee.

Present: Rev. G. H. Engleheart, in the chair; and Revs. W. Wilks and C. Wolley Dod, Messrs. De Graaff, Barr, Ware, Walker, Hoydon, Webster, and Scrase-Dickens (Hon. Sec.).

Undoubtedly, the most interesting exhibit was that of the Rev. G. H. Engleheart, which comprised a dozen hybrid Narcissi, so arranged that on either side of each specimen was a flower of the parent, the pollen parent on one side and the seed-bearing parent on the other, from which they had been obtained. Some of the finest of this set were obtained by crossing *N. poeticus ornatus* with *N. poeticus poetarum*, and *N. poeticus* with *Empress*; the result of the former being a beautiful clear-coloured flower, of great substance, particularly the corona; while that of the latter, was of unusual size, with the colour good, and the petals well rounded, and overlapping, which latter gave to the flowers a most distinct and pleasing appearance. It has received the name Albatros.

Another very interesting hybrid was obtained from *N. Empress* crossed with *N. triandrus*, the flower being exactly, both in colouring and in size, midway between the two. Mr. Engleheart also showed flowers similar in all respects, and quite as good as that now being sent out as *Prodigy*, and figured under that name in the *Gardeners' Chronicle* not long ago, but which is nothing more than a secondary flower of *Emperor*. Mr. Walker has it in plenty, and Mr. Engleheart said that he could pick out numbers of it in his garden. It was proposed by Mr. Barr, seconded by Mr. Webster, and carried unanimously, that the Narcissus Committee recommend that the Council award Mr. Engleheart a Medal for his untiring efforts in the raising of hybrid Daffodils.

Mr. Allen, of Snowdrop renown, sent several choice forms of *N. muticus*. *Horace* is a fine full flower, of good substance, with a deep yellow trumpet, and stiff petals; while *Chieftain* and *Homer* are but little behind it, and will be welcome additions to our garden forms of this now favourite flower.

From Kew came a very good representative collection of the Bernardi section; while two handsome flowers of Lord Derby, exhibited by Mr. Cannell, attracted a more than passing share of attention. It is a flower of unusual size, and as nearly a self as could be desired.

A distinct and worthy form of Bernardi, with fine full flowers, the corona distinctly and evenly fringed, was shown by Mr. Walker. Mr. Adams sent the

typical N. Nelsoni, and the much finer variety named Major, the latter very distinct from the parent both in size and depth of colouring.

From Belgrove, co. Cork, Mr. Gumbleton sent drawings of four forms of *Narcissus* hybrid *Johnstonii*.

Fruit Committee.

Present: Phillip Crowley, Esq., in the chair; and Messrs. J. Lee, R. D. Blackmore, G. W. Cummins, J. Cheal, G. Bunyard, W. Warren, T. J. Saltmarsh, G. Wythes, J. Hudson, W. Bates, H. Balderson, J. Smith, C. Penny, G. T. Miles, and F. Q. Lane.

Pride of the Market, a white-spined Cucumber, of nice proportions, came from Mr. Maher; excellent James Veitch Strawberries, in good condition, and large and bright-coloured, were shown by Mr. Leach, gr. to the Duke of Northumberland, Albury Park. Alongside of these fine fruits were samples of Laxton's Noble and Auguste Nicaise, and we know which we would have eaten had we but dared.

Good Waterloo Peaches were shown by Messrs. Burton & Son, Bexley, taken from a tree growing in a 10-inch pot. Mr. Burton cultivates Peaches largely and well as standards under glass.

Two or three dishes of very fine Tasmanian Apples were shown by Mr. C. Turner, and a lot of Rhubarb came from the Society's gardens.

BY THE FLORAL COMMITTEE.

First-class Certificates.

To *Anthurium* Laingii ×, from Sir T. Lawrence, Bart., M.P.

To *Anthurium* Burfordiense ×, from Sir T. Lawrence, Bart., M.P.

To *Pteris* cretica crispata, from Messrs. J. Veitch & Sons.

Awards of Merit.

To Sweet Briar (Lady Penzance), from Lord Penzance.

To Lilac (Leon Simon), from Messrs. Paul & Son.

To *Myosotis* (Bexley Gem), from W. Marshall, Esq.

MEDALS.

Silver-gilt Flora.—To Mr. P. Perry, gr. to J. C. Taskes, Esq., for collection of pot Roses.

Silver Banksian.—To Messrs. Barr & Sons, for collection of cut flowers; to Sir J. T. D. Llewellyn, Bart., for groups of hardy flowers.

Bronze.—To J. Curtis, gr. to F. Still, Esq., for seedling Auriculas; to Mr. G. Phippen, for group of Polyanthus.

BY THE ORCHID COMMITTEE.

Awards of Merit.

To H. J. Chapman, gr. to G. le Dux, Esq., Langton House, East Moulsey, for *Odontoglossum Halli* var. *leucoglossa*.

To E. G. Wrigley, Esq., (gr., George Beddoes), Howich House, Preston, for *Odontoglossum crispum* Wrigleyanum.

To W. H. Young, grower to F. Wigan, Esq., Clare Lawn, East Sheen, for *Phalaenopsis speciosa* Imperialis.

To E. Bristow, gr. to J. W. Temple, Esq., Leyswood, Groomsbridge, for *Cattleya Schroderae* var. Temple.

To Malcolm T. Cooke, Esq., Kingston Hill, for *Cattleya Mossiae gigantea*.

THE CRYSTAL PALACE GREAT SHOW.

MAY 9.—Although this, and most of the shows held at the Crystal Palace, are seldom held under the auspices of any special society, the affairs meet with great support and encouragement from amateurs, gardeners, and nurserymen. The show held on the above date helps to support our statement, notwithstanding some indications of a falling off in the classes for fine-foilage, specimen Ferns, and large stove and greenhouse plants. The pooriness of the prizes offered explain some reason for this; but it will presently appear, that from lack of inducement to grow fine specimens, there will arise an inability on the part of gardeners to produce them. It has occurred within our memory with *Ericas*, and many kinds of New Holland plants and Cacti. It is a fact to be deplored, but with low prizes at the

big show, and the present set of the horticultural tide towards cheap showy plants and Orchids, there is everything to favour retrogression. And the Palace show presented all the weak points of existing circumstances; flowering plants, easily and cheaply produced, were plentiful and well done generally, but the finer old subjects were either poor in size or badly grown and flowered.

The soft-wooded plants were mainly arranged at the south end of the centre transept; the *Pelargoniums* and *Calceolarias* in particular made charming masses of colour.

Pelargoniums.—Mr. Charles Turner, Royal Nursery, Slough, was the only exhibitor of nine plants of the show and decorative types, having good-sized well-bloomed and flowered specimens of Prince Leopold, Rosetta, Magpie, Edward Perkins, Madame Thibaut, Gold mine, Triomphe de St. Maude, &c. Mr. Turner was the only exhibitor of nine fancy varieties, and staged charming specimens of Cloth of Silver, East Lynne, Miss E. Little, Princess Teck, The Shah, Ellen Beck, Lady Carrington, Ambassador, and Delicatum—probably the oldest variety in cultivation.

There were two collections of twenty-four *Pelargoniums*, show and decorative, in 6-inch pots, and here again Mr. Turner was 1st, with small, even bright specimens of such leading varieties as Ritualist, Joe, Lady Isabel, The Czar (very bright scarlet), Spotted Beauty, Excellent (brilliant crimson), Bluebeard, Rosetta, Duke of Norfolk, Amethyst (purple, probably the most thoroughly purple *Pelargonium* grown), and Magnate; Mr. D. Phillips, Langley Broom, Slough, was a good 2nd, with capital young plants of Mauve Queen, Vanity, Goldmine, Lady Isabel, Magnate, St. Gatien, &c.

In the amateurs' class for six plants of the show type, Mr. D. Phillips was 1st, with capital plants of Valiant, Thisbe, Devotion, Gold mine, Maid of Honour, and Comtesse de Choiseul, and the only exhibitor. He was the only exhibitor also in the class for six fancy varieties, having excellent specimens of Lady Carrington, Thomas King, Princess Teck, Ellen Beck, Pilgrimage, and Mrs. Langtry—a refined Delicatum.

Gloxinias.—Mr. Henry James, Castle Nursery, Lower Norwood, had the best twelve *Gloxinias*, of an excellent strain, well-grown and flowered; and Mr. T. W. Wilks, gr. to C. Ralph, Esq., Fox Lane, Upper Norwood, was 2nd with six plants; Mr. W. Learey, gr. to J. M. Douglas, Esq., College Road, Upper Norwood, was 1st with six finely-grown and bloomed plants; Mr. J. Bateman, gr. to Mrs. King, Southwood, Sydenham Hill, was 2nd.

Calceolarias were shown in the open class in collections of eighteen, and as already stated, were very effective. Mr. H. Guyett, gr. to T. Gabriel, Esq., Elmstead, Streatham, was 1st with capital medium-sized specimens, good varieties, well-grown and flowered; Mr. H. Long, gr. to H. G. Barker, Esq., Leigham Holme, Streatham, was 2nd with smaller examples, but clean, healthy, and of good quality; Mr. Guyett was also 1st in the amateur's class for twelve specimens, and Mr. J. Bass, gr. to A. W. Aston, Esq., West Hill Lodge, Epsom, 2nd.

Azaleas.—In the amateur's class for six specimens, the plants fell below the average, and the 1st prize was withheld.

Roses in pots were, as usual, a good feature. Messrs. Paul & Son, Old Nurseries, Cheshunt, was 1st with eighteen plants, the leading varieties being Alphonse Soupert, Madame Lacharme, Innocente Pirola, Celine Forestier, Beauty of Waltham, La France, and Francois Levet. Mr. Turner was placed 2nd with plants that had been good, but now were past their best.

Orchids were poor, compared with previous exhibitions, and Mr. H. James was the only exhibitor of nine specimens, and was awarded a second prize. In the amateurs class for six plants, the 1st and 2nd prizes were withheld.

Cut Flowers.—Table decorations, bouquets, vases, &c., were well shown, and attracted a considerable amount of attention. With button-hole bouquets and ladies' sprays, Messrs. Perkins & Sons, nurserymen, Coventry, were 1st, their usual excellent style in making up being manifested; and Mr. Thos. Butcher, floral decorator, South Norwood, 2nd. The best bouquet, as also the best bride's bouquet, came from Messrs. Perkins & Son, Coventry; Mr. George Newman, Bromley, was 2nd in both classes. The 1st prize for a vase or epergne for drawing-room, came from Mr. T. Bishop; Mr. W. T. Clark, Balham, was 2nd. Mr. Bishop also had the three best vases or stands for the dinner-table, breaking away from the usual tall designs, and arranging dwarf and very

tasteful ones; Mr. Thomas Horseman, Clock House Nursery, Beckenham, was 2nd. Mr. H. James had the best twenty-four bunches of cut flowers, having very attractive bunches of Orchids, *Gloxinias*, *Amaryllis*, *Anthuriums*, but badly set up in ordinary flower-pots with Fern; Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill House, Ealing, was placed 2nd.

Stove and Greenhouse Plants.—Mr. W. Chapman, gr. to J. Spode, Esq., Hawkyard Park, Rugely, in the open classes, and also under amateurs, in the nine and six stove and greenhouse plants respectively, was awarded the 1st prizes in both. A few good plants were his *Erica Cavendishiana*, *E. profusa*, and *E. ventricosa* minor, *Anthurium Scherzerianum*, the best plant of its kind in the show; *Tremandra ericifolia*, and *Statice profusa*. Mr. H. James made a poor 2nd in the class for nine plants of the stove and greenhouse. He had *Ixora Dixiana*, a white *Azalea* Flower of the Day, and *Anthurium Scherzerianum* var. *Wardii*.

In the *Azalea indica* classes for nine distinct, and eighteen in not less than twelve varieties in 9-inch pots, Mr. C. Turner easily took the two 1st prizes with plants which few other men seem able to approach. Novel were the following:—*Madeline*, a semi-double white flower; *Madame Reimers*, magenta-red; *Andreas alba*, a semi-double variety; *Elise Lieben*, single white, striped rose.

Mr. Albert Offer, gr. Handcross Park, Crawley, showed *Azaleas* well in class 2, and was awarded 2nd prize for mostly well-known varieties. Baron Stigula was a well-flowered crimson, so well, indeed, that the leaves were conspicuous for their absence, which luckily was not the case with his other plants. In this same class, Mr. Mould, Pewsey, took 3rd prize for a pretty lot of new varieties. A well-bloomed *Azalea sinensis*, not often seen in good order, was shown by him. For nine *Ericas*, Mr. Mould was awarded a 2nd prize, the 1st and 3rd being withheld. In the class for nine stove and greenhouse plants showed by amateurs, Mr. John Curry, gr. to Colonel Pepper, Milford Hill, Salisbury, was awarded the 2nd prize, had excellent specimens of *Franciscea calycina*, *Tremandra ericifolia*, and *Darwinia tulipifera*. Mr. J. Hudd, Blackheath, was 1st for nine fine foliage plants, and Mr. Currey 2nd. Mr. Offer took 1st prize for nine *Crotons*, distinct varieties; and Mr. J. R. Bird, gr. to J. A. Causton, Esq., Alleya Park, the 2nd prize. We failed to remark much novelty or superior culture in either. The same may be said of *Dracenas*, for nine of which Mr. J. Lambert, gr. to H. W. Segelcke, Esq., Elfindale Lodge, Herne Hill, was placed 1st.

Caladiums were very well shown by Messrs. Laing & Sons, Forest Hill, 1st; and Mr. J. Day, gr. to W. S. Groves, Esq., Casino House, Herne Hill, 2nd. Fine foliage plants were shown in the amateurs class by Mr. J. Ford, Slough; and Mr. Hazell, gr. to R. W. Mitchell, Esq., Fairfield, Bickley. The last-named exhibited *Asparagus plumosus*, *Anthurium crystallinum*, *Phyllotanium Lindenii*, and some few *Crotons* of good size and condition.

In the class for six stove and greenhouse Ferns, Mr. Howe, gr. to H. Tate, Esq., Park Hill, Streatham Common, exhibited large healthy examples of *Nephrolepis ensifolia*, *N. hirta cristata*, *Davallia Mooreana*; and Mr. Ford, 2nd prizeman, had *Gymnogramma Pearcei robusta* and *Asplenium appendiculatum*, in excellent condition.

The Trade displays were, in most instances, of great beauty, and we may specify briefly the best of them:—Messrs. Cutbush & Sons, Highgate, showed hard-wooded and miscellaneous greenhouse plants; we noticed *Erica propendens*, flowers a pale purple, bell-shaped, quarter of an inch broad and deep; also *Mignotte Snowdrift*, a fine variety. Messrs. W. Paul & Son, Waltham Cross, had excellent Roses as pot-plants and cut blooms—a capital display. Messrs. B. S. Williams, Upper Holloway, showed much miscellaneous stuff:—*Epiphyllum Makoyanum*, a bright scarlet, and free in the young state, a companion variety to *E. Gaertneri*; ornamental-leaved *Begonia* A. Malet, pink, with green veins, and all silvered over; *Dracena Maletii*, a fine bronzy leaf, with rose and red markings; *D. Berkeleyi*, short broad bronzy leaves, margined with rose; *Tillandsia Zahni*, with a flower-stalk surmounted with golden-yellow bracts, and green leaves, striped with red at the base; leaf-stalk same colour.

Messrs. Paul & Son, Cheshunt, amongst other hardy plants, showed a double-flowered Lilac, Leon Simon, *Prunus Planeri*, fl.-pl., the flowers white, and of the size of a shilling, coming in a dense spike

together. The firm also showed Roses excellently, in pots. There was a lovely table of Narcissi and other flowers in the open border, shown by Messrs. P. Barr & Son, King Street, Covent Garden.

Messrs. T. Ware, Hale Farm, Tottenham, had a nice group of the same kind of flower, but including hardy Orchis, Primula Sieboldi, Trilliums, Fritillarias, Moutan Pæonies, and a great number of blooms of Carnation Souvenir de la Malmaison.

Messrs. J. Laing & Sons, Forest Hill, had a group of mixed plants arranged for effect, very well done.

A large bank of Cinerarias, of fair quality, was put up by Messrs. J. Carter, 148, High Holborn, which was made the more effective by massing the various colours; a hybrid Cactus between *C. coccineus* and *C. speciosissimus*, the plant flowering when quite young. Messrs. Peed & Sons showed a group of mixed plants; and J. A. Causton, Esq., Tree Mignonette.

ROYAL BOTANIC.

MAY 13.—One of the freshest and most effective shows we have seen at Regent's Park was that arranged on Wednesday last. A fine day secured a good company, and the preponderance of bright flowering plants over specimens exhibited for their fine foliage, only gave them plenty to admire, both in the individual specimens, and also in the general effect produced at all points. There was a splendid bank of Orchids, the best coming from the gardens of his Grace the Duke of Marlborough, although Mr. Douglas, gr. to Mrs. Whitbourne, Great Gearies, Ilford, had a well-grown collection, and Mr. Hy. James, of Norwood, a few good examples.

The central groups were arranged by Messrs. B. S. Williams & Son, of Holloway, chiefly with Orchids and foliage plants; Messrs. Paul & Son, with a magnificent show of Roses in pots and cut; and Messrs. John Laing & Son, of Forest Hill, with a very varied and excellent collection of Begonias, Orchids, Caladiums, foliage plants, &c. The Pelargoniums of Turner were superb, and there was the usual display of Azaleas, Heaths, and other flowering stove and greenhouse plants, by the usual exhibitors. One of the features of the exhibition was a fine display of Tree Pæonies from Mr. Ware, of Tottenham; these were fronted by the collection of hardy herbaceous plants (1st prize), from the same firm, and among which the extensive collection of varieties of Primula Sieboldii was very attractive. On the other bank, Messrs. Paul, of Cheshunt, had a fine show of hardy flowers comprising many rare species; all remarkably bright and fresh.

In cut flowers, Messrs. Barr & Son, of Covent Garden, had a very complete collection of Daffodils and other bulbous plants. In the same corridor Messrs. J. Carter & Co., High Holborn, exhibited a batch of their white double Stock, and in the tent, the large collection of Petunias from the same firm displayed these favourite and easily-grown plants in a manner probably never before attained for beauty, variety, and general excellence, the exquisite tinting and marking of many of the varieties being something to dwell over.

Among new plants, the *Alocasia Luciani*, exhibited by Messrs. B. S. Wilson, and was a marvel of beauty, the delicate tracing of silver on its large bronzy leaves being very beautiful. *Pteris Smithiana* too, exhibited by the same firm promises to be a leading crested Fern for market work.

COUNTY OF GLOUCESTER AND CHELTENHAM.

THE above Society held its spring show in the grounds of the Winter Garden, in very favourable weather; and the quality of the show, as a whole, was all that could be desired; the entries far exceeding the expectations of the executive committee this late spring. Undoubtedly the feature of it was the Orchids that were shown by amateurs; and so good were these that the judges found difficulty in awarding the prizes as the event proved; the usual places of the winning competitors at this show were reversed, and T. P. Butt, Esq., Arle Court, was 1st, and Mr. Neville Wyatt, 2nd.

In the nurserymen's classes, a magnificent display was made by Mr. Cypher, Queen's Road Nursery, Cheltenham, who staged one of the best lots which we have seen put up by him. His best plants were *Dendrobium Jamesianum*, with 300 blooms, a grand plant; *D. suavisimum*, with thirty large flower-spikes; *D. thysiflorum*, with thirty trusses; *Masdevallia Lindenii*, with fifty blooms, a fine piece; *Dendrobium nobile splendens*, grandly coloured;

Cypripedium caudatum, with twenty-eight flowers; *Oncidium Marshallianum*, with four large spikes; *Lælia purpurata alba*, with twenty-eight fine blossoms; and a superb piece of *Cattleya Mendeli*, with twenty blooms, in fine condition; this lot was far ahead of any other. Messrs. Heath & Son were 2nd, with good plants well put up, the best being *Masdevallia Lindenii* (but wrongly named *Harryana*), *Lælia purpurata*, *D. thysiferum*, *Cymbidium Lowianum*, *Dendrobium nobile*, and some others of good quality.

In the stove and greenhouse class, Mr. Cypher was in fine trim, staging plants that were never seen in better condition; such good plants as these, sent with the prospect of winning such small money prizes as those of this Society, would not be found elsewhere. In the class for twelve plants in bloom, an *Erica Cavendishii* measured 4 feet in diameter, *E. ventricosa rosea* was of the same size, *E. profusa* was 3 feet, a magnificent *Pimelea spectabilis* was 5½ feet, and *Darwinia tulipifera* and *D. fuchsoides* were almost equally fine plants; the lot included *Anthuriums* in variety, *Aphelexis*, and *Franciscea eximium*. Mr. J. F. Mould, Pewsey, was 2nd, with a good *E. Cavendishii*, *E. depressa*, *E. Victoria*, the latter being a splendid plant, but in other plants he was weak.

For six plants in bloom, Mr. G. N. Wyatt was 1st, with a large *Anthurium Scherzerianum*, *Clerodendron Balfourianum*, Countess of Haddington *Rhododendron* (a very beautiful plant, which was 7 feet through), and some good Azaleas; Messrs. Heath were 2nd, with smaller plants, including a fine Azalea *Stella*, *Anthurium Scherzerianum* var. *Wardi*, *Ixoras*, and *Pimeleas*.

The collection of ten greenhouse Azaleas made a very fine display, Mr. Cypher being 1st, Messrs. Heath 2nd, and an extra prize was awarded G. N. Wyatt, Esq.

For six Azaleas, 1st, Sir A. Ramsey, Bart.; 2nd, Mr. Mould. For Azaleas in 11-inch pots, Messrs. Heath, Wyatt, Cypher, and Butt took the prizes in the order named.

Roses in pots were rather poorly shown, and call for little notice; on the other hand, cut Rose blooms made a good show, and there was much competition. 1st, for eighteen blooms, Messrs. Heath; 2nd, Col. Rogers; 3rd, Mr. Kitching, Burton-on-Trent.

Pelargoniums in 8-inch pots were very good, and the winner, Mrs. Lingwood, had fine plants of *Duchess of Edinburgh*, *Miss Bradshaw*, and *Volonté National alba*; H. Chapman, Esq., was 2nd, with some good plants.

Cinerarias in 8-inch pots, in collections of twelve varieties, were very showy. 1st, Mr. Butt; 2nd, Mr. J. Pilgrim. For collections of six, 1st, Mr. Wyatt; 2nd, Mrs. Lingwood.

Calceolarias, also in excellent form.—1st, Sir A. Ramsay; 2nd, Colonel Rogers; 3rd, Mr. Wyatt. With *Gloxinias*, which were also of good quality. Mr. Wyatt and Messrs. Lingwood were the competitors. Messrs. Heath showed a collection of herbaceous plants.

Cut Blooms of Stove and Greenhouse Plants.—Here Mr. Wyatt was 1st, with very fine blooms; Colonel Rogers 2nd.

The large group, to consist of thirty plants of the stove and greenhouse, brought three competitors, Messrs. Cypher showing fine Palms and flowering plants, Messrs. Heath & Son good Indian Azaleas, and plants with fine foliage. Mr. Mould was the other competitor.

Vegetables made a weak display. Mr. Cook was 1st for the largest collection, being followed by Rev. G. G. Coventry, and Mr. Kitching for small ones. These exhibitors were also the chief prize-takers in the single-dish classes for Beans, Peas, Potatoes, and Asparagus, this latter always very fine at this show. Tomatos were likewise good, Mr. Cook, Rev. G. G. Coventry, and Mr. Kitching, being the prize-takers. The fruit classes were very poorly filled.

EXHIBITION AT UTRECHT.

YOUR readers may be interested in hearing from one who visited Utrecht at the time of its exhibition a fortnight ago, some account of the most noteworthy of the exhibits. The town is one of the oldest and most fashionable in Holland, and its interest in horticulture is shown by the fact that this is the fiftieth year of the existence of its Horticultural Society. The International Exhibition was intended to mark the Jubilee of the Society, and whilst there was but little of an international character in the exhibition, the collections of plants sent by Dutch horticulturists, both amateur and professional, were mostly of great merit as regarded culture and rarity.

Like the Belgians, the Dutch are successful in the cultivation of quick-growing foliage plants of all kinds, the huge specimens of Aroids, Marantas, Caladiums, and similar plants which are to be seen at exhibitions in these countries being superior to anything of the kind met with elsewhere. Whether it be owing to the character of the soil, which in Holland appears to suit most plants, or the nature of the climate, or the skill of the cultivator, it is certain that the Dutchman, when he likes, can produce marvellous specimens.

I do not, however, propose to "report" the Utrecht show, but only to describe its most striking features. The Orchids, with which a special effort was made, were numerous, in great variety, and on the whole well grown. *Masdevallias* and *Cypripediums*, of rare and beautiful species, were represented by large plants; *C. Druryi*, with ten flowers; *C. Marshallianum*, *C. Mrs. Canham*, and *C. Boxalli aureum* being conspicuous in one group.

The best collection came from the garden of M. Warocqué, of Mariemont, near Brussels, which contains one of the richest and best cultivated collections in Belgium. The fifteen plants which formed the group shown by him consisted of *Cypripedium candidulum* with three spikes; *C. Leeanum superbum*, eleven flowers; *C. grande*, *Oncidium concolor*, seventeen spikes; *Cattleya citrina*, twelve flowers; *Odontoglossum luteo-purpureum* var., the sepals large, and coloured wholly rich chocolate, except only at the extreme tips, which were yellow, whilst the blotches on the petals were very large; the plant bore two spikes of twelve flowers each. Other fine *Odontoglossums* were, *O. crispum*, *Linden's* variety, which rivals in size and purity *Veitch's* variety; *O. gloriosum*, a grand mass of bloom, &c.

Amongst other collections were several distinct varieties of *O. Andersoni* and *O. Ruckeri*, a fine specimen of *O. Reichenheimii*, with a branched spike a yard long; a distinct variety of *O. luteo-purpureum*, named *Boxmani*, in compliment to M. D. F. H. Boxman, whose collection of Orchids and other plants has no rival in the neighbourhood of Utrecht. The success of the exhibition was due in no small measure to the zeal and energy of this gentleman.

Galleandra d'Escagnolleana is an ugly uninteresting plant, with an ugly name; *Warscewicella discolor* was shown with twenty-two expanded flowers; *Ansellia congoensis* bore six spikes of yellow and brown flowers, on pseudobulbs scarcely 1½ foot high. Several new varieties of *Odontoglossum Rossi* were shown, one of the *Humeannum* type, having flowers 3 inches across, with white sepals, banded and spotted with brown, petals of unusual length, and wholly white, as also was the labellum, which measured 1½ inch in length. *Acineta Humboldtii* was shown with two stout spikes.

Bromeliads, Ferns, Selaginellas, Dracænas, &c., were in fairly strong force, and, as a matter of course, the Azaleas were a magnificent feature of the show.

The special feature of the exhibition, however, viewed, that is, from the point of the English horticulturist, was the collection of New Holland hard-wooded plants. Fifty years ago these plants were the *chef d'œuvre* of the English exhibitor, but they have no place among the plants which fill the exhibition tents of England now. Whilst horticulturists, as a rule, in England, have discarded these plants, the Utrecht nurserymen have cherished a love for Acacias, Boronias, *Pimeleas*, *Brachysemas*, *Eriostemons*, *Dillwynias*, *Chorozemas*, *Metrosideros*, *Polygalas*, *Diosmas*, *Leptospermums*, *Pultenæas*, *Zierias*, and even *Banksias*. Magnificent specimens of all these were shown, all dense bushes, held in position by about three stout sticks, otherwise perfectly natural bush specimens, and as well flowered as anything I have ever seen. Some Acacias were new to me, whilst others, such as *A. armata*, *A. Drummondii*, and *A. verticillata*, were so massive and beautiful as to give one a much higher opinion of them as greenhouse plants than could be ever formed from what can be seen of them in this country. Imagine *Dillwynia lanceolata* a bush 4 feet through, and as thick with flowers as furze is in May; *Metrosideros floribunda*, both crimson and white-flowered varieties, bushes of them, and each bristling with dozens of bottle-brush-like flowers. *Banksia Cunninghamii*, like a huge Mushroom, 6 feet across and studded all over with yellow conical flower-heads. I never knew how beautiful a shrub *Choisya ternata* really is until I saw it at this exhibition. It was dense globe-shaped, not trained-bush, 4 feet high by 5 feet through, and from the top to the rim of the pot it was covered with the purest

white flowers, so that the general effect suggested one of Mr. Douglas's prize *Deutzia gracilis* on a magnificent scale; of course, I shall be told that the *Choisya* is perfectly hardy, but ornamental and useful, though it is as a hardy shrub, it is infinitely superior when grown well, very well, in pots, cut in hard, so as to make it branch freely, and used for the decoration of the conservatory in April and May. For such a use it has scarcely a rival.

Hyacinths were shown in quantity, and, although the individual spikes were small in comparison with what is to be seen elsewhere, yet the *tout ensemble* of the collections was more pleasing than anything we have in England. Each kind was represented by ten plants, all planted in a round pan, not more than a foot in diameter, so that each pan contained a mass of spikes all of the same kind, and so close together as to touch each other. This is better—decidedly better in effect, than the big tub-like pots in which English exhibitors prefer to place each individual Hyacinth. *Visitor*.

ACCELERATED POST FROM JAPAN.—We have to-day received letters and papers from Yokohama, *via* the Canadian Pacific Railway, twenty-five days in transit to London. We need hardly allude to the enormous importance that this accelerated delivery of letters, &c., will be to Canada and to countries on this side of the Atlantic.

FOREIGN CORRESPONDENCE.

CEYLON ROYAL BOTANIC GARDENS.

DR. TRIMEN'S annual report records, amongst other things, the first flowering of the double Cocoa-nut, *Lodoicea sechellarum*. The tree is a male, and has been planted forty years. The Talipot Palm also flowered, the tree being in its fiftieth year.

The highest temperature at Hakgala in the sun was 149°, on May 10. The lowest on the grass was 35°, on February 18. The maximum temperature of the air was 78°, on May 12; minimum temperature 40°, on December 23.

The exports of tea amounted to 43½ millions of pounds, the average price being 11d. [It will be remembered that Ceylon tea has recently been sold at £25 per pound.] Coffee and Cinchona are declining. Cacao is increasing, and Caoutchouc gradually improving.

IRELAND.

ST. STEPHEN'S GREEN.

THE Lord Mayor of Dublin, on May 7, laid the foundation-stone of a statue, in St. Stephen's Green, to Lord Ardilaun, to whose munificence it is that the park on the centre was given to the public, and transformed into one of the handsomest city squares in Europe.

DUBLIN GLEANINGS.

From the Trinity College Gardens come specimens of *Hypericum trifolium*, a species said to come from the mountains of Java, having leaves sessile opposite, broadly ovate-oblong, acute. Flowers about 8 cent. (6 inches) across, of a bright golden yellow.

EUPHORBIA MELLIFERA.

A species with lanceolate glabrous leaves, crowded towards the tips of the branches. Flower-heads numerous, in terminal, much branched, cymose panicles. Bracts of a reddish-purple colour.

CARPENTERIA CALIFORNICA.

A hardy shrub, with fine *Philadelphus*-like flowers; but destitute of fragrance, and lanceolate dark green leaves, glaucous beneath. The flowers are, we think, the finest we have seen.

Obituary.

MR. ROBERT GREEN.—We regret to announce the death of Mr. Robert Green, recently, at 28, Crawford Street, Bryanston Square, where he had carried on the large business of decorative and court florist for

the past thirty-five years. He died esteemed by all who knew him, after a short, but severe attack of bronchitis, at the age of fifty-seven years. The funeral took place on Saturday, the 9th inst., at Twickenham Cemetery, and was largely attended.

EARL POWIS.—On the 7th inst., Earl Powis, of Powis Castle.

CAPTAIN HUGH BERNERS.—On the 7th inst., at Woolverstone Park, near Ipswich, Captain Hugh Berners, R.N., aged 89.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
	Above (+) or below (—) the Mean for the week ending May 9.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.				
10 aver	41	7	—	42 + 62	1	81	16.4	32	28
2 1 —	40	9	—	28 + 78	2	50	6.6	27	30
3 1 —	38	6	—	39 + 82	2	58	5.3	27	28
4 1 —	53	8	—	31 + 123	3	57	4.7	43	31
5 0 aver	58	5	—	23 + 105	2	51	5.7	32	29
6 0 aver	57	0	—	58 + 141	3	49	6.4	42	32
7 0 aver	46	3	—	19 + 34	1	59	11.0	29	30
8 0 aver	48	0	—	10 + 27	2	48	6.1	26	28
9 1 —	51	2	—	30 + 107	1	50	8.7	33	36
10 1 —	46	0	—	3 + 20	3	65	7.7	28	31
11 1 —	49	0	—	14 + 21	1	57	7.4	27	33
12 1 —	60	0	—	9 + 40	2	56	7.5	48	45

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 9, is furnished from the Meteorological Office:—

"The *weather* during this period varied considerably. At times it was clear and bright, at others overcast and gloomy, and on several occasions rain fell. Over the greater part of England and Scotland, the rainfall was very slight; but, in Ireland and the southwest of England, it was heavier and more frequent.

"The *temperature* has not differed materially from the mean for the time of year. It was generally highest during the 6th and 7th, when maxima were registered ranging from 61° in the 'Channel Islands,' and 63° in 'Scotland, E.' to 69° in 'England, S.' The lowest of the minima were recorded during the early morning, either of the 3rd or 6th, and varied from 28° in 'Scotland, N.' and 30° in the other Scotch districts and over central England, to 34° over Ireland and to 41° in the 'Channel Islands.'

"The *rainfall* has been in excess of the mean over Ireland, the southwest of England, and in the 'Channel Islands,' but below the mean in all other districts.

"The *bright sunshine* has not differed much from that recorded last week, and has been below the mean for the time of year. The percentage of the possible duration ranged from 48 in the 'Channel Islands,' and 42 to 43 in the south and east of England, to 27 in 'England, N.E. and E.,' and to 26 in 'England, N.W.'"

MARKETS.

COVENT GARDEN, May 14.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. ED.]

Business still keeps steady, with prices for best goods firm. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, each	0 4-0 6	Endive, per dozen	4 0-...
Asparagus, wholesale	1 3-1 6	Herbs, per bunch	0 4-...
Worcester, bundle	1 3-1 6	Lettuces, per dozen	3 0-...
Cambridge, bundle	1 3-1 6	Mushrooms, punnet	2 0-...
Various, sml. bble.	0 6-10	Mustard and Cress, punnet	0 4-...
Beans, French, lb.	1 6-2 0	Parsley, per bunch	0 4-...
Beet, red, per dozen	2 0-3 0	Seakale, per basket	0 9-1 6
Carrots, per bunch	0 6-...	Shallots, per lb.	0 6-...
Cauliflowers, each	0 6-...	Spinach, per bushel	7 0-...
Celery, per bundle	2 6-3 6	Tomatos, per lb.	2 6-3 6
Cucumbers, each	0 6-1 0	Turnips, per bunch	0 6-...

OLD POTATOS.—Market very weak. Prices falling. Stocks heavy for the end of season.

NEW POTATOS.—Demand increasing, with advance of prices. Kidneys, 14s. to 26s. Rounds, 12s. 6d. to 15s. *J. B. Thomas.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	3 6-6 0	Lemons, per case	15 0-25 0
— Nova Scotia, brl.	15 0-25 0	Pine-apples, St. Michael, each	2 0-8 0
— Tasmanian, cask	12 0-14 0	Strawberries, p. lb.	2 0-8 0
Cobs, Kent, 100 lb.	45 0-50 0		
Grapes, new...	2 6-5 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, 12 blms.	2 0-4 0	Narcissus Poeticus	...
Azalea, 12 sprays	0 6-1 0	(Pheasant Eye), 12 bunches	1 6-2 6
Bouvardias, per bun.	1 0-1 6	Pansies, 12 bunches	0 6-1 0
Callaæthiopica, 12 bl.	2 0-4 0	Pelargoniums, scarlet,	...
Camellias, white, 12 blooms	2 0-3 0	Polyanthus, 12 spr.	0 4-0 6
— cold, 12 blms.	0 9-1 0	Polyanthus, 12 bun.	1 0-2 0
Carnations, 12 blms.	1 0-2 0	Primroses, double,	...
Cineraria, 12 bchs.	6 0-9 0	p. 12 bunches	1 0-2 0
Cyclamens, per doz.	0 3-0 6	— per 12 bunches	0 4-0 6
Daffodils, various, 12 bunches	2 0-6 0	Primulas, double, 12 sprays	0 6-1 0
Eucharis, per dozen	3 0-6 0	Ranunculus (Fren.), 12 bun.	1 0-2 0
Gardenias, per doz.	1 6-3 0	Roses, Tea, per doz.	1 0-3 0
Heliotropes, 12 spr.	0 6-1 0	— coloured, dozen	2 0-4 0
Hyacinths, various, in boxes, Dutch	1 6-3 0	— yellow (Maréchal), per doz.	3 0-6 0
Lilac, best, p. bunch	4 0-6 0	— red, per dozen	3 0-6 0
— p. bunch	1 6-2 0	— do., French, doz.	1 0-3 0
Lilium Harrisii, doz.	3 0-4 0	Spirea, per bunch	0 4-0 6
Lily of the Valley, 12 sprays	0 6-1 0	Tuberose, 12 blms.	1 0-1 6
Maiden Hair Fern, 12 bunches	4 0-9 0	Tulips, various, per doz. bunches	3 0-6 0
Marguerites, 12 bun.	3 0-6 0	Violets, 12 bun.	0 6-9 0
Mignonette, Fr., bu.	1 6-2 0	— Parma, Fr., bun.	3 0-3 6
Myosotis, 12 bun.	2 0-4 0	— dark, Fr., bun	1 0-1 6
Narcissus (yel.), 12 bun	2 0-4 0	Wallflower, 12 bun.	2 0-4 0

ORCHID-BLOOM in variety.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ferns, in variety, per dozen	4 0-18 0
Aspidistra, doz.	18 0-42 0	Ficus elastica, each	1 6-7 0
— speci. plants, each	7 6-10 6	Foliage plants, various, each	2 0-10 0
Azalea, per dozen	18 0-36 0	Genista, per dozen	6 0-9 0
Bedding plants, variety, per doz.	1 0-2 0	Heliotrope, per doz.	4 0-8 0
Bouvardias, p. doz.	9 0-18 0	Marguerites, doz.	6 0-12 0
Calceolaria, p. doz.	6 0-10 0	Mignonette, per doz.	6 0-9 0
Cineraria, per dozen	4 0-8 0	Musk, per doz.	3 0-6 0
Cyclamens, dozen	9 0-18 0	Myrtle, per doz. pots	6 0-12 0
Cyperus, per dozen	4 0-12 0	Palms in variety, each	2 6-21 0
Dielytra, per dozen	8 0-12 0	Pelargoniums, doz.	12 0-18 0
Dracena terminalis, per dozen	30 0-60 0	— scarlet, p. doz.	4 0-9 0
— viridis, per doz.	12 0-24 0	Primula sinensis, per dozen	4 0-6 0
Euonymus, in var., per dozen	6 0-18 0	Roots for bedding, in boxes, each, from	1 0-2 0
Erica, various, doz.	8 0-24 0	Spirea, per dozen	6 0-9 0
Evergreens, in var., per dozen	6 0-24 0		

SEEDS.

LONDON: May 13.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that the usual summer quietude now characterises the seed trade. As regards Clovers and grasses, stocks leave off light, and prices moderate. Tares are in improved request. Mustard also is more inquired for. Rapeseed keeps exceedingly firm. Hempseed tends upwards. Canary unchanged. Blue Peas are scarcer than ever.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending May 9, and for the corresponding period last year:—1891, Wheat, 41s. 4d.; Barley, 28s. 9d.; Oats, 21s. 1d. 1890, Wheat, 31s. 7d.; Barley, 28s. 3d.; Oats, 19s. 2d. Difference:—Wheat, +9s. 9d.; Barley, +0s. 6d.; Oats, +1s. 11d.

FRUIT AND VEGETABLES.

STRATFORD: May 12.—There has been a good supply of all kinds of produce at this market during the past week, and a brisk trade was done as under:—Cabbages, 3s. 6d. to 5s. per tally; Greens, 3s. to 4s. 6d. per dozen; Cauliflowers, 1s. 6d. to 2s. 6d. per dozen; Carrots, household, 140s. to 160s. per ton; Mangels, 24s. to 27s. do.; Swedes, 15s. to 22s. do.; Onions, English, 100s. to 120s. do.; do., Dutch, 2s. 6d. to 3s. 6d. per bag; Apples, English, 4s. to 5s. 6d. per bushel; Radishes, 1s. to 1s. 3d. per dozen bunches; Cucumbers, 3s. to 6s. per dozen; Watercress, 1s. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: May 12.—Quotations:—Old: Hebrons, 120s. to 130s.; Magnums, 100s. to 125s.; Dunbars, best, 120s. to 130s.; Imperators, 110s. to 120s.; Regents, 100s. to 120s.; Champions, 90s. to 100s. per ton. New: Canary, 12s. to 16s.; Lisbon rounds, 9s. 6d. to 10s.; Malta do., 8s. 6d. to 10s.; Kidneys, 12s. to 16s. per cwt.

SPITALFIELDS: May 13.—Quotations:—New: Dunbars, 120s. to 140s.; Imperators, 110s. to 140s.; Magnums, 100s. to 130s.; Hebrons, 110s. to 130s.; Champions, 90s. to 110s. per ton. New: from 8s. to 10s. per cwt.

STRATFORD: May 13.—Quotations:—Old: Magnums, light lands, 100s. to 140s.; do., Scotch, 120s. to 140s.; black lands, 110s. to 120s.; foreign, 90s. to 110s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 102s. 6d.; inferior do., 46s. to 75s.; hay, best, 60s. to 87s.; inferior do., 25s. to 50s.; and straw, 20s. to 38s. per load.

NOTICES TO CORRESPONDENTS.

ANTS IN POTS OF CHRYSANTHEMUM: *W. W. C.* Water the plants with soft water. Strew some carbolic acid about the pots; but not so that it touches the plants, or the soil they grow in.

BEES: *J. M. G.* You are mistaken. The writer you mention is no longer connected with the *Gardeners' Chronicle*.

BEETLES: *W. R. O.* Weevils; most destructive. Trap them with slices of Carrot, and destroy them immediately.

BOOKS: *J. A. Anderson*. The book is published at 37, Southampton Street, Strand, W.C.

DISCOLOURED STEPHANOTIS LEAVES: *P. R.* Exposure to bright sun, in shoots close to the glass. The leaves do not readily burn if ventilation of the house is properly attended to. Apply a slight shading.

DRIPPING VINES: *E. J.* Some kinds of Vines, when grown in steaming vineries, sometimes exude drops of water (sap) from the leaves. When the calls on the roots by evaporation, the formation of more foliage, and of the fruit, take place as time goes on, the dripping will cease. Perhaps the laterals and the leaders have been closely stopped; and, in any case, there will be no harm done, the supply of sap being in excess of the loss.

FUCHSIAS: *C. P. K. G.* The work probably of weevils, and committed during the night. Fuchsias are very free from all sorts of insects, except green fly on the young shoots and leaves, and red spider, which comes on plants in late summer, if they are kept in a very dry place. The weevils did the injury whilst the leaves were still in the bud, or soon afterwards.

GARDENS IN BRUSSELS: *Thos. L. B.* The Botanic Garden; Laeken, the Royal Gardens, l'Horticulture Internationale. The best nurseries are at Ghent, which is not very far distant:—Van Houtte, Vervaeck de Vos, Vervaeck & Co., Van Geert—several of that name; Pynaert, Van der Swaetman, Vuylsteke, and many more.

INSECTS: *R. T.* The flies had escaped before your note reached us.

NAMES OF PLANTS: *Ajax*. 1, *Jasminum Sambac*; 2, *Aubrietia deltoidea*; 3, *Cordylone*; 4, *Orobis vernus*.—*T. W.* 1, *Mahonia* (*Berberis*) *aquifolia*; 2, *Ribes aureum*; 3, *Forsythia viridissima*; 4, *Saxifraga hypnoides*.—*A. Y.* 1, *Narcissus pseudo-Narcissus*; 2, *N. incomparabilis flore-pleno var.*; 3, *N. incomparabilis flore-pleno var.*; 4, *N. poeticus*; 5, *N. p. patellaris*; 6, *N. poeticus*, but the variety not distinguishable; 7, *Helleborus olympicus*; the purple sport from it is what is often sold as *H. o. var. rubra*.—*Nero*. The wretched scraps you send were all shrivelled; send better specimens, properly packed. All we can make out are the following:—3, *Berberis empetrifolia*; 6, *Forsythia viridissima*.—*C. K. G.* 1, *Acer negundo variegatum*; 2, *Convallaria multiflora* (*Solomon's Seal*); 3, *Potentilla fruticosa*; 4, *Dielytra spectabilis*; 5, *Berberis Bealei*; 6, *Asperula odorata*.—*Black Knight*. *Pulmonaria officinalis*.—*Scotia*. *Leucoium æstivum*.—*H. B.* 1, *Adiantum capillus veneris*; 2, *Aloe verrucosa*; 3, *Adiantum hispidulum*; 4, send when in flower; 5, *Aloe socotrana*.—*Fota*. *Toxicophloe Thunbergii*.—*R. P.* *Skimmia japonica*, male.—*W. F.* *Griselinia littoralis*.—*G. W. C.* 1, *Dendrobium Dalhousianum*; 2, *D. lituiflorum*.—*X.* Yellow flower, *Celsia cretica*; blue one, *Orobis vernus*.

OLD VINE: *One in a Fix*. Sacrifice the Grapes for one season. Cut back the spurs to the main rods in early winter, lift the Vines, renewing the border with wholesome materials, of which fibrous pasture loam should form the greater portion, and see that the drainage is good. This work may be done in September, whilst the leaves are still on the plants, applying shade to the tops for a fortnight, and preserving the roots in a moist state whilst carrying out the job. Keep the Vines cool during the winter, letting them break naturally, or, at any rate, not earlier than the beginning of the month of March. Keep the ends of the rods at a low level, and the house constantly moist until they break, a bed of fermenting stable manure in the house being at that period of great assistance. When broken, select the best or best-placed shoots to form the future spurs, and some of those near the base of the rods to be trained up as new rods.

THE DEATH OF BEES: *J. R. H.* It is impossible to say after this lapse of time whether your bees died of foul brood or not; it is however, more probable that the cause of death was the want of proper feeding. Before using the hives again, they should be thoroughly washed with carbolic soap, and be well painted as an extra precaution. I should paint insides as well as out. I would advise burning all old frame combs and quilts. *Expert*.

VINES: *Northfleet*. The berries are attacked by a fungus, and show symptoms, also, of shanking. Burn all the affected berries.

CATALOGUES RECEIVED.

RICHARD PFAU, San José Republic, Costa Rica—Trade List of New, Rare, and Valuable Central American Orchids.

Messrs. CLARK BROS. & Co., 65, Scotch Street, Carlisle—Florists' Flowers and Summer Flowering Plants.

Messrs. HOGG & WOOD, Coldstream, N.B.—Special List of Swedes, Grass Seeds, Turnips, &c., and Manures.

Mr. PHIPPEN, Reading, Berks—Dahlias, Picotees, Carnations.

M. AUGUST ROY, 164, Avenue d'Italie, Paris—General Fruit, including Perry Pears, Cider Apples, Vines, Strawberries; also Trees and Shrubs, both deciduous and evergreen.

Messrs. GIBBS & Co., Loughborough—Hotwater Apparatus, Pipes, &c.

J. LAING & SONS, Forest Hill, London, S.E.—Dahlias.

M. H. DAMMAN, Jun., Nurseryman and Florist, Breslau, Germany—Orchids, illustrated.

J. LAING & SONS, Forest Hill, S.E.—Tuberous Begonias.

COMMUNICATIONS RECEIVED. — J. G. — Rev. H. W. P. S. — F. W. — W. F. — Rev. G. H. E. — A. S. — Capt. S., Baltimore. — Dr. Costerus, Amsterdam. — Annandale Observer (Credit Judæus). — J. E. H. — J. M. — C. P. — J. T. — J. W. — H. E. — J. T. — O. B. — F. O. — Gen. B. N., Melbourne. — W. N. — J. N. — Editor of *The Gentlewoman*. — Rev. G. H. Engleheart. — M. M. — W. Coulmer. — Peas. — J. R. J. — G. A. B. — Dale, Reynolds, & Co. — E. M. — B. J. R. — F. R. — G. Roberts. — R. D. — A. D. — E. J. — Robert Veitch. — J. D. — E. O. — W. H. — Trinity College. — A. P. — Capt. Oliver. — J. J. W. — J. Carter & Co. — T. Wilkinson.

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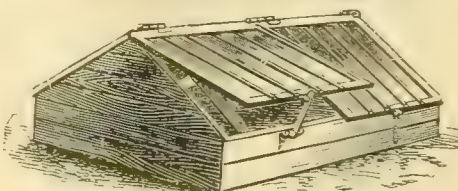
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THE JUBILEE YEAR OF THE GARDENERS' CHRONICLE.

THE *Gardeners' Chronicle* was founded, in 1841, by the late Dr. Lindley, Sir Joseph Paxton, and others. It proved a great success from the first, having then few competitors. As the exigencies of the time have required, it has been trebled in size, so far as horticultural matters are concerned. Illustrations which at one time were few, and given only at intervals, are now numerous and regularly issued. The price has been reduced one-half, and though there are now many competitors in the field, the *Gardeners' Chronicle* is generally recognised as the leading authority in all matters relating to Gardening, Garden Botany, Forestry, and the sciences connected therewith. What others think of it may be judged from the following from among many unsolicited expressions of opinion:—

EXTRACTS FROM THE PRESS.

"THE *Gardeners' Chronicle* has faithfully held to its promises. It is still, to-day, the best gardening journal, being indispensable equally to the practical gardener and the man of science, because each finds in it something useful. We wish the journal still further success."—*Garten Flora*, Berlin, January 15.

"The *Gardeners' Chronicle* celebrated, on Jan. 2, the fiftieth anniversary of its foundation. This is, in [English] garden literature, an unique event. . . . The publication is one of special excellence."—*Vossische Zeitung*, Berlin, January 7.

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"THE JUBILEE OF THE 'GARDENERS' CHRONICLE.'—On January 2, 1841, appeared the first number of a weekly paper which, thanks to the scientific research and practical knowledge of its editors, soon became, and has ever since remained, the principal horticultural medium in England."—*Illustration Horticole*, Brussels, Jan. 1891.

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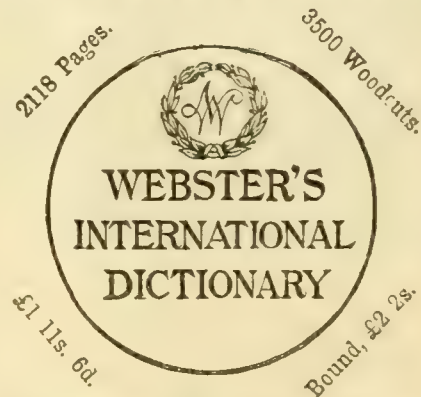
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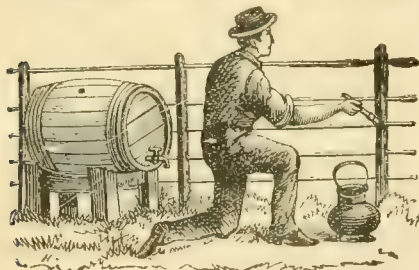
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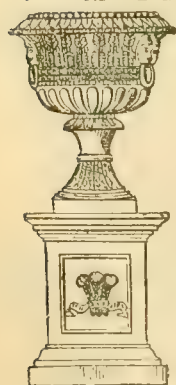
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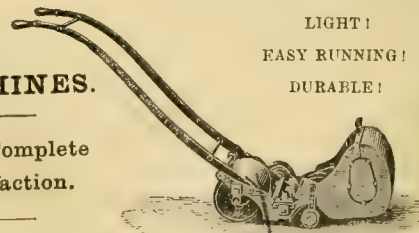
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BEGONIAS A SPECIALTY.—Awarded Four Gold Medals, and Gold Cup, and all First Prizes. Tubers, named singles, from 12s. to 42s. per dozen; unnamed seedlings, 12s. to 21s. per dozen; bedding, choicest, 6s. and 9s. per dozen; choicest named doubles, from 42s. per dozen; unnamed, very choicest, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Our Collection of Begonias is the largest, best, and most complete in the world. Catalogues gratis.

JOHN LAING AND SONS, Begonia Growers, &c., Forest Hill, London.

TO EXHIBITORS of POT ROSES.—A large COLLECTION of SPECIMEN PLANTS, of the best varieties, in 12, 14, and 15 inch pots. Giving up exhibiting. For LIST and prices apply to GARDENER, 19, Royal Crescent, Bath.

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the manufacturers.—CHADBORN and COLDWELL, M'Fg. Co., 223, Upper Thames Street, London, E.C. See large Advertisement for April 25, page 544.

SALES BY AUCTION.

Friday Next, May 29.

MESSRS. PROTHEROE AND MORRIS

have received instructions from Messrs. F. Sander & Co., of St. Albans, to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on MAY 29 (second day of the Great Temple Show), a choice collection of IMPORTED and ESTABLISHED ORCHIDS, including some of the most rare Orchids in cultivation.

Also New ONCIDIUMS, New CATTLEYAS, New EPI-
DENDRUMS, New DENDROBIUMS, New ANGRÆCUMS.

A SPECIAL IMPORTATION of CATTLEYA BOW-
RINGIANA, in fine order.

Many very fine varieties have flowered from our last im-
portation, and C. B. LILACINA, C. B. ATROPURPUREA,
C. B. OCULATA, &c., may be mentioned among them. We
can recommend this importation as being extra fine, every
plant possessing sound dormant eyes.

CATTLEYA MENDELII.

A fine importation, consisting of many large leafy speci-
mens. The plants offered are in fine order.

ODONTOGLOSSUM HASTILABRUM.

A grand importation, among which are some extraordinary-
looking masses, with old flower-spikes several feet long, and
showing the remains of great beauty.

ODONTOGLOSSUM WILLIAMSIANUM.

Supposed to be a natural hybrid between O. GRANDE and O.
SCHLEPERIANUM. "A very beautiful plant of noble pro-
portions" and exceedingly rare.

CYPRIPEDIUM MAYNARDII. (Award of Merit.)

C. PURPURATUM × C. SPICERIANUM. The flower has a
grand coppery appearance, with a dorsal sepal resembling C.
SPICERIANUM.

CYPRIPEDIUM EYERMANNIANUM. (Award of Merit.)

(C. SPICERIANUM × C. BARBATUM GRANDIFLORUM).
This hybrid is very distinct, and in it the character of C.
Spicerianum predominates, though a good deal of the colour-
ing is drawn from the barbatum parentage.

CYPRIPEDIUM POLLETTIANUM.

(C. calophyllum × C. canthum superbum.)
A beautiful rich dark crimson flower, heavily barred and
striped with dark lines. It is one of the darkest and most
distinct hybrids known.

DENDROBIUM STRATIOTIS.—RARE and BEAUTIFUL.

This superb species is now very scarce.

DENDROBIUM VENUS (Royal Horticultural Society's First-
class Certificate).

New Hybrid between D. FALCONERII and D. NOBILE.

DENDROBIUM CASSIOPE.

New Hybrid between D. NOBILE ALBUM and D. JAPONI-
CUM. The finest of its section.

NEW WHITE STANHOPEA.

A drawing will be on view at the Sale.

NEW ONCIDIUM SECTION of H. MATOCHILUM
(See DRAWING).

The flowers from the Drawing appear to be very distinct,
heavily blotched sepals and petals, and a bright purple or
violet lip.

LYCASTE SKINNERII, GRAND IMPORTATION.

Arrived in splendid order, large healthy clumps, with good
breaks.

DENDROBIUM DALHOUSIEANUM, IN FINE MASSES.
Imported in fine condition.

DENDROBIUM TORTILE.

SACCOLABIUM BLUMEI MAJUS, fine large pieces.

DENDROBIUM THYRSIFLORUM.

LUTEOLUM.

AERIDES LOBBII.

CRASSIFOLIUM.

ODONTOGLOSSUM CITROSUM.

DENDROBIUM INFUNDIBULUM.

ANGULOIA RUCKERII and SANGUINEA.

VANDA TERES, nice healthy plants, recently imported.

DENDROBIUM FYTCHAEANUM.

New ANGRÆCUMS, from Madagascar.

The rare and beautiful CŒLOGYNE SANDERÆ.

PHAIUS MANNII.

CALANTHE NATALENSIS.

CYPRIPEDIUM CAHUZAC, hybrid between (C. Spicerianum
and C. Haynaldianum).

SPATHOGLOTTIS BORNEENSIS, new and very fine.

PHAIUS COOKSONII, lovely hybrid between (P. tubercu-
losus and P. Wallichii).

CATTLEYA SPECIES, in the way of C. Hardiana.

RENANTHERA STOREYII, rare and distinct.

CATTLEYA LABIATA, from Northern BRAZIL.

This may be a form of C. labiata Gaskelliana. Plants are
So'd as received. See Native Drawing.

ONCIDIUM PAPILO MAJUS.

The best large-flowering variety from Panama.

EPIDENDRUM.

See Photograph and Drawing. Sepals and petals are olive-
green, labellum white with a crimson blotch in centre.

DENDROBIUM ATROVIOLEACEUM.

Also many good and choice Species comprising such plants as:
DENDROBIUM NOBILE COOKSONII" NOBILE ARNOLDIANUM, a variety with BLOTCHED
SEPALBULBOPHYLLUM MANDIBULARE, one of the largest
flowering-species

CATTLEYA SCHOFIELDIANA

CŒLOGYNE DAYANA

LÆLIA GRANDIS, TRUE, THE LARGEST FLOWERING
FORM

BATEMANIA BURTII, a very fine Orchid

MASDEVALLIA LAUCHEANA OCULATA

DENDROBIUM FELSCHERII, &c., &c.

ODONTOGLOSSUM CHIRIQWENSIS

LÆLIA PATINII ALBA—GUARANTEED TRUE

GOULDIANA

CYPRIPEDIUM LATHAMIANUM. Hybrid between C. Spicerianum and C. villosum.

CATTLEYA PERCIVALIANA ALBA—GUARANTEED TRUE.

On view morning of Sale, and Catalogues had.

Monday Next.

The Gardens, Harefield Grove, Uxbridge.
Two-and-a-half Miles from Rickmansworth and Northwood
Stations.

FIRST PORTION of the extensive collection of ESTABLISHED
ORCHIDS, STOVE, GREENHOUSE, and BEDDING
PLANTS, the Greenhouses being required for other
purposes.

MESSRS. PROTHEROE AND MORRIS are

favoured with instructions to SELL by AUCTION, on the
premises as above, on MONDAY NEXT, May 25, at half-past
11 o'clock, in consequence of the large number of lots,
the extensive collection of well-grown ESTABLISHED
ORCHIDS, including 250 Cypripedium insignie specimens,
half specimens, and smaller plants; 130 Cœlogyne cristata,
amongst them many fine plants; 300 Cattleya Mendelii and
others; 300 Odontoglossum Alexandræ, 210 Lælia anceps, and
many others; 200 Azalea indica, embracing several very fine
specimens. 290 CAMELLIAS ALBA PLENA, 1 to 10 ft. high,
the greater portion in 16, 24, 32, and 48-pots, and many of
them large plants; 250 KENTIA BELMOREANA, 400
LATANIAS, SEAFORTHIAS, and other PALMS in 48-pots.
DRACENAS, CYCLAMEN, 150 very choice AMARYLLIS,
5400 GERANIUMS of sorts, and many other plants.

May be viewed three days prior to the Sale. Catalogues
may be had of Mr. E. Bennett, on the premises, and of the
Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Tuesday Next.

ORCHIDS in FLOWER, and IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will

SELL by AUCTION, at their Rooms, 67 and 68,
Cheapside, London, E.C., on TUESDAY NEXT, May 26, at
half-past 12 o'clock, a large number of ORCHIDS in BLOOM,
from various collections, including LÆLIA PURPURATA,
CATTLEYAS, ODONTOGLOSSUMS, and many others; also
100 lots of IMPORTED DENDROBIUMS, and 40 lots of
VANDA CATHARTII, received direct for unreserved sale.

On view morning of Sale, and Catalogues had.

Wednesday Next.

PLANTS.

MESSRS. PROTHEROE AND MORRIS will

SELL by AUCTION, at their Rooms, 67 and 68,
Cheapside, E.C., on WEDNESDAY NEXT, May 27, at half-past
12 o'clock, PALMS and other PLANTS, STOVE and GREEN-
HOUSE FERNS, ASTERS, PANSIES, PINKS, BEDDING
PLANTS, a collection of COOL-HOUSE ORCHIDS, suitable
for Amateurs; TRELLIS WORK, &c.

On view morning of Sale, and Catalogues had.

Tuesday, June 2

The SECOND and REMAINING PORTION of the COLLECTION
of ESTABLISHED ORCHIDS formed by H. R. Mark,
Esq., of Beckenham.

MESSRS. PROTHEROE AND MORRIS are

instructed to SELL the above by AUCTION, at their
Rooms, on TUESDAY, June 2.

Further particulars will appear next week.

Blackheath Park.—Preliminary Notice.

The CELEBRATED GORDON HOUSE COLLECTION of
EXHIBITION STOVE and GREENHOUSE PLANTS, for
UNRESERVED SALE, by order of F. W. Prior, Esq., who
is giving up his residence. This collection is well known
at the principal metropolitan and provincial shows, where
the plants have been awarded numerous prizes, and only
this week two first-class prizes have been obtained at the
Aquarium show.

MESSRS. PROTHEROE AND MORRIS are

favoured with instructions to SELL by AUCTION, on the
premises, as above, in June next, this valuable and well-
known COLLECTION of EXHIBITION STOVE and GREEN-
HOUSE PLANTS, ORCHIDS, &c.

Fuller particulars will appear in due course.

Thursday, June 4, 1891.

ESTABLISHED ORCHIDS, chiefly in flower and bud.

MR. J. C. STEVENS begs to announce that

his NEXT SALE of ESTABLISHED ORCHIDS will
take place on THURSDAY, June 4, at half-past 12 o'clock
precisely, and he will be glad if Gentlemen desirous of
ENTERING PLANTS for THIS SALE will please send par-
ticulars for Catalogue not later than THURSDAY NEXT.

Auction Rooms & Offices, 38, King Street, Covent Garden, W.C.

Eltham, Kent.

FREEHOLD LAND, suitable for Building or Nursery Purposes.

MR. W. H. COLLIER is instructed by the

British Land Company (Limited) to SELL by AUCTION,
at the Royal Hotel, Eltham Station, on THURSDAY EVENING
NEXT, May 28, at 6 for 7 o'clock, 39 lots of eligible FREE-
HOLD LAND, free of title and land-tax, being a portion of
the Mottlingham Park Estate, comprising 35 Building Sites;
and, in 4 lots, about 5½ acres, admirably adapted for Nursery
or Building Purposes, having frontages to Mottlingham Lane,
the main road from Lee to Chislehurst, and the proposed new
road leading therefrom. Situate within a few minutes' walk
of Eltham Station on the South-Eastern Railway (Dartford
Loop Line). Payments by instalments, if desired. Free
conveyances.

Particulars, plans, and conditions of Sale, may be obtained
of the Auctioneer, 25, Moorgate Street, E.C.; and at the place
of Sale.

Freehold Building Sites, either for Horticultural
purposes, or for the erection of Villa residences, at
Twickenham.

MR. J. N. GOATLY is favoured with instructions

to SELL by AUCTION, at the "King's Head"
Hotel, Twickenham, on MONDAY, June 8, at 6 for 7 o'clock
in the evening, a very valuable enclosure of FREEHOLD
BUILDING LAND, situate in the Hampton Road, Twicken-
ham, between Arundel Villas and Box Cottage, and having a
frontage to the said road of about 70 feet, and a depth of
230 feet, and being the only freehold site on the main road
that is now available for building purposes. Also an enclosure
of COPYHOLD LAND, immediately in the rear and adjoining
the above, having a frontage to the Third Cross Road of
56 feet, and a depth of about 160 feet. The property is only
5 minutes' walk from Strawberry Hill Railway Station; which
has become a most popular and attractive neighbourhood.

May be viewed, and particulars and conditions of Sale
obtained at the place of Sale, and of the Auctioneer, Twicken-
ham, Middlesex.

Bloomfield, Bolton, Lancashire.

LOMAX SONS and MILLS have been in-
structed by the Executors of the late Mr. Wm. Marsden,
to SELL by AUCTION, at the above residence, on THURS-
DAY, June 11, 1891, the very valuable Collection of
CHOICE ORCHIDS, STOVE and GREENHOUSE PLANTS,
FERNS, &c.

Catalogues may be obtained eight days prior to Sale, on
application to the Auctioneers, 12, Norfolk Street, Manchester,
and 15, Wood Street, Bolton.

WANTED, PREMISES, Low Rental, for a

SEED, CORN, and FLORISTS' BUSINESS, with a
good opening for Trade; or, would PURCHASE a SMALL
BUSINESS, with Connection. A PARTNERSHIP not objected
to. Either must bear investigation.

SEEDS, Gardeners' Chronicle Office, 41, Wellington Street,
Strand, W.C.

WANTED TO RENT, small NURSERY

BUSINESS, with some Glass Erections, and 2 or
3 acres of Land.—Offers to E. T., Gardeners' Chronicle Office,
41, Wellington Street, Strand, W.C.

Rivers' Fruit Trees in Pots.

FOR SALE, by PRIVATE CONTRACT, at

Spencer House, Cobham, Surrey, a Choice Collection of
these Trees. Also an ORCHARD HOUSE, built on Rivers' in-
structions. Sold because of expiry of Lease. A very low price
will be taken for the lot.

Apply to THE GARDENER, upon the Premises.

TO BE SOLD, a NURSERY, with extensive

Glass, containing 13,711 square yards of Freehold Land;
situate near Liverpool, easy of access per rail; with
commodious Dwelling-house. For further particulars,
apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

To Florists, Fruiterers, and Others.

TO BE DISPOSED OF, a very high class

West End FLORISTS' and FRUITERER'S BUSINESS.—
Established over sixty years. The premises are situate in one
of the best business thoroughfares in the West End, with
stabling and entrance in the rear.

Particulars of Messrs. VAUGHAN AND CO., Southampton
Estate Office, Fitzroy Square, W.

NORTH LANCASHIRE.—To Let, on Lease,

Immediate Possession, practically new, old-fashioned,
substantial, commodious HOUSE; three Sitting-Rooms, seven
Bed-rooms, Stable, Coach-house, Loft, Cottage, good Garden,
small Glass-houses, Vinery in full bearing, and Field; near
Church, Station, and Post; Country, healthy and beautiful.
Might suit any person retiring from the trade. Opportunity
to Let Rooms.—Address, Homestead, Melling, Carnforth.

MARKET GARDEN and DAIRY.—For

IMMEDIATE DISPOSAL, 1½ Acres GARDEN, well
stocked; 14 Acres excellent PASTURE; Six COTTAGES, and
other suitable Buildings, low rented, under a Nobleman.
Established over fifty years; well placed in old residential
neighbourhood, which is largely expanding; close to rail.
Proprietor retiring, from delicate health. Goodwill, Horses,
Carts, Cows, Pigs, Poultry, and General Stock to be Sold as a
Going Concern. Price from £450 to £500. Perfectly genuine
business.

Principals (no Agents) may have full particulars on applica-
tion to A. ANDERSON, 9, Penmartin Road, Brockley Rise, S.E.

FOR SALE, at a very Low Price, a Double-

barrel Brass DEEP-WELL PUMP, and one of Tyler's
strong frame two crank Fly-wheel Pinion Gear, with Pipes,
Rods, and Stages complete, for well of 110 feet; never been
used. Also a 4-inch and 5-inch strong Copper MANURE
PUMP, 7 feet under Nozzle, Union for Hose, or Metal and Iron
Tripod Stand. Warranted. Apply to—

W. COLLINS, Plumber, Leatherhead.

TO LET.—A nice six-roomed COTTAGE, with

340 feet of Glass, planted with Vines, Tomatos, &c. With
about 1 acre of good productive Garden Ground. With stables
for two horses; piggeries, &c.

Apply, C. BRADFORD, 11, Susan's Road, Eastbourne.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from
Manufacturers; one, two, or three years' Credit without
Security. Purchasers have the choice of 100 Wholesale Houses.
Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received a large and splendid Importation of

ODONTOGLOSSUM ALEXANDRÆ,

the finest PACHO TYPE.

Also large and fine importations of the following and many
other ORCHIDS: Odontoglossum grande, O. pulchellum majus,
O. Cervantesi morada, Dendrobium Wardianum giganteum, D.
Bensoni majus, D. Brymerianum, D. chrysotoxum superbum,
D. nobile, D. densiflorum, Vanda teres, Cattleya bicolor, Lælia
Perrinii, L. superbiens, &c.

The Company are constantly receiving Importations from
various parts of the world, and they have an immense stock of
Established ORCHIDS. Descriptive LISTS, with full particu-
lars, post-free on application to the

Vineyard and Nurseries, Garston, near Liverpool.

FOR ORCHIDS, and GARDENERS
to Grow Them, apply to SANDER'S, St. Albans. The finest
stock of Orchids in the World. 30 minutes from St. Pancras.

W. ICETON begs to offer the following
Trade Offer.
PALMS:—
Strong ARECA LUTESCENS, in 60's, at 60s. per 100;
" COCOS WEDDELLIANA, in thumbs, at 32s. and 50s.;
" SEAFORTHIA ELEGANS, in thumbs, 20s. and 30s.;
" KENTIAS, BELMOREANA and FOSTERIANA, in
thumbs, 40s. and 75s.
SEEDLINGS in Stores, at 30s. per 100.
ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.
Extra fine PANDANUS VEITCHII, in all Sizes.
Putney Park Lane, S.W.

BARR'S SEEDS, for FLOWER and
KITCHEN GARDEN, now ready. Descriptive CATA-
LOGUE, full of useful information.
BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s.,
31s. 6d., 42s., 63s., and upwards.
BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d.,
5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.
GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and
RANUNCULI, &c., for spring planting.
DESCRIPTIVE CATALOGUE free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

STRAWBERRY SEASON.

TO GROWERS and DEALERS.—
The CLYDESDALE BOX COMPANY, 45, Montrose
Street, Glasgow, make a specialty of Manufacturing PUNNETS
and TRAYS specially adapted for Strawberries and other soft
Fruits. Illustrated PRICE LIST free by Post on application.
Sample Parcels, containing 4 dozen assorted Punnets and
Trays, sent Post-free for 3s. 2d., or 6 dozen Trays only,
assorted, 3s. 2d. The above Company are prepared to appoint
Agents to hold Stock in the principal districts.

OLYMPICUM.

As splendid as VERBASCUM OLYMPICUM and CAM-
PANULA PYRAMIDALIS are; few have ever seen their
noble spikes of flowers, 5 feet long, although they are hardy,
and will flourish and flower in any good soil; the latter, for
autumn decoration of the conservatory in pots, nothing excel-it.

CAMPANULA PYRAMIDALIS, 6s. per dozen.

VERBASCUM OLYMPICUM, 1s. each, 8s. per dozen.

H. CANNELL & SONS,
SWANLEY, KENT.

WHITE ROMAN HYACINTHS.

BENJAMIN RIMBAUD,

BULB GROWER,

Quartier du Temple, Toulon (Var), France
(The largest Bulb Grower in the South of France).

Offers—

EARLY WHITE ROMAN HYACINTHS.
PAPER-WHITE NARCISSUS GRANDIFLORA and other
NARCISSUS.

LILIUM CANDIDUM. FREESIA REFRACTA ALBA.
And all other Specialties of South of France.

Seeds and Plants of

CARNATIONS MARGARITE and other CARNATIONS.

PRICE LIST on application to the

LONDON AGENTS:—

Messrs. R. SILBERRAD & SON,
25, Savage Gardens, Crutched Friars, London, E.C.

FERNS! FERNS!! FERNS!!!— Trade
offer. Twenty most saleable sorts, 12s. per 100; Adiantum
cuneatum, for potting on large stuff in 2½ pots, 16s. per 100;
fine stuff in large 60's, 20s. per 100; in 48 pots, full of top, 50s.
per 100. Large Ferns, in 48's, 45s. per 100, in 50's. Packed
free. Cash with order.
J. SMITH, London Fern Nurseries, Loughboro' Junction, S.W.

Corporation of Stockton-on-Tees.

To CONTRACTORS and OTHERS.

THE PARK COMMITTEE invite **TENDERS**
for **WORKS** as per the following **CONTRACTS** in con-
nection with the **FORMING and LAYING OUT of a PUBLIC**
PARK containing an area of 39½ acres.

Contract No. 1, includes **EXCAVATING, EMBANKMENTS,**
DRAINAGE, ROAD-MAKING, PROMENADES, WALKS, &c.

Contract No. 2, includes **LODGES, BOUNDARY-WALLS,**

BAND STANDS, and OTHER BUILDINGS.

Contract No. 3, **PLANTING.**

Parties desirous of Tendering, may, on and after May 15,
inspect the Drawings, Specifications, Conditions of Contract,
and obtain other Particulars on application to Mr. K. F.
CAMPBELL, M.Inst.C.E., Borough Engineer, on payment
of £2 2s., which sum will be returned on receipt of a *bona fide*
Tender. Tenders, which must be on the prescribed Form, and
accompanied by a full and true Bill of Quantities with the
rates of charge and amount of each item, and total amount
upon which the Tenders are based, are to be delivered at the
Town Clerk's Office, addressed to the CHAIRMAN of the
PARKS COMMITTEE, sealed, and endorsed "Tender for
Public Park," not later than 10 A.M. on MONDAY, June 1.
No Tender will be considered which is not fully filled up, or is
detached from the Bill of Quantities.

The Committee do not bind themselves to accept the lowest
or any Tender. By Order,

MAT. B. DODDS, Town Clerk.
Town Clerk's Office, Stockton-on-Tees.

DANIELS' CHOICE STRAINS

OF
FLORISTS' FLOWER SEEDS,
For Present Sowing. Post-free at Prices quoted.

	Per Packet—s. d. s. d.
Auricula, Alpine, from our unrivalled collection, 1 0 & 2 6	
Calceolaria hybrida, choicest Tigred & Spotted, 1 6 & 2 6	
Carnation and Picotee, very choice for Stage	
Flowers; will produce 80 per cent. of fine	
double Blooms	1 6 & 2 6
" Choicest yellow-ground varieties	3 6
" Pure White, splendid	3 6
Cineraria hybrida, a grand strain, choicest	
mixed	1 6 & 2 6
" Choicest Double-Flowered, fine, 2 6 & 5 0	
Hollyhock, very fine, from named flowers ... 1 6 & 2 6	
Pansy, Daniels' Prize Blotched, magnificent ... 1 6 & 2 6	
Polyanthus, Finest Gold Laced, very choice ... 1 6 & 2 6	
Primrose, Brilliantly coloured hybrids, in splendid	
mixture	1 6 & 2 6
Primula, Daniels' superb Fringed—	
" The Bride, beautiful pure White, red-	
stemmed	2 6
" Crimson King, magnificent colour	1 6 & 2 6
" Coccinea Magnifica, brilliant scarlet, with	
beautiful sulphur yellow eye	2 6
" Choicest Red, White, or Mixed	1 6 & 2 6
" Fern-leaved, New Crimson Scarlet	1 6
" Choicest Mixed	1 6
" Double-flowered, very choice Mixed	2 6
Stock, Brompton, a collection of six Choice Vars. ... 1 6	
" Giant Scarlet	0 6 & 1 0
" Choicest Mixed	0 6 & 1 0
" Intermediate, East Lothian, brilliant scarlet ... 1 0	
" choicest mixed, 0 6 & 1 0	
Sweet William, Daniels' Auricula Eyed, splendid, 0 6 & 1 0	
Wallflower, Double German, six Choice Varieties ... 2 0	
" Choicest Mixed	0 6 & 1 0

Six 1/6 packets for 7/6; six 2/6 packets for 12/6.

DANIELS' BROS.,

ROYAL NORFOLK SEED ESTABLISHMENT,
NORWICH.

ESTABLISHED
OVER A CENTURY.
ALL KINDS OF
NURSERY STOCK.
SEEDS and BULBS
(HOME-GROWN and IMPORTED).
ALPINE AND HERBACEOUS PLANTS.
J. BACKHOUSE & SON,
YORK.
CHOICE INDOOR PLANTS.
PALMS, ORCHIDS, FERNS, &c.
IN GREAT VARIETY.
PARK, ROCKWORK, & ESTATE
PLANTING.
OVER 100 ACRES
OF NURSERY.

AGENCE GÉNÉRALE HORTICOLE, BELGE

De HERDT and STRECKER,

ANTWERP.

Branch House and Plant Houses, Ghent, 74, Rue de la Forge.
Plant Houses & Trial Grounds, Duzeld, Iez Schooten, Antwerp.
Cablegrams—STRECKER, Antwerp and Ghent.

Special Trade Offer.

ARECA LUTESCENS,

Splendid Seedlings for Potting—Very large size
(1½ YEAR).

PRICE, 12s. 6d. PER 100.

SAMPLES FREE ON APPLICATION.

EXHIBITIONS.

BRIGHTON HORTICULTURAL ASSOCIATION.

SUMMER SHOW, July 1 and 2.

APPLICATIONS for SPACES for EXHIBITING HORTI-
CULTURAL SUNDRIES, &c., on the Lawn or in the Rooms of
the Royal Pavilion, to be sent to the Secretary—

E. CARPENTER, 96, St. James Street.

NUNEATON FLORAL and HORTICUL- TURAL SOCIETY.

ANNUAL EXHIBITION in WEDDINGTON PARK.

On MONDAY, JULY 20, 1891.

PRIZES NEARLY ONE HUNDRED POUNDS.

Open Classes for ROSES, &c.

Schedules on application to

FRED E. RAINER, Secretary.

WILTS HORTICULTURAL SOCIETY.

SUMMER SHOW at Salisbury, on WEDNESDAY, August 12.
£150 offered in PRIZES.

Schedules may be had on application to

The Nurseries, Salisbury. W. H. WILLIAMS, Hon. Sec.

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ALEXANDER DICKSON & SONS

Respectfully beg to remind Rose Growers that, at Birmingham,
they were awarded the NATIONAL ROSE SOCIETY'S GOLD
MEDAL for their

NEW PEDIGREE ROSE, Margaret Dickson,
H.P., colour white with pale flesh centre. Awarded Gold
Medal and six First-class Certificates. Price, 10s. 6d. each.

NEW PEDIGREE ROSE, Marchioness of Duf-
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colour is a beautiful rosy-pink, suffused with yellow at
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Price, 10s. 6d. each.

These Novelties will be distributed early in June. All Orders
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GARDEN.

For whatever is wanted, mentioned or not in these columns,
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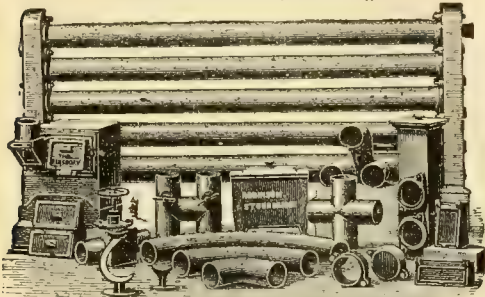
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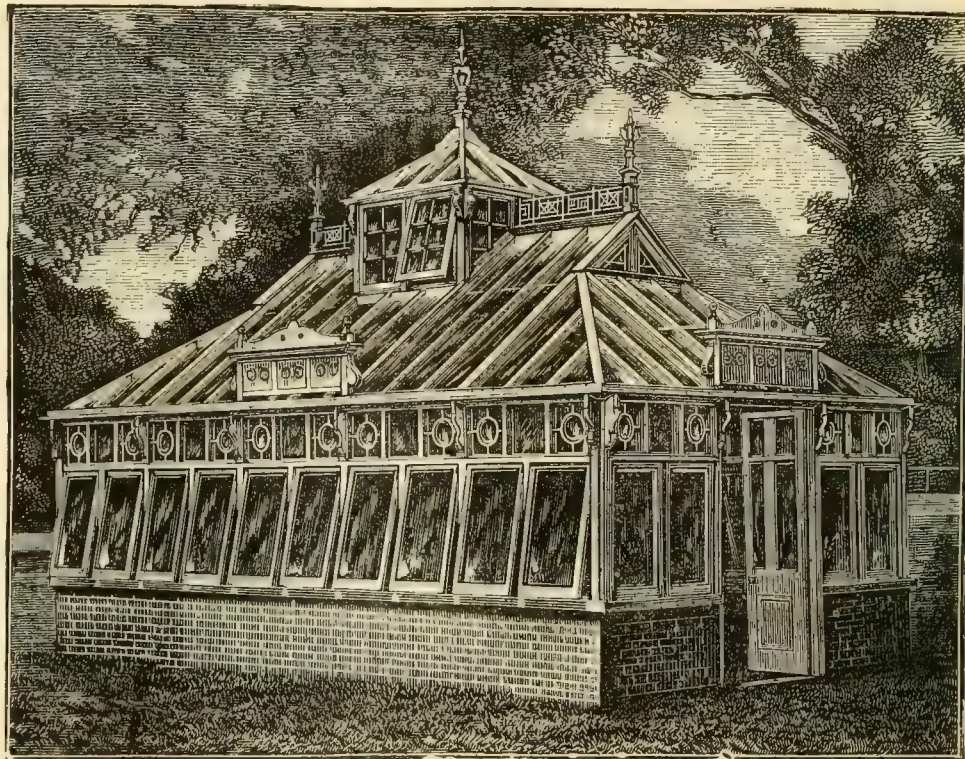


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For Destroying Weeds on Garden Walks, Carriage Drives, Roads, Stable Yards, &c., also for Killing Plantain on Lawns. Saves more than twice its cost in Labour. No Smell. Does not stain the Gravel.

One application will keep the Walks clear of Weeds for at least Eighteen months.

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Used in the proportion of one gallon to twenty-five gallons of water.

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It can be applied with an ordinary Powder Distributor, has no smell, and is harmless to the plants or fruit. Recommended by Mr. W. HILLS, Gardener to Viscount Gort, East Cowes Castle; Mr. W. CHILDS, Gardener to the Rev. W. WILKS, Secretary to the Royal Horticultural Society; Mr. CHAS. ROSS, Welford Park Gardens, Newbury, and others.

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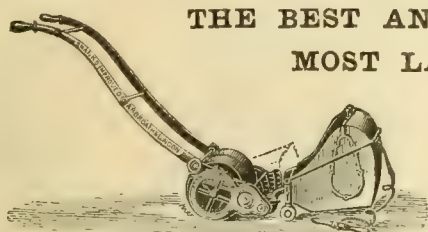
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WEED KILLER

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Destroys all weeds on Garden Walks, &c., &c.
Improves the colour of the Gravel—has no smell.
Saves many times its cost in labour alone. One
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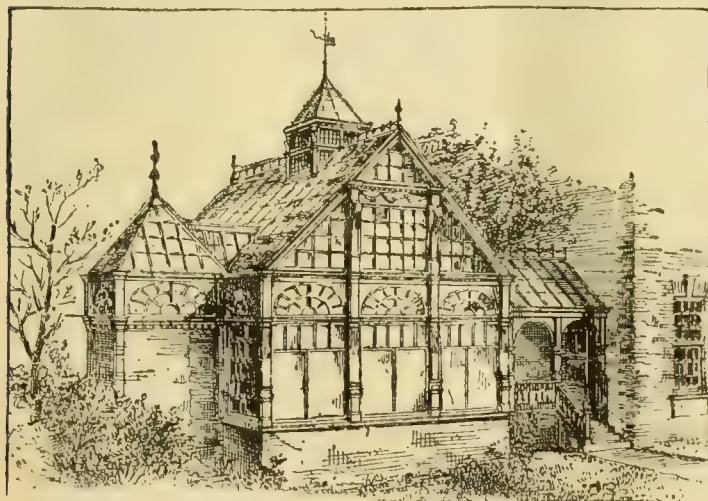
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Is Guaranteed to effectually Destroy all Moss on
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is sufficient to do 110 square yards. Can be applied
with an ordinary watering-can. Saves many times
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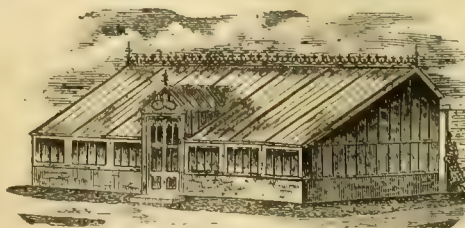
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It promotes a rapid, healthy, and robust growth
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The highly fertilising properties of this Manure
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The total destruction of
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is thoroughly secured with-
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CANNOT fail where the
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PRICES—For Frames,
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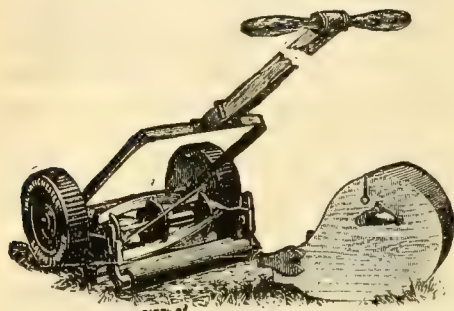
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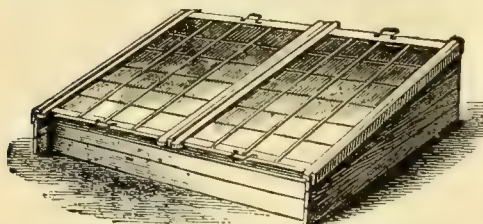
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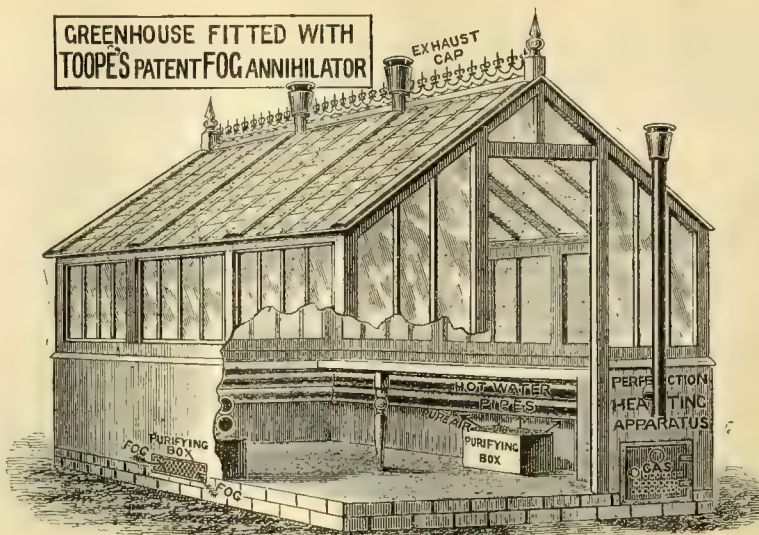
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1-light,	4 ft. by 6 ft..	CASH	{	2	0	0
2 "	8 ft. by 6 ft..			3	0	0
3 "	12 ft. by 6 ft..	PRICES,	{	4	2	6
4 "	16 ft. by 6 ft..			5	5	0
5 "	20 ft. by 6 ft..	CARRIAGE	{	6	7	6
6 "	24 ft. by 6 ft..			7	10	0
		PAID.				

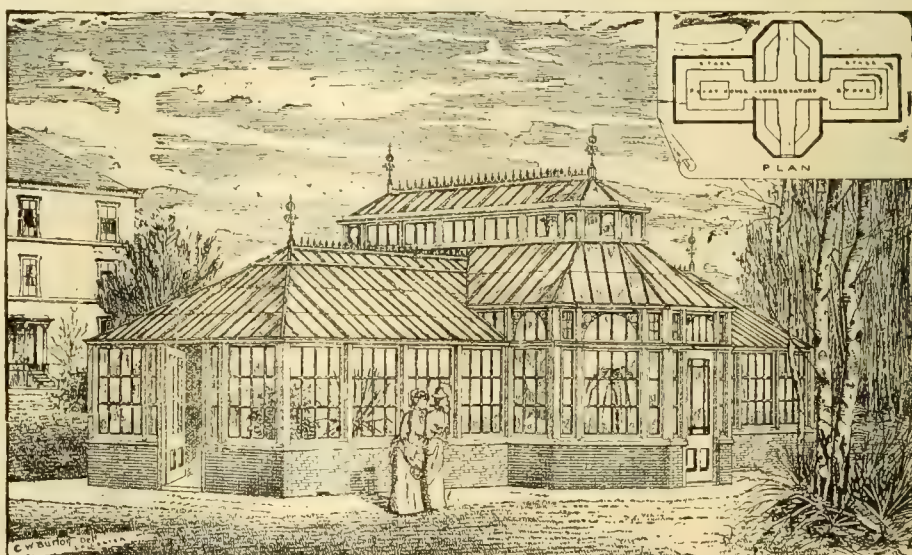
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THE NEW CONTINENTAL ROSES for 1891.
A selection of the best varieties. 30s. per dozen.

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Crimson Globe (Moss), First-class Certificate.
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Plants now Ready, 3s. 6d. each.

Danmark (H.P.), raised by Messrs. Zeiner-Lassen & Dithmer, introduced by Wm. Paul & Son. Two First-class Certificates and an Award of Merit. Quite first-rate. 2s. 6d. each.

All other NEW ROSES of 1890 at Current Prices.

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A large Stock of the Leading Older Varieties, in pots, suitable for present planting, 10s. 6d. to 15s. per dozen; extra strong, in 8-inch pots, 24s. to 30s. per dozen.

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4s. per dozen, 28s. per 100; 6s. per dozen, 44s. per 100; 8s. per dozen, 60s. per 100; 12s. per dozen, 90s. per 100; 16s. per dozen, 120s. per 100; 24s. per dozen, 180s. per 100.

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Ours is the finest, most complete, and best kept collection in the world. Our lovely Cactus-shaped varieties are unapproached. Send for a CATALOGUE.

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Conservatories, Plant Houses, Vineries, &c.

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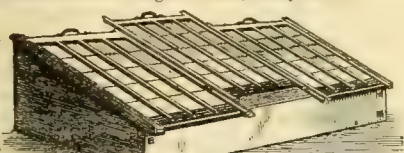
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ILLUSTRATED LISTS of 20 Varieties,
OUR OWN INVENTIONS, Post Free.

Made of best red wood Deal, malleable iron hinges,
PAINTED three coats of best oil colour.
GLAZED with 21-oz. English Glass, ready for use.

No. 100.—
MELON
and
CUCUM-
BER
FRAMES.

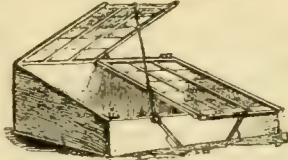


These Frames are made of well-seasoned red wood Deal, with our improved corners. Height, at back, 2 ft.; at front, 13 ins. The lights are 2 ins. thick, with iron cross-bar and handle.

2 Light Frame, 6 ft. x 4 ft. ...	Notice the	£2 0 0
2 " " 8 ft. x 5 ft. ...	useful sizes we	2 15 0
2 " " 8 ft. x 6 ft. ...	Stock.	3 0 0
3 " " 12 ft. x 6 ft. ...	Cash Prices,	4 4 0
4 " " 16 ft. x 6 ft. ...	Packed and	5 8 0
5 " " 20 ft. x 6 ft. ...	Carriage Paid.	6 12 0

No. 101.—
The COTTAGE
GARDEN
FRAME.

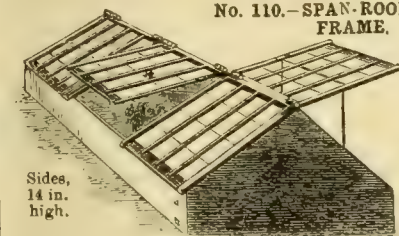
Front,
11 in. high;
back,
22 in. high.



Packed
and
Carriage
Paid
for Cash
with
order.

4 ft. x 3 ft. ...	£1 2 6	With hinged	£1 7 6
6 ft. x 4 ft. ...	1 15 0	lights, prop.	2 2 6
9 ft. x 4 ft. ...	2 7 6	and set-ops	2 17 6
4 ft. x 4 ft. ...	1 7 6	as shown.	1 12 6
8 ft. x 4 ft. ...	2 6 0		2 10 0
12 ft. x 4 ft. ...	3 0 0		3 10 0

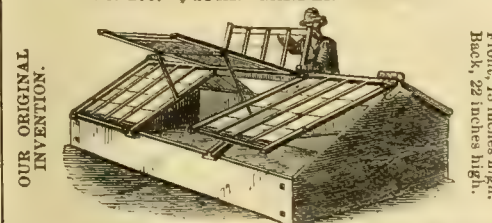
No. 110.—SPAN-ROOF GARDEN
FRAME.



5 ft. frame
ridge
2 ft. 6 in.
6 ft. frame,
ridge
2 ft. 9 in.

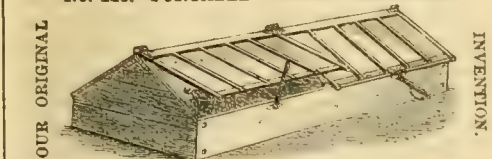
2 Light Frame, 5 ft. x 5 ft. ...	Cash prices,	£2 15 0
4 " " 10 ft. x 5 ft. ...	Packed,	4 7 6
4 " " 10 ft. x 6 ft. ...	and	5 0 0
6 " " 15 ft. x 6 ft. ...	Carriage	7 0 0
8 " " 20 ft. x 6 ft. ...	Paid.	9 0 0

No. 105.—SPAN GARDEN FRAME.



2 Light Frame, 5 ft. x 5 ft. ...	...	£2 15 0
4 " " 10 ft. x 5 ft. ...	...	4 7 6
4 " " 10 ft. x 6 ft. ...	...	5 0 0
6 " " 15 ft. x 6 ft. ...	...	7 0 0
8 " " 20 ft. x 6 ft. ...	...	9 0 0

No. 113.—PORTABLE PLANT PRESERVER.



6 ft. long x 3 ft. ...	£3 0 0	9 ft. long x 5 ft. ...	£3 17 6
6 ft. " x 4 ft. ...	2 7 6	12 ft. " x 3 ft. ...	3 3 0
6 ft. " x 5 ft. ...	2 15 0	12 ft. " x 4 ft. ...	4 0 0
9 ft. " x 3 ft. ...	3 0 0	12 ft. " x 5 ft. ...	4 15 0
9 ft. " x 4 ft. ...	3 10 0	12 ft. " x 6 ft. ...	5 10 0

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TO THE

GARDENERS' CHRONICLE

For May 30, will be Published a Double-page
Ink-Photograph of

A GROUP OF ORCHIDS,
from a Sketch

By W. H. FITCH, Esq., F.L.S.



THE

Gardeners' Chronicle.

SATURDAY, MAY 23, 1891.

CASTLEWELLAN.

THIS, the seat of the Earl of Annesley, is situated on the slope of a wooded mountain, which rises to a height of about 1000 feet over the sea-level; and from the terrace on which the castle is placed, facing due south, there is a magnificent view of the range of the Mourne Mountains, rising straight up from the sea-shore; Slieve Donard, the chief of them, being 3000 feet high (see fig. 125, p. 647). In the foreground is a lake, a mile long, embosomed in wooded hills, while the distance is filled in by the blue waters of the Channel. I have seen many fine places, but I do not think I ever saw a nobler and at the same time a more beautiful view than this. My chief object, however, was to visit the garden with its collection of exotic plants and Conifers; this is situated on the sheltered side of the hill, about 200 yards from the castle, and is surrounded by old Beech trees and Limes; it is about 12 acres, the most part of it devoted to specimen Conifers, and plants, and flowering shrubs from every quarter of the globe. His Lordship is an enthusiastic lover of trees and rare plants, and no expense or exertion has been spared to obtain them and to grow them in the best possible manner. As it would be difficult to mention in this notice all the fine and rare things here, I must note only a few of the most prominent either for their size or rarity. To begin with the Conifers, Abies Albertiana, planted twelve years ago, is 30 feet high, a most graceful tree with slender pendulous branches. Many Thuopsis dolabrata of about the same age are splendid plants, solid cones of verdure; I measured one 19 feet high, with a circumference of 41 feet.

At the top of a flight of granite steps is a pair of Biota elegantissima, 9 feet high. The different varieties of yellow and variegated Coniferae are extensively planted in suitable positions through the grounds, their bright cheerful colour being very telling, especially during the winter months, contrasting with the large masses of Portugal Laurel, Rhododendrons, and Bays. Retinospora pisifera in its varieties is largely planted, and R. p. plumosa aurea is in great quantity, several of them 10 feet high and the foliage 34 feet round. By judicious pruning, they appear solid masses of golden colour

R. p. argentea has light-green foliage with a silvery shade. *R. p. obtusa nana aurea*, of a deep golden-yellow, is the brightest of the *Retinosporas*. *R. p. filifera*, 12 feet high, distinguished by its thread-like pendulous branches. *R. p. filifera aurea*, a new golden variety, *R. pisifera albo spica*, spotted with creamy-white, giving the plant a speckled appearance. *Cupressus Lawsonii lutea*, many plants 10 feet high, contrast well with the prevailing dark-green of the older *Coniferae*. Another very fine variety, *C. gracilis aurea*, of a deeper golden colour, is a very free grower; it was raised by Mr. Davis, of the Hillsborough Nurseries, is 9 feet high, and 19 feet round. *C. L. erecta viridis*, 18 feet high, is valuable for its vivid green colour.

Libocedrus chilensis, 11 feet 6 inches high, and 21 feet round, in many places not hardy, is here a well-grown and handsome tree, very distinct with its glaucous-green appressed branchlets. *Cryptomeria elegans* is here by the hundred, and of large size, one I measured was 16 feet high, and 62 feet round. When freely used in masses, as it is here, the dark bronzy foliage in winter gives quite a character to the landscape. A fine contrast with it are *Pittosporum Mayii* and *eugenioides*, fast-growing New Zealand shrubs, of whitish-green tint; the former thrives well here, a specimen planted in a sheltered spot having grown 11 feet high, with a circumference of 32 feet, in seven years. From its rapid growth and perfect hardiness, added to its unusual colour, Mr. Ryan considers this one of the most valuable things we have; in the spring it is a mass of sweet-smelling flowers, very attractive to bees. Other varieties were *P. Tobira*, *P. t. variegata*, *P. Colensoi*, *P. erioloma*, *P. floribundum*, *P. lucidum*, *P. nigrescens*, and *P. undulatum*. A very distinct shrub is *Podocarpus andina*, with its slender dark green branchlets. A specimen in beautiful health here was 10 feet high, and 23 feet in circumference. Another fine thing is the Japanese *Thuia Standishii*, 12 feet high, and 28 feet round, having yellowish-green foliage. The Junipers are well represented, a grand tree of the Nepalese *J. recurva*, growing in a moist sheltered bottom, I found to be 28 feet high and 90 round; *J. virginiana glauca*; *J. chinensis albo variegata*; *J. japonica aureo variegata*; *J. chinensis aurea* (to my mind the best of them all) are some of the many varieties. Of the older *Conifers* there are some fine specimens—*Wellingtonias*, 68 feet high, with a girth of 18 feet at 3 feet from the ground. A very good variegated *Wellingtonia*, 18 feet high, 64 feet round; this is often rather unsatisfactory, but here it does well. *Cupressus Lawsoniana*, 45 feet high and 65 feet round, a beautifully perfect cone; *C. macrocarpa*, 69 feet high and 96 feet round. *Cedrus deodara* thrives when in shelter, the largest is 47 feet high, and 104 feet round; *Araucaria*, 42 feet high, and 70 feet round; *Abies grandis*, 42 feet high, and 100 feet round; *Cryptomeria japonica*, 46 feet by 100 feet round; *Abies magnifica*, 27 feet; *A. Alcoquiiana*, 20 feet high; *A. brachyphylla*, height, 14 feet, circumference 42 feet; *A. Hookeriana*, 18 feet high; *A. concolor violacea*, *Picea pungens glauca*, *Abies Veitchii*, *Picea polita*, *A. bracteata*, *A. numidica*, are of later introduction; but *nobilis*, *lasiocarpa*, *Nordmanniana*, *Webbiana*, *Pinsapo*, and *Morinda* are here in quantity, and of large size. *Thuja gigantea* is largely planted. Two very distinct Pines are *P. aristata*, the leaves covered with a white resinous exudation, giving the tree an appearance as if sprinkled with flour, and *P. sylvestris aurea*, changing to a clear golden yellow in the winter, while quite

green in summer. Among other interesting things, I noticed *Athrotaxis selaginoides*, a deep-green loose-growing Tasmanian shrub, 10 feet high; *Pseudo Larix Kämpferi*, the golden Chinese Larch, a very old tree, of low-spreading habit; *Torreya myristica*, *Cephalotaxus Fortunei*, *Salisburia adiantifolia*, *Saxe-Gothæa conspicua*, *Prumnopitys elegans*, *Fitzroya patagonica*, *Dacrydium Franklini*, *Sciadopitys verticillata*, 10 feet high; *Sequoia sempervirens albo spica*, the white variegation very clear and good—a new variety from Veitch.

Deciduous and evergreen flowering shrubs receive the same care and attention as the *Coniferae*; *Desfontainea spinosa* are growing by the hundred, and there are some fine bushes of this beautiful Chilean Holly-like plant; one was 8 feet high, and 30 feet in circumference. *Olearia Haastii* is another good autumn flowerer, from New Zealand, and which has been planted in quantity—one was 5 feet 6 in. high, and 24 feet round. *Rhododendrons* seem to grow luxuriantly in this soil and climate, a singularly fine *R. arboreum* was 25 feet high and 98 feet round—one of the best grown plants I ever saw, and clothed to the ground with rich healthy foliage. A little further on, there is a huge *R. ponticum*, 20 feet high, and 330 feet round; this is believed to be the largest in the kingdom. *Veronica Traversi*, planted in 1884, is now 7 feet high and 34 feet round; *Hakea crassifolia*, 9 feet high; *Dracæna australis*, 14 feet; *Osmanthus aureo-variegata*, a lovely bush, 6 feet high and 28 feet round. The Japanese Maples are grown by the hundred, chiefly *Acer polymorphum atropurpureum* and *A. dissectum*, the leaves of which are scarlet in the fall.

I was much struck with the luxuriant health of all the things—there was hardly a badly-grown plant in the garden; and, as there are about 900 distinct varieties of trees and shrubs grown here, that is saying a great deal. Mr. Ryan, the intelligent head gardener, who showed me round, has evidently his whole heart in his work. The glasshouses are on a large scale, there being nineteen altogether. In the vine-tries, only Muscat and Black Hamburg are grown. Five houses are devoted to Orchids, stove, and foliage plants. There is a conservatory, a Melon-house, a rosery for Tea Roses, which is flowered in February; a Peach and Nectarine house, 136 feet long; a *Gardenia*-house, a lean-to, with a north aspect, filled with cuttings of the new trees and shrubs; also a span-roof for forcing hybrid *Rhododendrons*, which are grown largely, about 1000 *Ponticum* stocks being taken up from the woods each year, and grafted with the best garden varieties. By gentle forcing they flower in February, and fill the winter garden with colours when other flowers are scarce. There is also a house full of Azaleas, which follow the *Rhododendrons* in March and April, and an orchard-house with standard Nectarines planted out down the centre. I was surprised to see *Ficus repens* completely covering a wall 14 feet high, and not at all touched by the late frosts. Close by is *Tecoma jasminoides* on a wall, also *Mitraria coccinea*, *Trachelospermum jasminoides* and *T. variegatum*, and a fine *Aster argophyllus*, the Musk plant. Quite new to me were *Lomatia pinnatifolia*, *Eurybia erubescens*, of a brilliant light green tint, and *Eupomatia laurina*, from Australia. *Crinodendron Hookerianum* from Chili; *Meliosma pungens*; and *Thuiopsis borealis lutea*—only sent out this season, I believe. In the upper garden are some fine Yew hedges closely clipped—others of the Florence Court Yew, of *Fuchsia*, of *Laurustinus*, and one of *Cydonia japonica*, which when in bloom must be very effec-

tive. In the winter garden which adjoins the Castle, I found a blaze of colour, *Crocus*, *Hyalcinths*, *Amaryllis*, *Eucharis amazonica*, *Daffodils* in hundreds, hybrid *Rhododendrons*, and some early-flowering Azaleas. A very large *Rhododendron arboreum* growing in this part is figured on p. 641. Large Orange trees and Camellias are planted out on a raised bank of soil, which is kept in its place by huge rough boulders covered with Ivy and *Ficus repens*, with a very natural and pleasing effect. Many fine *Kentias* and other Palms and Bamboos give quite a tropical appearance. A splendid plant of the new Giant Bambusa, from Sikkim, named *Dendrocalamus sikkimensis* (see *Gardeners' Chronicle*, fig. 130, p. 793, June 28, 1890), is at the end of the garden; it is already about 15 feet high, and must soon outgrow the house. I will conclude these notes by saying that anyone who is fond of a garden will find an immense number of things to interest him in this beautiful place. B.

NEW OR NOTEWORTHY PLANTS.

VIOLET MDLLE. BERTHA BARRON.

THIS is a lovely new Violet of a fine vigorous constitution, very sweet-scented, and of a rich indigo-blue. It is a variety that requires and deserves protection during winter in frames, nothing more being needed in that way than to keep the frost from it, and then in April it will produce an immense quantity of flowers. After the experience of the past winter, one certainly comes to the conclusion that all double Violets, and some of the single, require the protection of glass during winter, and it is cheap enough, and need not be begrudged. Any rough-and-ready plan answers the purpose, provided the lights are sound. *J. Rust, Eridge Castle.*

CATTLEYA MENDELI, MACFARLANE'S VARIETY, *n. var.*

Flowering with R. B. White, Esq., at Garelochhead, N.B., among the superb collection of *Cattleya Mendeli* are three very beautiful forms, which commence a new section of this favourite *Cattleya*. Their general appearance will be well suggested by saying that these three new forms take among *Mendelis* the same position as *C. Trianae delicata* (also known as *C. Warszewiczii delicata*), does among *Trianas*; that is to say, that the dark crimson colour found in greater or less degree in all of the old strain of *C. Mendeli* is almost entirely absent, and a flower of a lovely and uniformly delicate hue results. I think that many, especially ladies, would prefer these chaste flowers to the more gorgeously tinted, while for the purpose of forming a collection of dissimilar kinds, their value can scarcely be overrated.

C. M., Macfarlane's var., has flowers of good shape, sepals and petals very pale lilac, lip pure white, with a distinct orange throat, and some reddish lines at the base. The crimped front lobe of the lip is white, with a narrow lilac margin which deepens somewhat towards the middle. It is named in compliment to Mr. J. L. Macfarlane, the celebrated Orchid portrait painter.

C. Mendeli delicata.—This is an exquisitely pretty variety, with white flowers, the only colour being an almost imperceptible pearly blush over the sepals and petals, and a slight pale mauve-marbling in the centre of the lip, the colour being continued up to the base of the lip from which white veinings extend outward. The lip has no yellow, or not sufficient to catch the eye, and its beauty is enhanced by a half-inch-wide white margin wonderfully crimped and folded.

C. Mendeli Perfection, the third of the new series, has very broad petals which are white, obscurely tinged and veined towards the edges and tips with rosy lilac, the sepals also are white with pale lilac margins, the fringed lip white with yellow in the throat and a marbling of bright mauve in the centre.

C. Mendeli, Rajah.—This is one of the most cherished of the Arddarroch pets. It has flowers of great size and perfect form. Sepals and petals white, lip white up to the expanded and frilled front lobe, which is rich purplish-crimson, paler towards the edges, which have very attractive white veinings.

C. Mendeli, Dumbarton, is one of the richest-coloured, and approaching closely to that known as Prince of Wales; the front of the lip is of a glowing purple, with bright-yellow in the throat, which also has some crimson markings. *J. O'Brien.*

has fairly begun—say about the middle of April, if required for early-flowering; but if they are not required to flower before February, June is not too late, provided the cuttings do not become drawn before they are taken. They should be taken with a heel of old wood, and all decaying leaves and leaf-stalks, and those leaves which are just commencing to turn yellow, should be cut off without injuring them. The soil I have found to suit them best is one consisting of one-third leaf-mould and two-thirds sandy loam, with about one-sixth of the whole of

good deal of attention; but whichever mode is chosen, some 4 inches of sawdust or old tan [or roughly-sifted leaf-mould] will be required as a material in which to plunge the pots. It is not advisable to make use of cocoa-nut fibre refuse for this or any other purpose connected with the cultivation of double Primulas, as I believe that it encourages weevils, the larvæ of which burrow into the stems of the plants, causing their death about the time they should be coming into flower. Many have failed in propagating these plants through



FIG. 124.—RHODODENDRON ARBOREUM AT CASTIEWELLAN. (SEE P. 640.)

DOUBLE PRIMULAS.

NOTWITHSTANDING all that is said in favour of single Primulas, the double kinds prove the most useful with us, they having the advantage of flowering in winter without being forced into flower in heat, and they afford a succession of flowers for three or four months, the flowers lasting well when cut, and, as well as the plants, are useful for a variety of purposes. They are easily grown from cuttings, if these are taken soon after flowering, when growth

sharp sand, and a similar quantity of burnt earth, if that be obtainable; if the loam is heavy, some peat, or a larger proportion of leaf-soil should be added, stiff soil not suiting them in the winter months, although they will grow satisfactorily in it in the summer. One cutting should be placed in each pot, small 60's, which should be surfaced with silver sand, and a stick afforded each as a support for the foliage, which sprawls about if not made secure with a tie or two. The best place to root them is a case with a bottom heat of 70° to 75°, or an ordinary hot-bed frame, the latter requiring a

treating them as ordinary soft-wooded cuttings, and sometimes the whole stock is lost because they are kept too closely shut up when striking. They are by no means miffy plants, but will not succeed in a close atmosphere at any time, and especially in the cutting state; the cuttings should therefore be watered and allowed to partially dry before being shut up in the case or frame, and the latter should not be shut up closely until the lapse of three or four hours, or when the cuttings begin to flag. Flagging will depend, to some extent, on the kind of frame used for the purpose; but if an ordinary propagating case

be placed inside a suitable warm house, the lights may be left off the cuttings after the house is closed for the night, and a chink should be open in the case at all times. Shading must be used to screen the cuttings from direct sunlight, and it should be dispensed with as soon as possible after rooting takes place, and full light afforded, or at least as much of it as they will bear.

In watering, use a very small water-can, and on no account wet the leaves or the heart of the cutting, or decay will set in, which it is impossible to arrest. Another method of propagation that I have sometimes practised, is to heap sandy soil round about the stems of the mother plants after clearing off decaying leaves, pegging the shoots into it, and keeping the plants in a cool pit a little closer than before, until the layers form roots. The mass is then taken to pieces, and the rotted layers potted off singly. It is a method which takes longer time than cuttings in the ordinary manner, and the plants are not so good; but although it is a slower process, it is sure, and one that everyone may carry out.

To revert to the cuttings. These, if tended with care, will strike in from four to six weeks; and as soon as they are fairly rooted, and inured by ventilation to a more airy place, they may be potted into 48's, using the same sort of soil as before, and put into a cold pit or frame on a layer of coal-ashes. The aspect of the frame should be north, and air should be abundantly afforded; but the plants do best if the pots are plunged, thus keeping the roots in a cool moist medium. The sun may shine on the frame in the early morning, and late in the afternoon, from one to two hours, as this tends to give firmness to the leaves and compactness of growth, rendering the plants better able to withstand the vicissitudes of winter. Liquid manure may be afforded occasionally, after the pots are well filled with roots, with good effect. For this purpose I prefer the drainings from a cow-yard, or that made by soaking deer's or sheep's droppings and soot—the latter about one-sixteenth of the whole—in a tub of water, drawing it off when clear, and using it diluted with clear water.

If large plants are required, repotting must be followed up as often as the plants fill the pots with roots, until the middle of the month of September; but for general purposes, it will be found that plants in 32's and 48's are the most useful sizes. The plants should be removed to drier quarters than the pit or frame before there is any danger to apprehend from frost; and it is not good practice to let the temperature go lower than 45°, but damp is their greatest foe, and they will not be seriously hurt if the temperature should sink to 32° for a few hours only, provided the leaves are dry, and the plants not exposed to the outer air.

To flower these Primulas in the best manner, they should have, during the depth of winter, a light position close to the glass, and a temperature of 45° to 50°, but, February past, they require partial shade from direct sunshine in the warmer parts of the day, too much sunshine causing the foliage to flag greatly, weakening the health of the plants, and impairing the size of the flowers. The old Double White, or alba-plena, is the variety that is of most use in decorative gardening. Candidissima is preferred by some, as the flowers are larger, but with me these do not come to so pure a white. Besides the above, I grow the so-called Burghley varieties—Lord Beaconsfield, a bright pink, and Marchioness of Exeter, large white, sometimes slightly striped, and very double—at one time this sported into several other varieties, White Lady, Princess, Mrs. A. F. Barron, &c., but all of these revert quickly to the original type. Other good varieties that one sometimes meets with are Mrs. Eyre Crabbe, Blushing Beauty, and Princess of Wales, all white-ground flowers, more or less marked with a pink colour; and among red or purple selfs are rubra grandiflora, purpurea erecta, Emperor, atro-rosea, King of Purples, magnifica, and carminata plena, all of them worth growing; but, as a general rule, none of them are so free to flower, or easily grown,

as the "old double white," although being much more showy, they are better adapted as cut flowers for some purposes, and especially when the flowers are wired and mounted. *W. H. Divers, Ketton Hall Gardens, Stamford.*

SOME DISTINCT VIOLAS.

In gardens where the massing of colours is preferred, the following kinds of Violas will prove useful. Already the autumn-planted Violas are making a fine display, and ahead of all the rest is Bullion, whose golden-yellow flowers are produced in such abundance as almost to hide the compact cushions of its leaves, and erect—not like some, dropping to the ground. This has no equal of its colour for freedom to flower, and it is nearly as early as True Blue, another perfectly dwarf, free-flowering variety, of a blue colour. Mrs. Charles Turner is another fine thing—dwarf compact, free, with good flowers, that are of a rich purple; an excellent bedder, and hardy. For an early and large-flowering Viola, white Champion should be named—very free and vigorous; next to this comes Countess of Hopton, an excellent variety in every respect; Mrs. G. Smith, and Snowflake, the latter two with white flowers, but which lack the substance of those first named. Viola Dawn of Day has beautifully netted bluish-mauve flowers, with white ground; and Crimson Gem has flowers in accordance with its name, very decided in tint, and of great merit. These Violas cannot fail to satisfy those who like masses of flowers, and they are specially suited for furnishing beds that have been occupied with Dutch bulbs, or forming a carpet to other plants to be raised much later in the season. *J.*

PRIMULA SIEBOLDI.

THE fine display of these beautiful Japanese deciduous Primulas, by Messrs. Ryder & Son, Manchester, at a recent meeting of the Royal Horticultural Society, when the group deservedly gained the distinction of a Silver Banksian Medal, induces me to place on record the system of culture pursued by the firm to attain such satisfactory results.

Soil.—The most suitable is such as a Pelargonium succeeds in. Leaf-mould may be wisely used.

In Garden.—Being perfectly hardy, these plants may be planted and succeed admirably in any garden. Fork up ground, and manure. Just cover the plant with soil. A situation enjoying sunshine half the day is best.

In Greenhouse.—These flowers succeed best of all as cool greenhouse or frame plants; they can be grown to the highest perfection without any artificial heat whatever. The plants, which are usually purchased during winter and spring, should be potted on arrival into pots 4 inches in diameter, and placed in a cold frame. Abundance of air must be allowed and not much water. During February they will push up leaves, and at end of March flower-buds will appear. If early bloom is desired, they may be lifted carefully into a greenhouse early in March, but must never be put into much warmth until the leaves are formed. The pots may be plunged outside in open air, and covered 1 inch deep with cocoa-nut fibre, straw, or leaves, and lifted into an ordinary greenhouse from the first week in March onward, that is, if no cold frame is at liberty. It is a good plan to have the whole stock in a cold frame, and bring the plants into the greenhouse in batches, from early in March until the end of May; a continuous display and supply of cut flowers for ten or twelve weeks will result.

When in the greenhouse, the plants merely require watering like any Pelargonium. The important time is when the blooming season is over, because then the plants shoot out underneath the soil, forming crowns for the next year's blooming. All that is necessary is, that for several weeks the plants be well attended to in the matter of water, and be

placed, if possible in a cold frame. In July, they may be planted outside in the full sunshine, plunged to the rims of the pots in soil, and never allowed to go dry. There they may remain until Christmas, when they should be divided. The large plump crowns will all bloom, and may be potted two or three in a 4-inch pot. Larger pots may be made up if desired. The smaller crowns may be put four in a 48-pot, and grown either for the bloom they may produce, or for service another year. For exhibition purposes, Messrs. Ryder put single crowns at Christmas in small pots, and bloom them in these same pots. They plunge the small pots in boxes of cocoa-nut fibre to keep them moist, and keep them plunged until the morning of exhibition. Then they select the plants bearing the perfect blooms, and put a dozen of the little plants into a pan to form one large plant. If the plants open too soon for the show, they are placed in an ordinary greenhouse, very airy and shaded from sun, and thus may be kept in perfect condition for a long time. A final and somewhat necessary observation to cultivators is worthy of mention. Primula Sieboldi must not be forced in a high temperature, the warmth of a greenhouse being sufficient, and no attempt should ever be made to get the plants in bloom earlier than the middle of March. *B.*

BIGNONIA CHERERE.

UNDER suitable methods of culture, this evergreen climber of the cool house is one of the best plants to train on the roof, as it needs plenty of space to do it justice. It flowers from the beginning of March to the end of the month of July, although some trusses of flower are sometimes produced at a later date; and the month of June is perhaps the time when most flowers are to be found. When cut, the blooms are borne in clusters at the point of the current season's growth, which will keep fresh fully six days in a cool room. Their colour is a bright red, shaded with orange.

To begin with a young plant which is making growth freely, it should have the shoots trained thinly to pieces of wire stretched along under the roof at 1 foot from it, and not less than 18 inches apart, crowding the growth being opposed to good blooming, as the plant requires plenty of sunlight to mature its wood. When the shoots have grown to the length of 6 feet, and laterals do not appear, the points must be nipped off so as to induce them, but if laterals have pushed forth from the axils of the leaves, the shoot may be left to extend itself, which it will do the whole season. The following year these lateral shoots should not be cut back, but allowed to extend themselves further hanging downwards. It is from these one-year-old growths that the flowers will be produced, commencing at the points, and continuing upwards for 1 foot to 3 feet. From the same joint in a shoot where the flower-trusses spring, two growths will also start, the leading shoot having been checked by the formation of flowers. These secondary growths should be pinched back at the first pair of leaves, a proceeding that concentrates the energy of the plant in the production of flowers. If this check to growth be not brought about by pinching out the points, the flower-buds fail to develop, although the shoots do so.

When the flowering season has passed, whatever pruning the plant requires to keep it within bounds, should be done forthwith. The chief points to study in pruning are, to keep the main branches well apart, and to remove weak shoots. The growths which hang down from the main branches under the roof should remain to grow still longer, or till they become too long over the paths, or are otherwise in the way. In the case of a large conservatory, say, with a roof 20 to 30 feet high, favourable opportunities are presented to encourage these shoots to grow to a length of 20 feet, and a space of 6 or 8 feet should be allowed between each, according to circumstances and the requirements of the plants beneath. A plant thus trained has a good appearance when in

bloom, and out of bloom it is not objectionable, the deep green foliage being a pleasing feature. The laterals, which bore flower-trusses from these hanging branches, should be pruned in to one or two eyes apiece; and a few new shoots should be allowed to hang down each year, to take the place of those which may be worn out, and to renew the vigour of the plant; and in this way a succession of growth and flowers is kept up for years.

Abundance of water should be given to the roots during growth, and occasionally liquid-manure will be an advantage, as some nutriment beyond that afforded by clear water is required to sustain so large a mass of foliage and shoots as this plant possesses when in good health in a prepared border of considerable area. In pots it does not succeed for any length of time. A suitable compost consists of three-parts turfy loam to one part of peat, charcoal, and sand, and the drainage should be very good, the plant not enduring stagnant water about its roots.

The foliage during growth should be well washed with the engine or syringe, to dislodge red-spider and mealy bug, pests to which the plant is subject, and the evening is the best time to do this. For killing thrips, fumigate with tobacco on three successive nights. *E. M.*

FRANÇOIS LEGUAT AND HIS PLANTS (1761.)

(Continued from p. 588.)

III. — PINGRÉ'S ACCOUNT.

IN 1761 the Abbé Pingré, accompanied by M. Thuillier, landed at Rodriguez for the purpose of observing the Transit of Venus on June 6, during that year. His account of Rodriguez has never been published at length, and therefore a translation of his MS. may prove useful to those interested in historical botany:—

"The island of Rodriguez is covered with plants,* shrubs, and trees, always green, except on the coast of Coral. I have seen few trees on the mountain which overlooks the points of Quatres Passes. There is to the west of the oyster-beds a stretch of land almost bare. An accident occasioned this clearing; a black, either by malice or negligence, having set it on fire in February, 1761. The plants which Rodriguez produces are, for the most part, natives; some are foreign, including the new introductions, which M. de Puvigné has procured, and which he has increased successfully. A vegetable garden, previous to the arrival of the English, furnished us abundantly with Lettuces, Onions, and a thousand other European vegetables; the Orange trees and Citrons were covered with fruit, but here the Oranges are not sweet enough; their beauty surpasses their flavour. We were not there during the season for ripe Pine-apples. There remained, however, some Attes;† this fruit, which is called in America Pomme de Cannelle, appears to be of a peculiar species. I believe it to be rather an artificial than a natural fruit. Under a skin—of sea-green colour (*celadon*), in shape something like a young Artichoke or Pine-cone flattened, of the size of a Pippin Apple—is found a pulp of the consistency of *douillie*, which one would take, from its appearance and taste, for very delicate cream. This pulp encloses the pips, which strongly resemble the pips of the Anona, or Bullock's Heart; but this is the only resemblance between the two fruits; the Anona is as insipid as the taste of the Atte is piquant; it

has actually the shape of a bullock's heart. I believe that they use it for fattening pigs.

There are at Rodriguez plenty of Bananas. The leaves of this tree, or rather of this plant, are very long. I have seen them from 7 to 8 feet; they shoot forth above the fruit, which droops in long clusters. Each cluster would contain at least 100 Bananas, if all ripened; but those which grow towards the extremity of the *régime* rarely arrive at maturity; the fruit is green before it gets ripe, when it becomes yellow. It has almost the form of a saveloy, from 6 to 7 inches in length; its flesh is pasty, but of a very pleasant taste. Some distinguish the Figs from the Banana; I have not found any difference but in the taste. That of the Banana is more delicate, they are also more green than the Figs; otherwise, the Figs are longer and larger than the Bananas. They are cooked, especially when they are not quite ripe. There are three species of Banana in the Indies; I only know of one species, or two at most, including that to which is given the name of Fig.

M. de Puvigné had planted near his garden two Mango trees;* these trees were very fine, and so covered with blossoms that the leaves could hardly be seen. These flowers are either white, or of a reddish-violet. Both kinds bloom in clusters like Lilacs; their colour causes the distinction between two species of Mangos, the white and the red. The Mango is a fruit much esteemed in the Indies; it is almost round, of the size of a Fennel-Apple, or, indeed, a little larger; the stone adheres closely to the flesh; it encloses an Almond in the shape of a Bean, but at least an inch in length, and large in proportion. It is held that this Almond should be planted as soon as it is taken from the fruit, it is desired to reproduce the species. I was not in the island in the season of the ripe Mangos. I have only eaten of them preserved at Rodriguez, and others at Bourbon in *compôte* before their perfect maturity. They have altogether the taste of Pippins prepared in the same way. The Mango tree grows as fine and as large as our finest Horse Chestnuts.

The Papaye† of Rodriguez and of the neighbouring islets is not an hermaphrodite tree; there are males and females, both one and the other species possess a straight trunk to the height of 8 or 9 feet; a bark, a species of sapwood of 2 to 3 lines; a pith of about 4 inches in diameter; such is the consistency of the trunk, which I believe an infant of nine to ten years could break with ease. The trunk towards its summit is divided into many branches; the head forms above a species of platform, from 4 to 5 feet in diameter. This platform is far more decided in the male Papayes than in the female; the leaves of both resemble those of our Fig trees, but they are not so hard to the touch, and there is only one leaf to each branch. The platform (inflorescence) of the male Papaye is covered with buds, and subsequently with white blossoms, resembling those of the tuberose in colour, shape, size, and even in odour. They have fine petals, ten stamens, of which five are higher than the others. I have not seen any pistil; it is doubtless in the blossom of the female tree. Shortly after the blossoming, the fruits are seen to form above the head of the female Papaye close to the trunk. They develop often to the size of an ordinary pint-bottle. Their shape is something like that of the Pear Beurré of England. They are green until their maturity, the skin and flesh becoming yellow as they ripen; the flesh is about an inch and a half in thickness. The heart, marked on many sides, which divide it into so many capsules, encloses a very great number of black seeds, of rough exterior, about the size of Peas. This fruit, eaten raw, is neither good nor bad, but a capital preserve is made from it. They also fry it with success, with the addition of a paste similar to that used at Paris for frying Artichokes and Salsify, as fritters. I was shown at Bourbon a Papaye which had been produced among the blossoms of a male Papaye; this production was exhibited to me as a monstrosity, and I so regarded it until I subsequently learnt that it is

by no means of rare occurrence. These bastard Papayes, however, do not propagate; that which I saw was not larger than a small russet Pear, and some one at Bourbon told me that such had been known to ripen.

I have not seen at Rodriguez that species of Palm tree which produces dates, and named for that reason, the Date Palm. In the Island of Bourbon it does not grow to such a height as the other Palms, its leaves are smaller and more separated one from another. The Palm Tree,* properly so called, or Palmiste, is very abundant at Rodriguez; they distinguish three species, but considering the prodigious height of this tree, I do not quite see on what this distinction is founded. It is, meantime, necessary not to confound the species, since there is one to which the natives give the name of Palmiste poison,† not that its cabbage is poisonous, properly so called, but because it occasions certain inconvenient symptoms, which may become dangerous. I have not seen the fruits of these Palm trees, if they bear any, as I believe they must do so, they do not make any use of them. If a hole is bored several inches into the trunk of a Palm-tree, and a vessel placed below to catch the liquor which issues thence, within a few hours three or four pints are obtained of a liquor, very sweet, which they call palm-wine. The tree does not die, the wound which has been made fills up, and after a certain time has elapsed, another supply of wine is obtained. The palm-wine is best when newly drawn, after three or four days it becomes sour. I have never drank this wine, the Palm trees were too far from our dwellings. It was used at the house of M. Julienne, where M. Thuillier often went to regale himself with this liquor. In the centre of the head of the Palm tree, there sprouts from the very heart of the tree a spathe, nearly cylindrical, and terminating in a point. Its length is nearly equal to that of the Palm-leaves, its diameter is from 3 to 4 inches. This cylinder is a roll of leaves, and is in fact the sprout (*pépière*) of the leaves or palms (*fronde*) which should embellish the head of the tree. One of these is put forth every year, they gave to this cylinder the name of cabbage. A Palm tree deprived of its cabbage dies very soon; in consequence, as the Palm tree is very high, rather slender, and of feeble consistency, it is slightly hazardous for climbing to cut the cabbage. The tree is, therefore felled, the cabbage being cut, the outside leaves, which are already green, are unrolled, and the interior is absolutely white, very good to eat, either raw or in soup, as vegetable, or in fritters, or with melted butter-sauce. They can even dry it, reduce it to flour, and make bread of it. This fruit, or rather vegetable, is very tasty and delicate, but it is slightly purgative, at least for stomachs unaccustomed to it.

The Latanier‡ differs from the Palm tree by the structure of its fronds, which are larger and finer than those of the Palm tree, although they are only composed of a single leaf. From two sides of a rib 1 or 2 inches thick, a tolerably stout leaf is folded and refolded like several leaflets. Such is the leaf

* Professor Balfour found three species of Palms indigenous to Rodriguez. "These belong to different genera, which are all Mascarene. They are *Lantania Verschaffeltii*, *Hyophorbe Verschaffeltii*, and *Dictyosperma album*, var. *aureum*. The genus *Dictyosperma* is Mascarene, and has been created by Wendland to include the type of Palm originally described by Bory St. Vincent as *Areca alba*. The Mascarene Palms, formerly described as species of *Areca*, are all removed from that genus, the non-spiny forms now constituting *Dictyosperma*, and the spiny forms *Areca crinita* and *A. rubra*, combining to make the genus *Acanthophoenix*."

† The inhabitants of Rodriguez say the juice of *Hyophorbe Verschaffeltii* is poisonous; probably a prejudice derived from the analogous fear experienced in Bourbon of the *Areca lutescens* of Bory.

‡ *Lantania Verschaffeltii*. "Found," says Balfour, "in every part of the island. Perhaps no plant on the island is put to more uses than the Latanier. The wood is very hard and durable, of a rich mottled-black appearance, and used for building huts, though now this is interrupted, as the trees are becoming more scarce. The leaves are chiefly used for thatching huts, and are also made into baskets. The fibres of the petiole form a very excellent material for cordage, and the reticulum is also put to various uses."

* "The undergrowth," writes Professor Balfour, "is very rank in many places. The sides of the hills are in this region (i.e., the east) covered with a thick undergrowth or scrub, often in great part of Ferns, and dotted over them are a fair number of small shrubs and trees, notably abundance of Screw Pines. The valleys themselves in their upper parts are here filled with a tolerably dense growth of trees and shrubs." To the west of a definite line, "the higher land is covered with a great number of small stones and *débris* of volcanic rocks, and is quite barren of any trees or shrubs, save perhaps a stray stunted *Vacca*, *Palmiste Latanier*, or *Citron*." An extensive coralline limestone plain, occupying the whole south-west end, is covered with poor vegetation.

† Atte—Custard Apple, *Annona squamosa*.

* *Mangifera indica*.

† *Carica papaya*.

of the *Latanier*, which, when it is unfolded or well open, assumes exactly the form of a fan. These leaves are sometimes 7 or 8 feet in length. When these leaves are dried they use them in the construction of huts, several branches of trees forming the framework. The leaves of the *Latanier* interlaced, enclose the sides. At Rodriguez one has no need of architects, masons, or carpenters to make a house. The Malabars employ the strips of the leaf of the *Latanier* for writing on, a style serves as a pen, ink is useless. I have placed some of this writing in the cabinet of our library. The Dates, or, as they are termed, the Apples of the *Latanier*, are of the size of a nut in its shell while green, and have nearly the same shape. The taste is not very attractive, the tortoises eat them when they are fallen; they are used also for fattening pigs. Wine is obtained from the *Latanier*, as from the Palm; there is not much difference between the cabbages of these two trees.

Of all the species of Palm trees, the Coco-nut tree is without doubt the most precious. There is an avenue close to our home, which was planted by M. de Pavigné. It is well-known that when the Coco-nut ripens it is filled with water, agreeable to the taste, and very refreshing. This water changes later into a white paste, which takes consistency, and forms at last a kernel, which has a nutty taste, very pleasant, and almost approaching that of the cabbage of the Palmiste. Wine also is extracted from the Coco-nut, as from the other Palms. *S. P. Oliver.*

THE ROCK GARDEN.

ALYSSUM MONTANUM.

FOR some time past, this charming species has been very conspicuous on the rockery, where it is completely at home, and shows to better advantage than on the border. Like most other *Alyssums*, it is of compact habit and very floriferous; moreover, I think that it is more sweetly scented than the so-called Sweet *Alyssum*; but, unlike that species, *A. montanum* is a thoroughly hardy evergreen perennial, instead of annual and white as is the Sweet *Alyssum*, or *Königa*, as it is now called. Although *A. montanum* is a very old garden plant, it is surprising how seldom one meets with it, as compared with *A. saxatile*. Granted the latter—with its upright growth, and branching, corymbose heads of flowers—is, for border purposes, the showier plant; but, as a rock plant, *A. montanum*, with its rather creeping growth, and simple racemes of flowers, is not excelled by *A. saxatile*, despite its specific name. It is easily propagated by seeds, which it usually ripens in abundance; therefore, if sown during early summer, and pricked out in the autumn, they will flower well the following spring. It might be sown *in situ*, but the former plan is more favourable to success.

AUBRIETIAS.

A group of very pretty neat-growing evergreen plants of lowly growth, sometimes spoken of as the purple Rock Cress. There are a good many names to be found in catalogues and lists of alpine plants, but broadly speaking, *A. deltoidea* includes the rest. Of course, there is a considerable amount of variation in colour and size of the individual flowers, but viewed *en masse*, one variety is just as pleasing and effective as another. They have all more or less purplish-coloured flowers, but *Bougainvillei*, *Richardsoni*, *Eyrei*, and *purpurea* have light coloured flowers, while *Campbelli*, *grandiflora*, *violacea*, and *Hendersoni* are of a darker shade; but the recently-introduced *A. Leichtlini* is distinct from all the others in having flowers of a deep rosy-purple colour, indeed, not many shades removed from crimson. The flowers are quite as large as any of the genus, moreover, it is equally hardy, and a valuable addition to the group. *A. græca* is a vigorous growing and desirable large-flowered plant; and the variegated form of *purpurea* is a distinct and useful subject often employed in spring gardening. *Aubrietias*

are essentially rock plants, but they also succeed admirably on any well-drained flower border, and are easily increased from cuttings or by seeds. *F. R.*

ARABIS.

The Wall or Rock Cresses are amongst the showiest of hardy spring-flowering plants, succeeding under circumstances and conditions where many highly-prized, but perhaps less showy, subjects would fail; indeed, the ease with which most of them can be grown is no small recommendation, independently of their own beauty. Perhaps the best known species is the common *A. albidia*, with its dense and creeping habit of growth, and profusion of white fragrant flowers, possibly the showiest of the flowering species. Of this species, there is a variety with pretty white-edged leaves, often made use of in spring gardening. *A. alpina* is a species not worthy of a place where *albidia* is grown. In *A. lucida*, however, we have a distinct and pretty form, perhaps not quite so hardy as the foregoing ones, but the yellow-edged leaved variety is a very desirable plant for purposes similar to those for which *alba variegata* is used. There are one or two forms which have reddish flowers, but they are not so good as the white sorts. *A. blepharophylla* is pretty enough, but it can scarcely be said to be hardy. *A. rosea* is a more vigorous plant, but not often seen outside botanic gardens. *A. procurrens* has more of a running habit than the foregoing, and is perhaps less profuse in flowering; however, there is a very pretty yellowish-white variegated form, which is especially valuable for planting on the rockery—a position where its long, creeping shoots can hang down the face of a bank or over boulders. This as well as the other variegated forms must, to ensure their being uniformly variegated, be propagated by cuttings, which under ordinary conditions root readily, especially if sheltered and shaded from bright sun in a cool frame. In the case of *A. albidia*, *A. alpina*, and others, they come readily from seeds. In this way *A. blepharophylla* is best treated as an annual, always selecting the best-coloured flowers for seed-saving. Recently I observed in the garden of an amateur a very pretty bed which was carpeted with *Arabis albidia*, and thickly studded with *Hyacinths*. There were similar beds planted with *Tulips*, &c. *F. R.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

THE various crops are now growing apace, and the soil must be frequently stirred with the hoe, especially amongst seedlings. Thin the plants as soon as they are large enough to be handled, and get all of that kind of work completed as soon as possible, taking as much advantage as possible of showery weather for doing it.

CARROTS, PARSNIPS, SALSAFY, ETC.—In thinning these plants, always save the strongest for the crop, an important matter with these roots. The plants which grow the strongest now will be the best and biggest at pulling time. Parsnips should be thinned to 12 inches apart, and other roots to 10 inches. Short Horn, Early Nantes, and other Carrots of the small-rooted class may be left thicker together in the beds, the thinning being done as they are pulled for kitchen use. After these plants are all properly thinned out, ply the hoe somewhat deeply in the soil, which will help to keep weeds under and check evaporation.

BROCCOLI, CABBAGE, AND CAULIFLOWER.—The above may be pricked out from the seed-beds when fit to handle. Some gardeners hold that more fibry roots are obtained, and success is greater by drawing direct from the seed-beds or rows at planting time; but I cannot see how that can be, transplanting having the effect of producing additional fibrous roots; and if the plants be carefully lifted with a trowel, good balls are secured at the final planting, whereas plants drawn from the seed-beds are divested of many of their roots.

DWARF FRENCH AND RUNNER BEANS.—A large breadth of French Beans may now be sown, and the

advancing crops thinned out where crowded, leaving the plants at from 8 to 12 inches apart, according to the habit of growth or height of the variety, and moulded up with the hoe. Runner Beans that have been forwarded in heat, may now be planted out, if they have been inured to the outside air. Plant in manured trenches, or on the flat, putting the sticks to them at once, and affording some slight protection on frosty or cold nights.

BROAD BEANS may be sown for the last time, choosing a well-manured piece of deep, cool soil. It is well, in gravelly soil, to plant in trenches, so that water may be readily afforded them. On very dry soils, late sowings of Beans do not usually pay, black aphid often destroying or greatly crippling the plants.

PARSLEY.—A sowing may now be made, early sowings thinned, and gaps in the lines filled up with the strongest of the thinnings. Any Parsley plants which have been raised in heat, should be planted out without delay, in rows, about 10 inches apart each way. Plants which have stood the winter should be transplanted into a moist, rich soil, where they will continue to push up leaves, but which if left undisturbed would run to seed.

LETTUCE.—The preparations for a supply in July, August, and September will now have to be made, and a rich, deeply-dug soil and a northern aspect will be found the most suitable for this crop. The early seeds should have been sown a fortnight since. Continue to sow at fortnightly intervals, and preferably in drills 12 inches apart or less, according to size of the varieties grown, thinning the plants out in the rows to about the same distance. By following this plan, I find Lettuces withstand dry weather much better than those pricked out from seed-beds.

SPINACH may be sown once a fortnight, and earlier sowings frequently afforded manure-water. Sow Radishes at short intervals, the seeds being soaked in a strong solution of carbolic soap to prevent the birds taking them. *C. J. Waite, Glenhurst, Esher.*

PLANTS UNDER GLASS.

THE STOVE AND STOVE PITS.—Young plants of *Pancratiums* raised from seed sown in the course of last year will now be ready for shifting, that is, when they have been kept growing throughout the winter and spring months. The size of pot which the plants may be shifted into will depend on the progress they have made, but two or three sizes larger will generally suffice. Large old specimens, which have been undisturbed for several years, may be transferred to larger pots at any season if they do not show signs of blooming, there being no necessity to disturb the roots beyond what is required for removing the old drainage. Plants which are making growth and are about to flower, should have occasional applications of manure-water, to which a small amount of soot has been added. This will materially improve the size of the bloom. The above remarks will apply also to *Crinums*, which to have in good condition, will require to have larger pots than most other bulbous plants, on account of the great size to which the bulbs attain.

IXORAS.—Plants of the above which have commenced to flower should, when the first florets begin to open, be taken out of the stove and placed in an intermediate-house, the blooms lasting much longer under this kind of treatment. When plants are thus removed from a high temperature, care must be taken not to give too much air to them, and to admit it at some distance away from them; also the supply of water must be carefully attended to, as any excess at the roots during the time the plants are kept cool is very detrimental to them. Attend to the tying-in and regulating of the young growth of *Dipladenias*, *Stephanotis*, *Allamandas*, *Aristolochia elegans*, &c., and now that the plants are making plenty of growth, they should not be allowed to want for water at the roots. Syringe the plants freely when the house is closed at about 3.30 P.M., and damp down the paths, stages, and all bare places.

GREENHOUSE.—Plants of *Primulas* raised from seed, sown early in the spring, will now be large enough to be removed from the seed-pans, and pricked off into shallow boxes about 2½ to 3 inches from plant to plant. *Primulas*, when grown in this way, make much quicker progress, and are not so liable to suffer from dryness at the roots as when planted in small pots. The boxes, which should be about 3 inches in depth should be well drained, and filled up with a mixture of 1st am, leaf-mould, and

decayed manure which has been passed through a fine sieve, and mixed with enough sand to make it porous, so that when the plants have to be transferred to pots later, they can be taken up without damaging the tender roots. A cool frame, stood on the north side of a wall or hedge, will suit them well during the summer. Raise the boxes on inverted pots, so as to get the plants close to the glass to prevent drawing. Another sowing of *Primula* seed may now be made, the plants thus raised flowering next spring. Another sowing of *Cinerarias* should be made to succeed those already sown.

BOUVARDIAS.—Cuttings struck during the winter will now be ready for potting into the pots in which they are intended to be flowered—6 or 7-inch pots, according to the size the plants have attained, will be found large enough for them, as much may be done in affording them nutriment with liquid manure when the pots become well filled with roots. Good loam, leaf-mould, decayed manure, and sand make a good compost for *Bouvardias*. Stop the shoots occasionally until the plants are well furnished with shoots, but do not carry the stopping too far, as a limited number of strong branches for plants grown from cuttings this spring, is better than a large number of weak shoots. Keep the plants close for several weeks after they are repotted, and as near the glass as possible. Stand the plants on a moist bottom, shading them from the sun in the middle of the day when the weather is bright. Close early in the afternoon, and syringe the plants at the same time, so as to create a nice growing atmosphere. Those who prefer to plant them out in pits or frames, should have the beds made of as rich soil, as that advised for pot culture, using plenty of sand to keep it free and light, so that when the plants are taken up in the autumn, they will lift without the roots being much damaged. Avoid planting them too closely, as when grown in this way the plants will attain a much larger size than when grown in pots. *R. Milner, Penrice Castle, Swansea.*

THE HARDY FRUIT GARDEN.

THE fruit gardens of Kent have lately afforded a truly magnificent sight, Cherry trees completely roped from the main stem to the last year's wood with fine strong blossoms. Plums and Pears are equally good, while the Apple trees are completely smothered with large flowers. I attach much importance to the size and vigour of the blossoms, and not unfrequently the weather gets its blame for failures when most of the fault is to be found in the weakness and small size of the flowers. The showers which have recently fallen are somewhat refreshing, but thirty-six hours' hard rain would be none too much, the soil being extremely dry. Black and red Currants are dropping their blooms, and should we get no heavy rains, the berries will not be so plentiful as might have been hoped for from the large quantity of bloom in the month of March. All trees which were planted late in the season should be watered thoroughly at the roots if heavy rains do not come, trees on walls requiring especial attention in this respect. Trees of large size, which were extensively root pruned or lifted, should be syringed daily, to induce an early and free growth. If these trees should break with regularity, no stopping should be practised, but the shoots left, so as to encourage the formation of new roots. The Apple maggot is also making its appearance on some trees; but should the weather prove genial, there will, I think, be little room for alarm. Black and green-aphis have put in an appearance on wall trees, and must be earnestly dealt with, or the young shoots will be much crippled.

Peaches, Nectarines, and Cherries are among the worst to suffer from the attacks of aphis, and now that the first two have set their fruits and are safe, some approved insecticide should be applied with the syringe to the trees. In making Quassia-water for dipping and syringing purposes—and it is one of the best and safest remedies for aphis—I put 2 lb. of Quassia-chips, tied in a cloth, to prevent any escaping into the water, into a copper containing 6 gallons of water and a good handful of soft-soap, and the ingredients are boiled for one hour, and then added to 20 gallons of water, which is at the rate of a little less than a gallon of water to 1 oz. of chips. If the trees are badly affected, it may be used much stronger with safety; but at the above strength, the *aphis* is destroyed in such a manner that little further trouble is experienced, and one or two syringings will clean water suffices to keep the trees clean. *H. Arkham, Mercworth Castle, Maidstone.*

THE FLOWER GARDEN.

THE HERBACEOUS BORDER.—The heads of blooms of many kinds of plants will require to be supported; stakes or sticks should be employed without delay, and as few of them as possible. For most plants, and even those with many stems, one stake will be found sufficient, if it be driven down to a good depth in the centre of the clump, and the side shoots looped up to it, which should be done neatly, and with several loops of twisted bast or tarred string. Labels—so far as appearance goes, are objected to by some persons—should be placed to most of the plants, with the habit, height, and growth of each written on it, details which are so helpful in arranging the different kinds. Fortunately, this knowledge is growing fast with the greater interest felt in the culture of these plants. At this season, and during the height of growth, liquid-manure will be found very helpful, and all of them should have an occasional soaking of water in dry weather after mulching them, and especially is this necessary with *Pæonies* and *Phloxes*.

SUMMER BEDDING PLANTS.—All of these, if sufficiently hardened, may now with safety be planted out, and the more tender, and such as have not been in pots, will be all the better for having some slight protection afforded them from wind and sun until they start to grow. All plants newly put out in the beds should be well watered, even if the ground itself is moist.

RHODODENDRONS.—The dry weather told adversely on these, and unless rain falls before this appears in print, they will need to be mulched and watered afterwards, otherwise the flower-buds will open unsatisfactorily.

TRANSPLANTED SHRUBS.—During the long continued dry weather, evergreens that were transplanted recently have suffered severely, except where they were mulched and watered freely. It is almost of equal importance to frequently syringe the tops, especially if the leaves are large. The damping or syringing counteracts the constant evaporation of the sap of the plants which goes on in dry weather, and by that means hastens the formation of fresh roots.

ROSES.—Watchfulness for aphis and the Rose-maggot must not be relaxed; and as a stimulant of growth when it is likely to stand still, liquid manure, such as the drainings of the farm-yard or that from dung heaps, properly diluted when it is strong, should be afforded the Roses; failing these, weak guano water may be used. If artificial manures be applied, the greatest caution is necessary in applying them, and the temptation avoided to use them in too strong doses or too often.

CLIMBING PLANTS.—Most of these will now require to have their shoots regulated and loosely trained. Where these plants have suffered from the severity of the winter, or are thin and spare from other causes, a few of the small-leaved *Tropæolums* will help much in the way of affording covering for bare places. *Tacsonias* and *Passifloras* in large pots can also be made good use of if plunged; and *Cobæa scandens* and its variegated form grows quickly, soon covering very large spaces.

THE HARDY FERNERY AND WILD GARDEN.—Any spare plants with bold foliage or habit can always be profitably used here, if planted in positions suited to their sizes and requirements. *J. Sheppard, Woolverstone Park, Ipswich.*

THE ORCHID HOUSES.

THE CATTLEYA-HOUSE.—The earliest flowering plants of *C. Sanderiana* and *C. gigas* are now showing their spikes, and these plants being useful to those who intend to exhibit at the early summer flower shows, should be well looked after. In previous Calendars attention was drawn to the general culture of the white-flowered varieties of *Lælia anceps*, and now that the plants are breaking into growth, it is well to remark that they should be encouraged by full attention being paid to their requirements, which consists in proper watering, heat, light, and position in the house. Light and heat are very unlikely to be overdone, though the direct rays of the sun must be warded off in some measure by the use of shading, remembering, however, that no shading at all is much better than too much. If no shading be used, the plants should be kept some distance away from the glass, to save them from scalding. The best mixture for a permanent shade that I have found, consists of whitening, milk, and turpentine, made very thin, and

applied with a brush. The plants should now be copiously syringed with fresh rain-water; the roots of these varieties are apt to roam over the sides of the receptacle they are placed in, and if watered with an ordinary watering-pot, many of these will be left in a dry state. *Cattleya Skinneri* is now in flower, and a large plant is gorgeous when covered with flowers. Our plant has come through the severe winter well, and the strong growths are throwing up flower-spikes to the number of ten, while small growths have sent up five and six flowers. Winter seems loth to depart, for just when we had imagined that spring had arrived, we had 5° of frost on the morning of the 17th inst., and a snow-storm during the evening, the like of which is not remembered by the oldest inhabitant of this village as occurring at this part of the season. The sudden changes of temperature in the Orchid houses consequent on this very unseasonable weather render close attention to firing, &c., essential. *Epidendrum prismatocarpum* is a useful and beautiful Orchid as an exhibition plant at this season, when well grown. The best I have seen is that known as Veitch's variety, whose flower spike, on a strong plant, measures from 1 foot to 15 inches in length. The flowers last a long time in perfection, if care be taken when the flower spikes are coming, to keep off the yellow aphis, which are particularly partial to this plant, and soon cripple the young flower buds. There should be no alteration made in the warmth of the various houses. *A. G. Catt, Parkfield, Hallow, Worcester.*

FRUITS UNDER GLASS.

VINES.—The Grapes on the earliest of the Vines in borders will now be ripening, so the vinery should be kept somewhat cooler, and the borders in a moist state, as nothing spoils the fruit more than dryness at the root at this stage; and a good watering may be safely afforded. Look carefully for red-spider, the presence of this insect in great numbers making havoc with the foliage; and the safest means to apply when ripe fruit is hanging, is to sponge the foliage with water in which soft soap has been dissolved, and though this is a tedious job, it is the only safe one.

SUCCESSION HOUSES.—Stop and thin the shoots at an early date, and do it at short intervals, so that no great amount of foliage is removed at any one time, and especially is this necessary when the colouring period arrives, or shanking will result in most varieties, and the thin-skinned berries of *Madresfield Court* and some others will be liable to crack. Great care should be taken to prevent the overheating of the hot-water pipes. Close early in the afternoon, and thus avoid having to use the pipes much. If spider should be noticed, paint the heating apparatus with flowers-of-sulphur, mixed with lime and water. As soon as colouring has begun, more air and less atmospheric moisture will be best, but avoid aridity, and moisten all parts of the house several times a day, but not the berries, the vinery being partially dried up before nightfall. Always afford a small quantity of ventilation at the top of the house after the bunches have been thinned, it doing the Vines much good; the amount being increased as time goes on. If growth be not satisfactory, the leading shoots should be allowed to extend after the bunches are finished. The directions given for watering the borders will also hold good in these late vineries. Disbud late Vines, and make use of fire-heat on cold nights, so that no check be given, maintaining a warmth of 60°, raising it a few degrees during the period the Vines are in bloom, and affording them a drier atmosphere by day. The late vineries are often used as plant houses, and thrips then become troublesome, and must be destroyed by fumigation with tobacco, keeping the house dry before the operation; and if badly affected, the fumigation must be done for several nights in succession. The covering on all outside borders should now be entirely removed, and if the roots are near to the surface, a mulch of decayed manure several inches thick may be put on, and the borders well watered, if found to be dry. I mulch them with cow-manure, because our soil is light, and it has a better effect than any other that I have tried. The young Vines in pots for next year's fruiting should be making rapid growth, and will be benefited by liquid manure at short intervals. Keep the laterals and sub-laterals stopped at the first joint, and the canes themselves at about 7 feet in height for early fruiting. Young Vines recently planted must get similar attention. *G. Wythes, Spion House, Brentford.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

MONDAY, MAY 25—Linnean (Anniversary).

SHOWS.

WEDNESDAY, MAY 27—York Ancient Florists

THURSDAY, MAY 28—{ Royal Horticultural Society's Temple Show (two days).
Orchid Show at the Hague, Holland (four days).

SATURDAY, MAY 30—{ Royal National Tulip Society's Show at Old Trafford, near Manchester.

SALES.

MONDAY, MAY 25—{ Extensive Collection of Established Orchids, at The Gardens, Harefield Grove, Uxbridge, by Protheroe & Morris.

TUESDAY, MAY 26—{ Orchids in Flower, and Imported Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, MAY 27—{ Palms, Ferns, Stove and Green-house Plants, Bedding Plants, &c., at Protheroe & Morris' Rooms.

FRIDAY, MAY 29—{ Choice Collection of Imported and Established Orchids, from Messrs. Sander & Co., at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—57°.

Ah! the weather. No wonder the subject is so frequently the subject of comment. Anything more capricious can hardly be imagined, nor anything more calculated to beget disappointment. The early part of the third week in May was marked by remarkably high temperatures, e.g., 78° in the shade at Southampton, and at Monmouth on the 13th. Similar high temperatures are recorded by our correspondents in Yorkshire and Shropshire. Fruit trees were smothered with bloom, rivaling snow-drifts in beauty, when, as if in revenge, the blooms were nipped with frost, and buried in snow. Our table is littered with letters relating to this disastrous change, and the parcel post brings us cargoes of blackened leaves and flowers reduced to pulp.

We give a few samples from the records that have reached us. Near Leeds, where the temperature had been 78° in the shade a day or two previously, the temperature fell at the end of the week, and on the night of Sunday, May 17, 12° of frost were registered by Mr. TEMPLE, of Ebstone Hall Gardens; result: havoc to fruit blossoms, blackened Potatos, and sickening stench from frosted leaves of Sycamore and Beech.

In the same county, at Driffield, 20° of frost were registered on May 17 by Mr. LOVEL! His record is so extraordinary, that we should have doubted its accuracy, but the following letter disposes of that doubt:—

"On Saturday night, May 16, we registered here, at Driffield, over 10° of frost, and on Sunday night exactly 20°. This, of course, has had a most disastrous effect on all kinds of fruit trees that were in bloom, including the whole of the early blossoms of the Strawberry, and many unopened ones. Potatos are completely cut off level with the ground, and all the young growth on several Fern-leaved,

crested, and common Beeches, has been killed. No frost of such severity has occurred since January 19 last. The ill-effects are widespread, and will not be easily forgotten. The readings below are taken from two standard thermometers in the Stevenson screen at 4 feet from the ground, one fully exposed at 4 feet, and one on the ground touching the blades of grass:—

		Sheltered in the Screen.		Exposed.	
				At 4 feet.	On the Grass.
May 17	...	230.0	27.8	250.0	210.6
" 18	...	22.2	22.1	15.0	12.0

J. Lovel, F.R.Met.Soc."

In Westmoreland, 17° of frost were registered on May 17, by Mr. NELSON, Hwith House, Ravenstonedale, Kirkby Steven.

At Birdsall, in the same county, after the general high temperature, 15° of frost were registered on the 17th by Mr. B. WADDS, of Birdsall.

In Shropshire, Mr. DOUGLAS, of Plasfynnon, gives a similar disastrous account.

From Powis Castle, Mr. HUNTLEY sends us a careful record, showing a maximum temperature of 82° on the 12th, and a minimum of 26°, or 6° of frost, on the 17th.

Things were not much better at Monmouth, where Mr. COMBER tells us that, after a maximum temperature of 78° on the 13th, 8° of frost were registered on the 16th, destroying the best prospect of hardy fruit ever known.

From the eastern counties, Mr. BOWIE, of The Gardens, Weeting Hall, Brandon, Norfolk, records 9° of frost on the 17th, with two inches of snow on the 18th. On the 19th, 8° of frost were again recorded, and "the prospects of a fruit crop are completely destroyed, and the vegetable crops much damaged." Even at Southampton on May 17, 7° of frost were registered, and flowers of Rhododendrons, as it were, parboiled. "Is it not vexing?" says Mr. ROGERS, and we can but say, "Yes, it is." From the same neighbourhood comes a letter which, for its interesting parallel we print in its entirety:—

"It may interest some of your readers to know that the severe frost on Sunday last was a parallel of what occurred on May 17, 1838. I was then a boy with my father at Romsey, and the effect of that frost is vividly in my recollection. Peaches, Apricots, and Pears, as large as Marrow Peas, fell black from the trees. Apples were destroyed, excepting a solitary tree of the Downton Pippin noted for its late blooming, on which a few gallons ripened. Peas, of the old Early Warwick type, which were podded and fast filling, were quite shrivelled up and destroyed, producing only a partial crop from a later shooting. Potatos, French Beans, and the like, cut to the ground. The Oaks were so black, that it was difficult to find a green branch to carry out the usual custom of placing such on the tower of the old abbey church on May 29. This followed a winter of seven weeks intense frost, for on the same ground thousands of fine Broccoli and Cabbage plants were destroyed, not realising a penny. Two old Fig trees, planted by the Marquis of Lansdowne when he had a residence on Sion Hill, Southampton, and these grounds were his garden for vegetable and fruit supply, were killed to the ground, although the stems were 9 or 10 inches in girth. On the same ground, on May 10, 1822, my father gathered a peck of well-filled green Peas, and sold them in Winchester Market for 10s. 6d., thus showing the variation of our seasons. Josiah Elcombe, Exotic Nursery, Southampton, May 19, 1891."

At Chiswick the fruit blossoms are not much hurt, nor have our Kentish correspondents at present raised a complaint.

A Harvest of Fruit Blossoms.

GIVEN a good year for fruit, as the present one till a few days since seemed likely to prove, and many of us become forthwith enthusiasts in the gentle craft of fruit culture; moreover, if we take the trade returns as our guide, we find much fruit being introduced by the foreigner to the home customer, which might be grown with advantage to the home-grower and his customers. We know only too well the uncertainties of fruit-growing in these islands, and that prolific years are but seldom; but a failure of the fruit crop extending over the whole country has never been known; and if a great many more of those who own, lease, or rent land on favourable terms in the better parts of the country, would turn their attention more earnestly in the direction of growing fruits for sale and household consumption, it would be greatly to the advantage of all in the matter of health and means. The motto for the fruit grower should be, "Grow a few suitable kinds, grow them well, gather them with care, pack them as well or better than the present importers, and open up as much as possible direct modes of selling to the customer."

Recently, one of our able correspondents paid a visit to Mr. RIVERS' nursery at Sawbridgeworth, which he describes in the following words:—

The poetess sweetly sings [that was before the recent frost!]:—

"May, thou month of rosy beauty,
Month when pleasure is a duty."

It is the most pleasant month in the year to spend a day in the country.

The month of the budding and blossoming of the fruit trees, which this year are late, for the Plum, Pear, and Cherry trees are yet sheets of snowy whiteness, and the Apple trees are flushed with the pinky hues of their blossoms. We may hope that great lateness may this year be an earnest of a prolific fruit year. A visit to the nurseries of Messrs. THOMAS RIVERS & SON, when the trees are in bloom, affords an idea of the vast resources of our country in the matter of fruit culture, and how easy it would be if we were in real earnest in the matter to bring good and cheap fruit to everyone's door. The orchard-houses for the production of the finer classes of fruit, which soon became famous as a means of instruction and recreation for gardeners and amateurs under the reign of Mr. RIVERS the first, and to-day under the second of that name who have owned these fine nurseries, the same and other useful lessons are taught to all who will learn. The same care is bestowed upon the culture of fruit trees now, as then, and if amateurs would bestow as much care on a fruit tree in a pot as they do to a Fuchsia or a Pelargonium, they would have their guerdon in due time. The first fruits in the orchard-houses had been gathered in the first week in May, very beautiful examples of the Alexander Peach which grew on three-year-old trees, in pots, which had produced from one dozen and more fruits. Their value wholesale in Covent Garden Market was 48s. the dozen. The Alexander has displaced the Amsden June Peach, a rather bitter and a cling stone. Early Rivers Nectarine is as much in advance amongst Nectarines as Alexander amongst Peaches, its fruits ripening with Alexander, and twenty days in advance of Lord Napier, of which variety it is a seedling. It fruits freely, and has the making of a beautiful pot-tree. Single fruits have been grown 8½ oz. in weight, and 9½ inches in girth. Their market value is at this season 42s. the dozen, being a trifle less than the Peaches. Perhaps there is not a garden of any note in Britain that does not contain a tree of Rivers' Lord Napier Nectarine, but now, such is the march of progress, that this once popular kind must give place to Early Rivers. Some of the orchard-houses are full of Peach and Nectarine trees, which follow in close succession the early ones. The fruits on the later trees are not yet

thinned, and they hang in a way that shows how well the bloom was set, the short, stumpy growths being crowded with ten times more fruit than the trees could bring to perfection. The fruits hang in clusters on the trees in the Cherry-house; not a tree in it but has its abundant crop. The fruit is plentiful in the house set apart for Apricots, and it is already as large as a Walnut. The finer varieties of Pears are abundant on the little trees, and preparations are being already made for placing them out-of-doors, where on an open bit of ground just outside the house

yard deep; this is filled with good loam and manure, and in the centre of it was placed one Vine in a thirteen-inch pot, which was plunged to the rim. The pot has holes made in the sides to let out the roots into the soil surrounding it, and it becomes a mat of them by the end of the season. This Vine will ripen a heavy crop of Grapes. The variety is a Muscat of Alexandria, but Black Hamburgh would do just as well, and perhaps be better for a cool vinery, and for a somewhat inexperienced amateur to deal with. At the end of the season, when the wood is

with the Tangerine in September and October, and continuing with others, including St. Michael's, from January to May. The one now in the best condition is Silver or Plata, it is an exquisitely flavoured fruit. Sustain is another variety of fine quality, while the Malta Blood possesses a brisk flavour distinct from the others. Messrs. RIVERS cultivate about forty varieties of the Orange family; but the above are those most useful in ordinary gardens. The Orchards of Plum trees out-of-doors were at the time of our visit most interesting, and a sight to

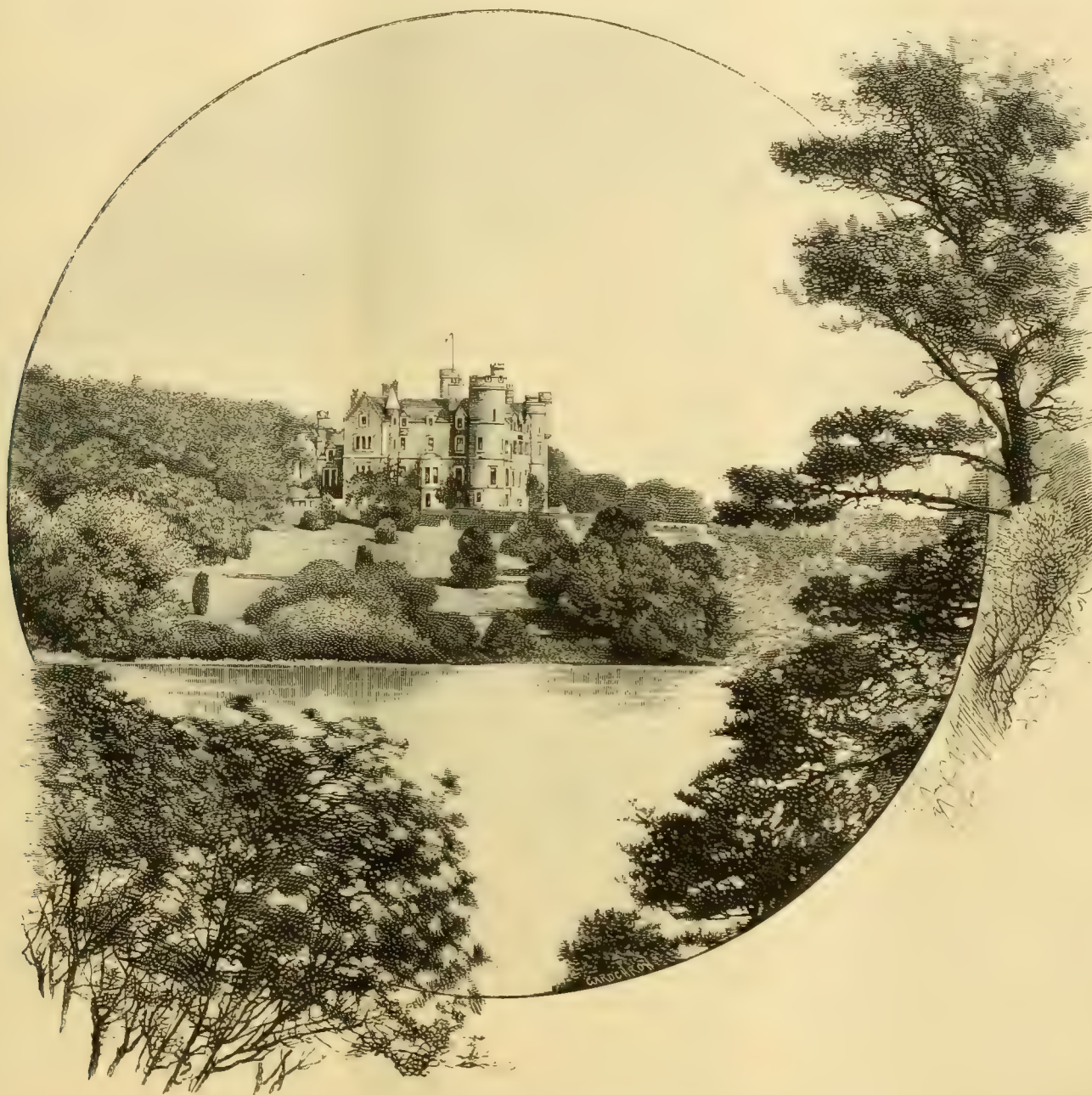


FIG. 125.—CASTLEWELLAN, CO. DOWN, IRELAND. (SEE P. 639.)

the pots will be plunged nearly to their rims, and surfaced with rich loam. Mr. RIVERS says the trees require but little attention under this mode of treatment, and they bear every year heavy crops of fine fruits.

Owners of small gardens, take note, that a single glass structure, and it hardly matters how simple it is built, will give the necessary spring shelter. In one house a space is bricked up in the corner, containing about a square yard, but less than half-a-

ripe, and the fruit cleared off, the roots outside the pot are cut off, the soil is removed from the bricked-up enclosure and replaced with fresh for the next season. This Vine had been in the same pot for twelve years, and had annually gone through the same course of treatment, bearing heavy crops every year.

The Orange-house is an interesting and old established feature at Sawbridgeworth, year by year the trees become laden with their golden crops of fine fruits, as may be seen at the present time, beginning

cause wonder and delight to most persons. The deep loam overlying a chalky subsoil is especially adapted for the Plum. The oldest established ones are the Rivers' Early Prolific, which the elder Mr. RIVERS planted extensively; it is a most useful Plum for market, and the best for preserving, it being one of the heaviest Plums known, a bushel of the fruit weighing 70 to 80 lb. It is ripe in most years at the end of July. The Czar comes next to this in point of earliness, being ready to gather as soon as the Early

Prolific is over; the fruit is as large as the Diamond Plum, and the tree makes a handsome pyramid, without much cutting or training. A dwarf early variety is the Stint, trees of which are very attractive for the form and pearly whiteness of their blossoms, and every branch is wreathed with them. The Sultan is a favourite market Plum that ripens in August. Another large and savory one, is Monarch, dark purplish blue, and ripe about the end of September, when the bulk of Plums is over. All the above are seedlings raised by Mr. RIVERS, and he shows his faith in his own productions by planting them by hundreds of each variety for marketing purposes.

Pears are not favoured so much as Plums; but here again the Sawbridgeworth seedlings are being planted, to the exclusion of all others; the varieties Fertility, Conference, and Beacon being selected out of a great many others, as being the best to grow for Covent Garden Market. They are all hardy-constituted and free bearers, even when young. Beacon is ripe in August, and bears well on the Pear stock, the trees from the first making few lateral branches, and therefore take the cordon-form almost naturally. Fertility is an October Pear, and has never yet failed; and the fruit is crisp and juicy, readily fetching from 9s. to 12s. the bushel. Conference is a more recent raised Pear, that is ripe in October and November; it is a free bearer, and has very good quality.

Much more might be said about upright cordon Apples, the acres of Damsons, with dwarf Apple-trees growing under them, and Currants; and fruitful hedgerows, that bear nice fruit for the birds and the boys, and afford shelter besides to the fruit-tree quarters; but enough, we hope, has been said to induce the sceptical or the would-be fruit-grower to visit this remarkable nursery; and, if he does not come away from it an enthusiastic candidate in fruit culture, the fault will not be Mr. RIVERS'.

ROYAL HORTICULTURAL SOCIETY.—The Society will hold its fourth great annual flower show in the Gardens of the Inner Temple, London, on the 28th and 29th inst. So far, the entries have been numerous and important, and to prevent eventual disappointment, those who are still desirous to exhibit should at once communicate with the Superintendent, Royal Horticultural Society's Gardens, Chiswick. This year the arrangements have been nearly all completed somewhat earlier and more systematically than usual, and there is every reason to hope that, if favoured with fine weather, the show, which will be opened by Her Royal Highness the Princess CHRISTIAN, will be the finest yet held in the Temple Gardens.

LINNEAN SOCIETY.—On the occasion of the meeting of the above on April 16, Professor STEWART, President, in the chair, the following were elected Fellows of the Society:—Messrs. J. Oliver, J. H. Hill, W. D. Crotch, A. S. Woodward, and W. B. Longsdon. A paper by the Rev. F. R. Wilson was read, on "Lichens from Victoria," in which several new species were described, specimens of which were exhibited. A paper by Surgeon-Major A. Barclay followed, "On the Life-history of two species of *Puccinia*," viz., *P. coronata*, Corda, and a new species, which the author proposed to name *P. Jasmini-chrysopogonis*. A feature of peculiar interest noted in the latter species was the extraordinary abundance and wide distribution of the teleutospore stage, as compared with the comparative scarcity of the æcidial stage, and this disproportion in the distribution of the two stages had been remarked by the author long before he had ascertained that they were related. A discussion followed, in which several of the botanists present took part. At the meeting held on May 7, Professor Stewart, President, in the chair, Messrs. J. H. Hill and J. Oliver, and Professor Milner Marshall, were admitted, and Mr. M. A. Ruffer and Professor Cramer were elected Fellows of the Society. Professor R. J.

Anderson exhibited a panoramic arrangement for displaying drawings at biological lectures. The Rev. E. S. Marshall exhibited several specimens of a *Cochlearia* from Ben More, believed to be undescribed. Mr. Robert Deane forwarded for exhibition a plant of the Rayless Daisy, found growing abundantly in the neighbourhood of Cardiff; and an undetermined Sponge, dredged in about 40 fathoms, off the coast of South Wales. Mr. D. Morris drew attention to a Jamaica drift fruit, recently found on the coast of Devonshire. Although figured so long ago as 1640 by Clusius, and subsequently noticed by other observers, the plant yielding it had only lately been identified by Mr. J. H. Hart, of Trinidad, as that of *Sarcoglottis amazonica*. Mr. Morris likewise exhibited specimens of the fruit of *Catostemma fragrans*, received for the first time, from St. Vincent, showing its true position to be amongst the Malvaceæ, tribe Bombaceæ. Mr. Thomas Christy exhibited some Kola Nuts, and made remarks on the properties attributed to their medicinal use.

WARE HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—This body held its fortnightly meeting on the 12th inst., when a very interesting paper was read by Mr. H. SMITH, Presdales Gardens, Ware, on "Leaves, their form, modification, sensibility, structure, functions, and uses. A discussion followed, in which several of the members took part. Mr. GULL exhibited a good assortment of Pansies, and Mr. G. FULFORD some excellent Paris Market Lettuces raised from seed sown early in the present year, which showed how quickly good heads of this variety can be obtained.

FLOWERS IN SEASON.—A few flowers of a clove-scented Carnation, named Lizzie McGowan, have been received by us from Messrs. PITCHER & MANDA, Hextable, Swanley, Kent, which are a nice addition to our existing white varieties of a perpetual flowering character. It is large, full, with florets a little bit ragged, which does not detract from its prettiness as a bouquet flower.

HIGHLAND PLANTS OF NEW GUINEA.—The Victorian branch of the Royal Geographical Society of Australia voted the means for an expedition to ascend Mount Yule, which rises to a height of 11,000 feet. The arrangements for this enterprise were made for the Society by Sir WILLIAM MACGREGOR, who himself started the party by conducting it for some distance, but the Governor's time did not allow him on this occasion to lead the expedition to its final destination. Some plants were also collected by the party right up to the summit. The following list indicates some of the rarer forms—*Drimys*, *Piper*, *Nepenthes*, *Saurauja*, *Ternstromia Britteniana* (n. sp.), *Aristolelia Gaultieria* (n. sp.), the genus new as Papuan, *Sloanea*, *Cupania*, a *Rubus*, formerly only known from Mr. OWEN STANLEY; *Myrtus*, allied to an Australian congener; *Gunnera macrophylla*, *Symplocos*, *Fagraea*, *Rhododendron Macgregoriae* (n. sp.), *Diospyros*, *Dendrobium*, *Freycinetia* allied to *F. excelsa*, &c.

HORTICULTURAL CLUB.—An informal dinner of the Club will take place on Thursday, the 28th inst., at 7 o'clock, after the Temple Show.

THE ROYAL NATIONAL TULIP SOCIETY.—The annual show of the above will take place at Old Trafford on May 30, which is a day that was decided upon to hold the show by the usual method adopted—that of balloting amongst the Tulip growers of the district.

PHENOLOGICAL PHENOMENA.—A Committee of the British Association was appointed at York in 1844, for the purpose of reporting on the registration of periodical phenomena of animals and vegetables, and in the following year presented a report which consisted mainly of a series of "Instructions for the Observation of Periodical Natural Phenomena." In 1875, the question was taken up by the Meteorological Society, which then issued a list of plants, insects, and birds recommended to be

observed, with a code of instructions to observers. The list was slightly enlarged in 1883, but has now been greatly reduced, and, commencing with the year 1891, records of only twenty-four phenomena, relating to twenty-three species, are required. Forms on which to record observations, with a list of the species to be observed, and instructions to the observers, are supplied gratis by the Royal Meteorological Society, and should be returned quarterly to Mr. E. MAWLEY, F.R.Met.Soc., Berkhamsted, Herts.

AUCTION SALES.—**DUNEEVAN:** This freehold property, in all about 14 acres, lately in the possession of Mr. MCINTOSH, of Walton-on-Thames, and illustrated in the *Gardeners' Chronicle*, Dec. 13, 1875, is announced for sale by auction at the Mart, Tokenhouse Yard, on June 4, by Messrs. FAREBROTHER, ELLIS, CLARK, & Co.

RESULTS OF RECENT AUCTION SALES.—May 12: by D. WATNEY & SONS (at Rochester).—Rochester, Kent, Nos. 5 to 9, Boley Hill, f., r. £147—£1900. Strood, Kent, enclosure of market-garden land and buildings, 9a. Or. 13p., f., £1000. May 15: by HINCE & LEWIS.—Sunbury, enclosure of market-garden land, about 4a., f., £600.

CLAY CROSS HORTICULTURAL SOCIETY.—The annual exhibition of this Society will take place on Tuesday, August 11, and it is one of the largest and, most popular in the Midland district. The show has now been continued for thirty-three years, and so successful was that held in August last, that the Society is in a better financial position than it has occupied for some time. Considerable additions have been made to the prize schedule.

ROYAL BOTANIC SOCIETY OF LONDON.—At these gardens lately, Mr. CARRUTHERS, F.R.S., the head of the botanical department of the British Museum, delivered the first of two lectures, taking as his subject, the "Story of Plant Life on the Globe." He showed how, very early in the history of the rocks, we find traces of vegetable life, and notwithstanding all the changes which during myriads of years must have taken place upon the earth, we find the same internal structure, and almost the same forms, in plants still growing upon its surface, as in those days, when the coal we burn now was only existing as vast low-lying forests of marshy vegetation, the special feature of the carboniferous period being the gigantic size of many species, and the peculiar formation—an impervious clay—which sealed up and preserved for our use in the form of coal the vegetation of countless ages. The lecture was illustrated by a large number of typical specimens of plants, living and fossil, from the gardens and museum of the Society.

THE YOKOHAMA GARDENERS' ASSOCIATION has published a descriptive catalogue of Japanese plants, with some curious and interesting illustrations, comprising new forms of *Chrysanthemums*, and several illustrations of dwarf trees, for which these ingenious people are renowned. One of these shows, all growing in one small vase, and as it appears one out of the other, *Pinus parviflora*, the emblem of long life, *Prunus Mume*, Queen of Tree Flowers, and a Bamboo, the image of Virtue.

FREESIA.—In the *Journal de la Société Nationale d'Horticulture de France*, M. DUCHARTRE publishes the first instalment of a paper on "The Mode of Development of the Plant from Seed and from the Bulb." We shall refer to the matter again when the paper is concluded; in the meantime, we note that this distinguished physiologist and cultivator states, that to successfully undertake the culture of a plant, it is requisite to know the conditions under which it grows naturally.

"HINTS ON CACTI," is something more than a trade list, inasmuch as it contains full information as to the culture of these plants, as well as a descriptive list illustrated with numerous good woodcuts, showing the uses to which Cacti may be put in

ornamental gardening. The pamphlet is well calculated to stimulate a liking for these varied and interesting plants. It may be had from A. BLANC & Co., of Philadelphia.

DR. AITCHISON.—The eminent traveller and botanist who has contributed so much to our knowledge of the Flora of Afghanistan, and who has investigated so successfully the economic and medicinal plants of Persia, has been elected an honorary member of the Pharmaceutical Society.

"DIE NATÜRLICHEN PFLANZEN-FAMILIEN."

—The last part of this important periodical work on the natural families of plants, contains a brief account of the Moringaceæ, by Dr. PAX; the Nepenthaceæ and Sarraceniacæ, by Dr. WUNSCHMANN; and the Droseraceæ, by Professor DRUDE.

BOTANICAL ADDRESS BOOK.—Mr. W. ENGELMANN, of Leipzig, is about to issue a list, or directory, of living botanists, with their addresses, and a catalogue of botanical institutes, societies, and journals, on the plan of the very useful *Correspondance Botanique*, edited for several years by the late Professor MOREN, but which was discontinued at his death.

THE ROYAL SOCIETY.—Of the fifteen candidates selected for admission this year into the Society, Professor BOWER, of Glasgow, is the only botanist.

FORESTRY IN IRELAND.—The first special annual return by the Registrar General of forestry operations in Ireland has just been issued. It appears that 1488 acres were planted with trees in Ireland during the year ended June 30, 1890, of which 384 acres were in Leinster, 556 in Munster, 329 in Ulster, and 219 in Connaught. The total number of trees planted on the 1488 acres was 380,280. Larch trees constituted more than one-third, and Fir trees about 12 per cent. of the total number planted. The number of trees felled both for clearance and for thinning plantations, during the year ended June 30, 1890, amounted to 1,256,887. About one-half of the total number felled consisted of Larch trees. The area returned as cleared is 1399 acres—namely, 400 in Leinster, 786 in Munster, 165 in Ulster, and 48 in Connaught.

SUTTON'S POTATOS IN CEYLON.—We learn that Messrs. SUTTON & SONS, of Reading, were awarded a Gold Medal at the Ceylon Agri-Horticultural Exhibition, held at Nuwara Eliya on April 1, 1891, for a collection of Potatos of excellent quality grown in the gardens of His Excellency the Governor of Ceylon, and included Abundance, Satisfaction, Seedling, Windsor Castle, Masterpiece, &c., all varieties of Messrs. SUTTON'S raising.

EAST ANGLIAN HORTICULTURAL CLUB.—At the last monthly meeting of the above, held at Norwich on May 13, Mr. T. C. EDMONDS, Caistor, Great Yarmouth, read a most valuable and instructive paper on the "Cultivation of Narcissi," which was followed by an interesting contribution from Mr. A. F. UPSTONE, on "Herbaceous Plants." The room was most effectively adorned with cut flowers, which also served to illustrate the papers. This Society, we may add, has in prospective a Dahlia show for September, to be held in St. Andrew's Hall, Norwich.

STOCK-TAKING: APRIL.—There are those who find in the increased consumption of intoxicants and tobacco, as indicated by the revenue returns, trustworthy signs of improvement in trade! Some there are who draw the same conclusion from the consumption of "chemicals," which a few maintain should be read together with intoxicants. If the first reading be a correct one, how thrifless the nation which so proclaims to the world its prosperity! Perhaps, however, the figures on the Census Returns may enable us to read the matter in a different light. Of course, the Chancellor of the Exchequer, like a wise man

"takes stock," as we do in forecasting, and felt that confidence in the resources of the country, acknowledged by all who are capable of taking a widely extended view of things at home and abroad affecting trade and navigation. The returns for the month of April read a cheerful lesson, for we find that the imports are in excess of those for April, 1890, by the long figure of £3,302,295—thus bringing up the imports for the four months of 1891 to £202,931 over the figures for the first four months of last year. The following is extracted from the "summary" of the imports from foreign countries and British colonies and possessions:—

	1890.	1891.	Difference.
	£.	£.	£.
Total value of imports	£35,860,212	£38,982,537	£+3,302,295
§II.—(A.) Articles of food and drink—duty free	10,791,844	13,547,233	+2,755,389
(B.) — do., dutiable	1,963,928	2,033,993	+71,070
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)... ..	9,507,074	8,970,138	—536,936
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	3,033,320	3,120,869	+87,549
§IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	945,163	1,266,602	+321,439
(B.)—Parcel Post ...	32,735	28,951	—3,784

The exports next claim our attention, and here we are faced by the large number of strikes running their course in this and other lands, of disturbed money markets, and little wars. All of these have their effect on trade and manufactures, but at present we do not appear to be so seriously affected as are our friends elsewhere, whose delight is in prohibition tariffs, and "protecting the native industries." The exports for April of articles of British and Irish manufacture show an increase of £574,699 over the same period last year, and the exports of foreign produce an increase of £675,406. The total for the past four months show a decrease of £194,989 in the export of British and Irish produce as compared with the same period last year; but then "navigation has it," in the fact that the exports of foreign produce is in excess by £386,321! There are signs abroad as to the influence of "protective" tariffs—the French have given way in the very serious matters of Wheat and flour. Canada shows a weakness in petroleum and sugar. Possibly both tariffs may ere long show a necessity for reconsideration, and none will be more pleased than we at such a result. The following figures respecting the import of fruit and vegetables during the past month possess their usual interest for our readers:—

	1890.	1891.	Difference.
§ II. Fruit:—			
Apples, raw bush.	40,059	85,653	+45,597
Unenumerated, raw	17,838	28,820	+10,982
Onions	297,649	409,323	+111,677
Potatoes cwt.	36,187	385,054	+348,867
Vegetables, raw, unenumerated value	£36,496	73,357	+16,861

These figures require no comment here.

KENSINGTON GARDENS.—It is but seldom that these beautiful gardens are so bare as to not repay a visit, and the spring of all seasons is the best, and although it is so much later than usual to put on its gay appearance, there are some beautiful trees, shrubs, and herbaceous plants in bloom, some nice patches of Tulips, coloured Primroses, &c. The trees include the double-flowered Peach, double-flowered Cherry, Crabs, and white Japanese Plum, covered with lovely flowers. The more shrubby plants consist of

Magnolia Soulangeana, Flowering Currant, red and yellow; Cydonia japonica, Spiræa prunifolia, Berberis aquifolia, &c. The hardy herbaceous include Megasea cordifolia, beautiful in flower and foliage; Trollius europæus, Doronicum plantaginum excelsa and D. austriacum, Solomon's Seal, Triteleia bicolor, Polemonium reptans, Alyssum saxatile variegatum, Vinca minor variegata, and the old variety is doing well under the shade of trees, as are also some fine patches of single yellow Wallflowers, dwarf and good, especially where they get some light in front. Actæa spicata and rubra, Triteleia uniflora, and Silene maritima, with a few of the earliest Rhododendrons and Azaleas make these gardens look inviting in spite of the lateness of the season through the inclement weather, even up to date.

THE TECHNICAL EDUCATION OF OUR GARDENERS.—We rejoice to find that the Worshipful Company of Gardeners is showing symptoms of rejuvenescence in a very healthy form. In conjunction with some leading members of the Royal Horticultural Society, a scheme is under consideration, an insight into the nature of which may be gained by the following two clauses, which were adopted at a meeting at the Mansion House on Wednesday last:—

"I. To make provision for the due and proper teaching of the technique of their craft; and

"II. The examination of and issue of certificates of efficiency to the craftsmen."

To carry out these arrangements, a committee of five members of the company was appointed to confer, with a similar *quincunx* from the Royal Horticultural Society. We may add that the President of the Society, Sir TREVOR LAWRENCE, is also Upper Warden of the Company; and the Rev. W. WILES is Renter Warden. Mr. SHERWOOD and Mr. P. CROWLEY are also connected with the Company.

TESTIMONIAL.—Mr. ROBERT GROSSART, who has been for the last ten years gardener to J. BUCHANAN, Esq., Oswald House, Edinburgh, was entertained at supper on Friday evening, 15th inst., in the Windsor Hotel, by a number of his many friends and well-wishers, on the occasion of his appointment as gardener to J. M. KEILLER, Esq., Bin Rock, Dundee. Mr. GROSSART has for some years been a prominent competitor at the Edinburgh flower shows. In the course of the evening, the chairman, Mr. J. W. MACHATTIE, gardener, Newbattle Abbey, in some well-chosen words expressed the kindly wishes of all Mr. GROSSART'S friends for his future welfare, and presented him, in their name, with a valuable gold watch, and Miss GROSSART, with a handsome gold brooch. Mr. GROSSART replied in a speech of much feeling.

PUBLICATIONS RECEIVED.—*Proceedings of the Agricultural and Horticultural Society of India.*—*Mildura Cultivator.*—*Eighth Annual Report of the Massachusetts Experimental Station, 1890* (Prof. HUMPHREY), contains articles on Black Knot, Mildew of Cucumbers, Brown Rot of Stone Fruits, the Potato Scab, &c.—*Transactions of the Royal Scottish Arboricultural Society*, contains papers by Dr. SOMERVILLE on the Best means of combating the attacks of Injurious Forest Insects, and on the Natural Regeneration of Woods; Mr. JOHN SMITH, of Romsey, contributes a long account of our British Oaks; Mr. A. D. WESTER furnishes a paper on Trees and Shrubs for planting in towns; whilst other writers contribute material for a readable and useful part.—*Dakota Experiment Station.*—*The Bulletin No. 1*, is devoted to the question of Grain Smuts.—*Report of the Manchester Museum, Owens College.*—*New York Agricultural College Bulletin:* Feeding experiments with prickly Comfrey, Sorghum, Marigolds, and other plants. Comfrey is noted as unprofitable.—*Connecticut Agricultural Station:* The species of Gymnosporangium producing Cedar Apples. The yellow slimy fungus on the Junipers exists as a Roestelia on the Quince and Amelanchier.

HOME CORRESPONDENCE.

PINK MRS. SINKINS.—Of all the old-fashioned plants whose associations date back a very long period of time, there are few which have sustained their popularity more generally than Pinks. For a long time the variety Mrs. Sinkins has been a reputable flower, as, apart from its beauty, it is a good border plant, and has few equals as a forcer. My mode of treatment of this variety is a simple one. About the middle of June a large number of offsets are to be found on old plants, which may be carefully taken off with a "heel," and placed in very sandy soil, on an almost exhausted hot-bed, of which gardeners usually have plenty at that season which have been used for tender bedding plants. Keep the cuttings close under a hand-glass, shading them from bright sunshine, and in four or five weeks they will be ready for potting. Those intended for early forcing should be potted in large 60's, and in a compost consisting of about one-third of charred refuse and loam of good quality. The first batch of cuttings should be succeeded by another in August, which will flower very late in the following season. Strike these under a handlight, protect them during winter in a cool frame, and when planted out in spring, if the points be taken out of the grass, they will bloom till the frost spoils them. *G. B. Claydon, Holbeck's Park.*

ORCHIDS.—Only in few cases do we see any attempt made to show Orchids as exhibition specimens. Happily, the plants do not lend themselves to the hard and fast forms of training commonly seen allied to exhibition plants, and therefore Orchids are never, or rarely, trotted out as show giants. As group decorators, we have, perhaps, no plants of any description that are more graceful or beautiful than are Orchids. In the fashionable summer decorative group they usually play an important part, and the exhibitor who has a liberal quantity in variety to select from, always stands better than his rivals, if his dispositions are correspondingly good. It is worthy of note, that although flower shows continue to exist in large numbers, yet the old show specimens are fast disappearing. The fact would seem to indicate that flower shows do very materially fail of their assumed purpose when they no longer popularise the plants which have for many years formed their chief features. We now seldom see in quantity the huge stove and greenhouse-trained and tied specimens—the big foliage plants, the giant Heaths, Fuchsias, Roses, Pelargoniums, and similar plants, which at one time formed the staple elements of a plant exhibition. Practically, Orchids, which have seldom been exhibition specimens, have rapidly increased in popular favour, whilst the giant plants have almost died out. I do not assume that this is to be deplored, but none the less it is a distinct loss to horticulture, that many of such plants as are those indicated, with others, are not now met with at shows in even moderate size, for they are all very beautiful, and merit cultivation with the best of Orchids, or any other plants. But we see Orchids so popular perhaps because gardeners cannot readily distort them into show plants. Still further, because it is now found that they are really easy of cultivation, that they are wondrously varied and beautiful. Perhaps also, to no inconsiderable extent because certain, at least at present, if well cared for, to grow into money; and not least, perhaps, that whilst so popular they never can become common flowers. It may be pleaded that if Orchids do not readily lend themselves to the making of grand specimens, yet that they do create beautiful effects alone in collections, apart from all other plants. That is so true, that it is but needful to point to what has been seen at the Temple shows, and doubtless will be seen again next week. There, while superb collections have been shown, still what is, perhaps, a natural anxiety to make a solid bank of flowers, has helped to detract from the general beauty which Orchids, more artistically arranged, can be made to produce. Rather less crowding, and the employment of some small dense Ferns to create a base for the flowers, would give far more pleasing effect, even though produced at the expense of quantity in the group. Fashions in flowers change so rapidly, that it is just possible some day we may find Orchids gone out, and something else in. The chief thing in favour of these epiphytes is, that we know not where to look for any family of plants which can excel them. Nature may seem to be illimitable in resource, but at least she

seems to have been pretty well ravished of her floral triumphs. *A. D.*

CUTTING BACK MARECHAL NIEL ROSE.—Mr. Maers will find that the only possible way by which he can hope to maintain his Maréchal Niel Rose in its present high-blooming condition, is to cut it hard back every spring the moment it has done blooming. Once the long stems become hard and woody, they break but indifferently later, and only by securing new strong shoots is it possible to obtain an abundance of large flowers. I have found exceeding difficulty from time to time in inducing gardeners to apply such drastic treatment to their plants. No Rose responds so readily to such severe pruning as does Maréchal Niel, if but sustained by plenty of roots and good soil. Really, the proper form of pruning is what in Vine culture is called the long-rod system. Once the long shoots have bloomed, and where grown in warmth the flowering is usually over by the end of April, the plants, if immediately hard pruned, have a long warm season to do their work of producing fresh growths in; and as these growths, once started, develop with rapidity, lengths of 20 feet are not at all uncommon. Of course, very much depends upon stocks, if budded on soil and root-room. I find the Maréchal seems to have a preference for a rather strong loam, more close than otherwise; also for permanent work succeeds best on secondary stocks, such as Madame Berard, Gloire de Dijon, or other very robust growers. For pot purposes, I think it is best on its own roots, as the stoutest of the root-suckers can then be retained. *A. B.*

VARIATION IN THE COLOUR OF FOWLS.—The following is a curious fact in natural history. I have always been very particular in keeping a pure strain of silver-grey Dorking fowls. Two years ago I gave a setting of eggs to a relative. This relative, although not restricting her stock to Dorkings, always keeps a Dorking cock. Last year one of the hens from my setting stole a nest in the wood. She suddenly appeared, herself a pure silver-grey Dorking, with chickens exactly the colour of the jungle fowl, the *Gallus Bankiva* of naturalists. Four of these hens of this colour were kept. This year one of them stole a nest in the wood, and in due course appeared with a brood of chickens, all true silver-grey Dorkings to colour. The original return to the wild colour I could have understood, but the return again from it to the silver-grey baffles me. How is it accounted for? I write as an eyewitness. *J. A. C.*

SCOTCH FIRS.—Seeing your note at p. 592, respecting Scotch Firs at Ham House, I was reminded of the noblest specimen I ever saw, and I wonder if it is still in existence. Some twenty-five years ago it stood quite alone as a Fir in a small wood of Oaks, &c., at Roundham, near Romsey, and on the estate of the then Lord Mount Temple. It was not likely to be noticed by passers-by on the main road to Southampton, as it stood some distance in the wood. Next, about the time stated, I remember measuring the stem, which was wonderfully regular and clean, in company with Mr. Dixon, gardener at Roundham Park close by, and we found it at chest high, that is about $4\frac{1}{2}$ feet from the ground, to be just 13 feet in circumference. The head was a very noble one, and well proportioned. It would be interesting to learn whether this grand specimen is still in existence. If dimensions of trunk count for anything, it ought to make the tree one of the oldest of its kind in the kingdom. *A. D.*

PHYLOXERA LAWS.—In further illustration of the folly of these laws, as expressed in your number of 2nd inst., I will mention that I lately read in an Italian paper, that the Spanish government, which had always refused to sign the Berne Convention as not sufficiently repressive, and which, consequently, absolutely forbade the entrance into Spain of any plants whatsoever, is now so alarmed at the present great extension of the *Phylloxera*, especially in the region near Barcelona, that she has expressed her intention of joining the league of the Berne Convention, seemingly in the belief that the ill-considered document was in itself a remedy against the pest! Is it possible to conceive of human stupidity being so inconsistent? *Tuscany.*

DOYENNE DU COMICE PEAR.—I was pleased to see "W. D." calling attention to this variety of Pear on p. 532, and I consider it to be one of the best kinds to plant where the soil is not favourable to the growth of the Pear. On our stiff, cold soil, where

Jargonelle, for instance, refuses to live in the open, Doyenné du Comice usually bears a full crop on pyramids. One advantage this sort has over some others for small gardens is that the growth is not robust, yet it is sufficient for the production of a full crop of fruit. It is generally acknowledged to be one of the best-flavoured Pears in existence. *E. M.*

CHANGEABLE WEATHER.—Some few days of the present month have been remarkable for extremes of heat and cold. Saturday, May 9, was dull a.m., with very cold N.E. wind, and some rain at night; minimum temperature, 42°, maximum, 53°; rain, 10 inch. Sunday, 10th, dull and showery, with half a gale from the N.E. in the morning; min. temp. 45°, max. temp. 59°; rain, 17 inch. Monday, 11th, breezy, clear day; wind N.E.; min. temp. 45°, max. temp. 66°. Tuesday, 12th, clear day, and hot; wind N.N.E.; min. temp. 44°, max. temp. 66°. Wednesday, 13th, bright day, and very hot; wind N.W.; min. temp. 47°, max. temp. 79°. Thursday, 14th, bright day; wind N.N.E.; min. temp. 49°, max. temp. 65°; rain, 01 inch. Friday, 15th, half gale from N.W., bright day; min. temp. 37°, max. temp. 60°; rain, 03 inch. Saturday, 16th, breezy, bright a.m., heavy showers of snow p.m.; wind N.W.; min. temp. 35°, max. temp. 51°; rain, 15 inch, which fell as snow. Sunday, 17th, strong breeze from S.W.W., changeable sky, showers of snow; min. temp. 30°, max. temp. 46°; rain, 53 inch, which fell as snow. It was snowing without intermission, as far as can be ascertained, from 6 p.m. until 8 a.m. on Monday, at which time the snow was lying white on the grass and the leaves of some of the trees, plants, &c. Some of the Apples, and the greater part of the Pears and Cherries, are in full flower; also a quantity of Strawberry flowers are open. The above observations are taken, according to Symon's rules, from registered instruments in a Stevenson screen. The minimum temperature on the grass during the above period was 26° on the 17th. *W. H. Divers, Ketton Hall Gardens, Stamford.*

PARSLEY.

To have a supply of this favourite herb all the year round is not easy, as those who reside in wet or low-lying parts of the country know too well. There the damp air and frost generally kill the plants, or at least all the leaves, and although the roots may survive, the leaves sprout very late in the spring.

The plants may be grown successfully in most light rich soils which have a porous subsoil. I have seen a fine lot of plants survive the winter on a heap of garden refuse, while in borders and quarters all have died. This proves to my mind that a dry subsoil is what they require. To meet a constant demand, three or four sowings should be made between February and May, the seed being put into shallow drills, and very lightly covered. When the young plants are up, and large enough to handle, they should be thinned out to 6 inches apart. The first and second sowings will furnish leaves during the summer and autumn, and with a little management all through the winter; but I prefer, and would strongly recommend, sowings in May for the winter supply. A dryish border should be chosen for this sowing; and where a south wall is available, a little seed, sown at the foot of it, will always produce plants that will be found very useful. I have a number of *Thuja gigantea* hedge-screens, and I find that, in a narrow border at the foot of these, Parsley keeps very well. Before severe frosts set in, some means of protecting Parsley in sufficient quantity should be made; but, whatever coverings are made use of, they should only be put on in frosty weather; in open weather the plants being fully exposed. Where the soil is unfavourable, a site should be chosen in some sheltered part of the garden, and a bed specially prepared for the plant by putting a quantity of stone and brick rubbish at the bottom, and putting soils suitable on this. A sowing, made towards the end of May, if carefully attended to during the summer months, in thinning the plants and picking off any over-luxuriant leaves, will furnish Parsley in reasonable abundance during winter, provided it has protection. Experienced gardeners know the importance of having a good

supply of Parsley all the year round, and generally make ample preparation for it, whilst others regard it as a trifling matter until it is too late. The crop need not take up very much ground, and it is always best to err on the side of plenty, and afford protection to the winter supply. *A. Evans, Lythe Hill, Haslemere.*

LIST OF GARDEN ORCHIDS.

(Continued from p. 615.)

SCHOMBURGKIA.

(9.) *S. tibicinis*, Batem., *Orch. Mex. and Guat.* (1843), t. 30; Warn. and Will., *Orchid Album*, v., t. 205; Veitch, *Man. Orch.*

sley, in 1836, where it flowered four years afterwards. The large hollow pseudobulbs are frequently the abodes of colonies of ants, which attack fiercely anyone who attempts to remove the plants. These hollow cylindrical stems are used as trumpets by the native children, whence, its specific name, *tibicinis*, or of the Trumpeter, is derived. *S. Galeottiana* is referred to this species as a synonym, by Reichenbach; and *S. Brysiana*, I believe, must share the same fate. The flowers are described as ochreous orange-coloured, but the species is variable in this respect.

Var. *GRANDIFLORA*, Lindl., *Bot. Reg.*, xxxi., (1845), t. 130; *Bot. Mag.*, t. 4476; *Flore des Serres*, t. 49.—A variety with larger and paler flowers, and more yellow in the lip.

Wandsworth, in 1844. *S. violacea* appears to me to be synonymous, and *S. Luddemanni* to be a fine variety of the same.

S. violacea, Paxt. = *S. UNDULATA*. *R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

SOCIETIES.

MANCHESTER WHITSUNTIDE SHOW.

MAY 15 TO 22.—The twenty-fifth Whitsuntide Show, under the auspices of the Royal Botanical Society, was opened in the Gardens on the 15th and continued during the holidays till the 22nd. As is well known, this show is one of the most important in the provinces, having during its twenty-five years lease dispersed about as many thousand pounds for the promotion of horticulture. Mr. Bruce Findlay stands alone as the curator of a botanic garden who has had the courage to face an onerous undertaking of this kind, and although he has had a willing council to help him, still the weight of responsibility has mainly rested on his own shoulders. It is gratifying, so far, to know that he has during all these years been able to bring up a large contingent of exhibitors and competitors over a very wide area, including the metropolis itself, simply because of the value of the prizes offered and the desire to take a good position in some of the classes in the schedule. That the show has fluctuated both in point of numbers of specimens and in kind, goes without saying, but we have always noticed that the show is in some measure an index of the progress in gardening of the day.

There are not now the large specimen plants of a miscellaneous character that were wont to grace the salient positions, each of which we can well remember were a good cartload, but there is quality, and the taste is evidently trending into lesser-sized specimens, which are more useful for the general decoration of the day. Groups for effect have taken a fast hold if not of the deft skill of the plantsman yet of a skill demanding quite a different class of plant in the horticultural-loving people. Moreover, qualitative are more looked to now-a-days than quantitative results—one good cultivated article of moderate size beating out of court the lot of bigger fellows of indifferent finish; and so the Whitsuntide show of the year points to a profusion of Orchids for all kinds of decoration, plenty of greenery for blending, and a disposition on the part of the general sight-seer to linger over anything beautiful and grotesque in the way of Orchids, and to note down those combinations in grouping which have the most pleasing effect.

Orchids.—There was not the same spirited competition here among the classes that we have seen in former years. There was the quality, certainly, but it is a little dispiriting, to even an ordinary grower of Orchids, to win his spurs too easily. This was the case with Mr. Holmes, gr. to Geo. Hardy, Esq., Pickering Lodge, Timperley, who had an easy walk over; Mr. Boardman, gr. to Mrs. Hodgkinson, Bowdon, being a long way behind—so different to the best days of Mr. Hubbersly at Bury, and Mr. Mitchell at Dr. Ainsworth's, to say nothing of more modern exhibitors, who have run each other a neck-and-neck struggle for the highest prize. Among the best of Mr. Hardy's plants, was a magnificent *Dendrobium fimbriatum*, well named *giganteum*, from the great size of its flowers, its perfect reniform labellum, and the richness of its golden colour; it had twenty spikes of flowers. There was also a very handsome piece of *D. Bensonæ*, with large flowers, the white segments and the pale orange tip contrasting well; the bright rosy-purple *Cattleya Skinneri*, *C. Mendelii*, *Lælia purpurata*, the indispensable *Ada aurantiaca*, the floriferous *D. Devonianum*, and *D. thyrsofolium*, making an effective group in colour and variety. In the other classes, the chief plants from this exhibitor were a perfectly-finished *Cattleya Skinneri*, with more than 120 flowers; a fine plant of the fine *Cattleya intermedia*, some good examples of *Dendrobium Wardianum*, and the lemon-blotched *Cœlogyne cristata*, and a number of well-grown *Cattleyas*, *bonâ fide* single specimens, all good, but none better than the *C. Mossiæ marmorata*. Among Mrs. Hodgkinson's best plants were *D. Wardianum*, and a nicely-flowered piece of *D. Falconeri*—still one of the most effective, although short-lived, *Dendrobiums*.

In the nurserymen's classes, Mr. Cypher, of Cheltenham, had a superb collection. His *Dendrobium*



FIG. 126.—SCHOMBURGKIA TIBICINIS: FLOWERS, REDDISH-BROWN.

Pl., pt. 2, pp. 102, 103, with fig.; *Gard. Chron.*, 1888, pt. 2, fig. 25, also fig. 126, *supra*. *Epidendrum tibicinis*, Batem., ex Lindl., *Bot. Reg.*, xxiv. (1838), *Misc.*, p. 8. *Bletia tibicinis*, Rehb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 429. *Schomburgkia Galeottiana*, Rich. et Gal., in *Ann. Sc. Nat.*, ser. 3, iii., p. 23. *S. Brysiana*, Lem., *Jard. Fleur.*, i. (1851), *Misc.*, pp. 33, 34, with figs.—Central America. Originally discovered by Mr. G. Ure Skinner, in the Highlands of Honduras, where it is said to be plentiful. It is also found in the neighbourhood of Oaxaca in Mexico, in Costa Rica, Guatemala, and other localities in Central America. It was introduced by its discoverer to the collection of Mr. Bateman, at Knyper-

(10.) *S. UNDULATA*, Lindl., *Bot. Reg.*, xxx. (1844), *Misc.*, p. 13; *id.*, xxi., t. 53; *Pescatorea*, t. 32; Warner, *Sel. Orch.*, ser. 2, t. 21; Warn. and Will., *Orchid Album*, vii., t. 335; *Orchidophile*, 1889, p. 16, with plate. *Bletia undulata*, Rehb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 420. *Schomburgkia violacea*, Paxt., *Mag. Bot.*, xvi. (1849), p. 123. *S. Luddemanni*, Prillieux, in *Journ. Soc. Imp. d'Hort.*, viii. (1862), p. 275.—Venezuela and New Granada. Discovered by M. J. Linden, upon rocks near Truxillo, in Venezuela, and near the natural bridge of Icononzo, at 2000 feet elevation, in New Granada. It was afterwards found by Wagoner. It flowered for the first time in Europe in the collection of Mr. Rucker, at

Jamesianum was a fine picture, with several hundred flowers; and so also was the finer form of *D. nobile*, one still taking front rank. *Cattleya Mendeli* was abundantly flowered and in good variety. A plant of *Miltonia vexillaria* had about thirty finely developed flowers; *Cypripedium caudatum* always is an effective Orchid, as also *Cymbidium Lowianum*, from its fine arching racemes. In specimen groups, Messrs. Heath & Son, and Mr. J. F. Mould, Pewsey, Wilts, followed a long way behind in point of merit. The former exhibitor had several good *Cattleyas*, and a particularly well-grown well-flowered piece of *Odonoglossum Andersonianum*.

In the mixed lot of exhibits, where Orchids formed the chief feature, there the Liverpool Horticultural Co. had a good display, comprising several fine lots of *O. Alexandræ*, *Dendrobium Jamesianum*, *D. Dalhousianum*, and *Miltonia vexillaria*, mixed with Ferns and other plants, making a pleasing oblong table group. Messrs. Charlesworth & Shuttleworth, Heaton, Bradford, had a number of very good varieties of *Cattleya Mendeli* and *C. Mossiæ*, the charming *O. polyanthum* in extra fine variety, flowers large and well developed, and an effective piece of *Oncidium Forbesii*.

Groups for Effect.—There was a spirited competition for this, one of the premier prizes; and Mr. Blair, gr. to the Duke of Sutherland, was an easy 1st. The charm of this group lay in its general picturesque effect. Standing well in front of it, on the oblong square piece assigned to the decorator, the eye was almost deceived by the undulation; with the leafage of Palms, and such useful frondage as *Asparagus plumosus*, and the raising here and the flattening there, making it look as if there was a hollow in the floor—a bit of deception that was quite captivating. The specimens of *Kentia* and *Cocos*, and Orchids, which were only a few, were so arranged as to lift the eye of the observer above the groundwork of moss and Fern. The fortuitous use of virgin cork, with the fine arching racemes of *Cymbidium Loweianum*, *Cœlogyne cristata*, some of the bright-coloured and the light *Dracenas*, and *Crotons*, gave colour-effect to the group, out of which rose some little gems of *Masdevallias*, such a useful *Lady's Slipper* as *bellatulum*, which looked quite antique-like, and which is very telling in a group of this kind; together with *Odontoglossums* of sorts, not the least useful of which a *cirrhosum* and *Rossii*, making up a sparkling setting among the common green sphagnum. Mr. Holmes put up a brilliant display, in which *Cattleyas* predominated, and so far as colour went, and choiceness of subjects in that way, there was no surpassing it, but then the effect was not half so good as that in which one quarter of the subjects were used in the 1st prize group. Here was one of the best *Miltonia vexillaria* in point of colour any one could look upon, and altogether the Orchid display was beautiful. Col. Pepper, Salisbury, took 3rd position with a commoner class of plants that were wanting in style for grouping for effect.

Specimen Flowering Plants.—Mr. Cypher had an excellent lot, worthy of a first position at any show. His *Darwinia tulipifera* and *D. fuchsoides* were full of bloom, and the pink of health, as were also his *Aphelexis*. *Pimelea spectabilis* always takes front rank when large and well done; *Anthuriums*, particularly *A. Scherzerianum*, Ward's variety, makes a telling plant when contrasted with plants of *Erica Cavendishiana* and *Azalea Cedo Nulli*, excellently grown and bloomed. Mr. J. F. Mould was 2nd. Col. Pepper, Mrs. Hodgkinson, and Miss Lord had the best groups in the amateur classes.

Cape Ericas.—These were much better shown than we have seen them for many years; Mr. Cypher again leading, with Mr. Mould following him. Among the best were *E. Cavendishiana*, *E. coccinea* minor, *E. Victoria Regina*, still one of the best at this early part of the season; *E. ventricosa magnifica*, and several other *E. ventricosa*—generally good plants, and full of flower.

Azalea indica.—Those of Mr. Turner, Slough, were well handled, not over-large plants, but in profusion of bloom; among the best of the dark section were *Duc* and *Duchesse de Nassau*, *Roi d'Hollande*, *grandis*, and in the lighter shaded lot were *Jean Vervaene*, most effective; *Madeline* and *Marie Lefebvre*, both good large-flowered whites; *Bernard*, *Andréa alba*, and a few others. Miss Lord, Colonel Pepper, and Mr. Blair showed fairly good specimens.

Roses in Pots.—Messrs. Paul & Sons, Cheshunt, had by far the best, and were followed by Mr. W. J. Williams, and Mr. Morell. The best varieties in both the groups, of thirty and twenty, were *Violette Bouyer*, bluish; *alba rosea*, white; *Innocente Pirola*,

pale yellow; *Merveille de Lyon*, one of the very best whites; *Celine Forestier*, *Ella Gordon*, *Duke of Teck*, and *Her Majesty*. Cut blooms of *Roses* were only indifferently shown.

Pelargoniums and Miscellaneous.—The sunny south always takes the lead in *Pelargoniums*. There was nothing to touch Mr. Charles Turner's lot in show and fancies. The best were *The Czar*, *Marguerite*, *Lady Isabel*, and *Kingston Beauty*. In fancies, *Delicate*, *Roi des Fantaisies*, and *Ella Beck* stood out prominently. Mr. B. S. Williams had a table of interesting and useful decorative plants, comprising a sprinkling of Orchids, some fairly good *Amaryllis*, some capital *Dracenas*, which gained them first position, a few fairly good specimens of *Azaleas*, *Heaths*, &c., and a nice square basketful of that most lovely blue greenhouse plant, *Leschenaultia biloba*, a plant about which there seems to be great difficulty in growing to specimen size. It has the colour of a *Bugloss* and the finish of a florist flower. Messrs. Kerr & Sons, Liverpool, always put up an effective group of plants, and were this time followed by Mr. A. D. A. Bruce, Chorlton. The usual backbone of Palms, not over large, were in use, mixed with a lot of *Lilium candidum*, *Azaleas*, and a particularly good strain of herbaceous *Calceolarias*—plants which look well in a group, nicely undulated as this one was. Mr. Elkin, gr. to Mrs. Thos. Agnew, Eccles, took leading position in the amateurs' group, followed by Miss Lord. Gardeners are improving every year in their style of setting, and the sloping banks of the old exhibition entrance-house, suit the disposition of these things to a nicety. Table plants were well shown by H. Gossage, Esq., Liverpool, there being rather a spirited competition in that way.

Mr. Cypher's miscellaneous group was quite characteristic of their exhibitor, consisting as it did of a little of the best of everything in Orchids, Palms, Ferns, miscellaneous flowering plants, &c. The fine-foilage plants were fairly good without being superlatively so, and this applies to Ferns generally as well. The *Crotons* from Messrs. Kerr & Son were extra well done, beautiful in colour, and commanding in appearance among a mixed lot of plants. Messrs. Ryder, Sale, had a collection of *Primula Sieboldi* in colours bedded out amongst sphagnum.

Alpine Plants.—There was a large number of these contributed by such firms as *Dicksons of Chester*; *Stansfield Bros.*, Southport; Mr. R. P. Gill, Sale; and Mr. Lamb, Bowdon; of which there were nice pans of *Phlox reptans*, *Armeria atropurpurea*, the charming *Ramondia pyrenaica*, the beautiful blue *Gentian*, the heart-shaped *Tiarella*, several *Trollius*, *Aquilegias*, the North American *Ladies' Slipper*, a fine variegated form of *Forget-me-Not*, the Caucasian *Doronicum*, &c. Messrs. Caldwell & Sons had a good group of well-cultivated plants after this character. *Rhododendrons* were largely contributed by John Waterer & Sons, as were also a splendid collection of Japanese *Acers*, and a lot of specimen *Hollies* for general outside effect.

Mr. Forbes, Hawick, sent a good collection of *Violas* and cut *Pansies*, although he was eclipsed by some of the Midland growers, Mr. B. Robinson carrying all before him in the various classes with beautifully-grown and flowered plants, bedded out, and effective.

Fruit.—This division was limited, owing to the season; still Mr. McIndoe, gr. to Sir J. W. Pease, had a fair collection of fruit, comprising black and white *Grapes*, a *Pine-apple*, Best of All *Melon*, *Court Pendu Plat Apples*, *Early Beatrice Peach*, *Sir Harry Strawberry*; the *Duke of St. Albans* was 2nd, having excellent *Figs*, &c.; and Mr. J. T. Thorpe was 3rd. Best *Strawberries* in pots came from the *Duke of Sutherland*; the *Earl of Ellesmere* being 2nd; and for dishes, the same exhibitor took 1st, being followed by R. H. Neville, Grantham, and Mr. J. Thorpe, Coddington Hall. One of the best dishes of *Tomatoes* we have seen this season came from Mr. McIndoe. The best *Pine-apples* came from Mr. Crawford, gr., Coddington Hall, as well as the best scarlet-flesh *Melon*; Mr. McIndoe taking leading position with the green-flesh variety, and also with the best brace of *Cucumbers*.

BATH FLORAL FÊTE.

Spring Show.

MAY 13.—In charming weather this exhibition was held in the Sydney Gardens, and proved one of the best yet held, while the attendance was very large.

Stove and Greenhouse Plants were seen in fine condition, and the sixteen specimens, ten flowering and six foliaged, which gained the 1st prize for Mr. J. Cypher, Cheltenham, were quite up to the average of the productions of this well-known exhibitor. His plants, including some superb *Kentias*, a fine *Latania borbonica*, &c. Of flowering plants he had *Darwinias*, *Aphelexis*, *Ericas*, *Anthuriums*, all in good condition. Mr. J. Currey, gr. to Col. Pepper, Salisbury, was a good 2nd. The latter had the best nine plants in flower; the 2nd prize going to Mr. G. Tucker, gr. to W. R. Brown, Esq., Trowbridge. Mr. Cypher was 1st with six; and Mr. A. Hawkins, gr. to Mrs. Jolly, Bath, 2nd. *Pimelea spectabilis rosea*, a fine piece, from Mr. Cypher, was the best specimen flowering plant; Mr. W. Bennett, gr. to C. W. MacKillop, Esq., Bath, was 2nd with *Clerodendron Balfourianum*.

Azaleas were fairly plentiful, standard sorts rather than new introductions being present. Mr. J. Cypher was 1st with six; and Mr. Marchant, gr. to Jerom Murch, Esq., Mayor of Bath, a good 2nd. Mr. G. Tucker had the best four; and Mr. Marchant was again 2nd. There was a class for a single specimen also.

Orchids.—A great improvement in the Orchids exhibited at Bath has taken place during the past few years. The Rev. E. Handley has taken a leading position as a cultivator, and it is to be hoped his example will be followed by others. Prizes were offered for a group of Orchids, but one only was forthcoming—that from Mr. Kerslake, gr. to the Rev. E. Handley, which was tastefully set up on a table, with small Palms, Ferns, &c.; it was awarded the 1st prize. The same award was made to Mr. Kerslake for six specimens, having *Lælia purpurata*, *Miltonia vexillaria*, *Cattleyas Mossiæ* and *Skinneri*, *Anguloa Clowesii*, and *Odontoglossum Alexandræ*, there being no other exhibitor. Mr. Kerslake was also 1st with four specimens, staging a fine piece of *Lælia purpurata*, *Dendrobium suavisimum*, *Aërides Fieldingii*, and *Cypripedium caudatum*. Mr. J. Crispin, Bristol, was 2nd, with *Cattleya Mossiæ*, *Cypripedium biflorum*, *C. Roebeleni*, and *Odontoglossum crispum*. The best specimen Orchid, was a superb *Lælia purpurata* from Mr. Kerslake, Mr. Crispin taking the 2nd prize with *Vanda suavis*.

Groups of Plants arranged for Effect.—In the open class, Mr. J. Cypher was placed 1st, with one of those arrangements for which he is so famous, Orchids being the leading feature; Mr. Tate (gr. to W. Pumphrey, Bath) was 2nd. In the class for a smaller group, Mr. Marchant, gr. to J. Murch, Esq., Mayor of Bath, was 1st; and the 2nd prize went to Mr. J. Clark, gr. to E. G. Peacock, Esq., Bath.

Roses in pots.—With six specimens, Dr. S. T. Budd, Bath, was 1st, having well-grown and bloomed plants; Mr. Kerslake taking the 2nd prize. Banks of *Roses* in pots, represented by plants generally in 8-inch pots, were a charming feature, Mr. Kerslake taking the 1st prize, with finely-grown and flowered plants; Dr. Budd was 2nd. Some admirable blooms could have been cut from these collections.

Greenhouse Heaths.—These were somewhat sparingly shown. Mr. Cypher had the best four specimens; and Mr. J. Currey was 2nd. The best single specimen came from Mr. W. D. Bennett, gr. to C. W. MacKillop, Esq., Bath—a remarkably good example of *E. Victoria*. The white variety of *E. hyemalis*, shown by Mr. G. Tucker, took the 2nd prize.

Pelargoniums are always a very good feature at Bath, Mr. G. Tucker was 1st, a plant of the show variety, *Rob Roy*, being especially fine; the 2nd prize went to Mr. J. Edwards, gr. to J. Williams, Esq., Bath.

Other flowering plants included *Calceolarias*, a very good lot being shown Mr. G. Tucker; *Cinerarias* from the Mayor of Bath, and fancy *Pansies* and *Violas* in pots, an attractive feature.

Foliage plants were, as usual, an imposing feature, Mr. Cypher being to the fore with some fine specimens. Ferns were good also, especially a collection of twelve, from Mr. G. Tucker. He was also 1st, with a fine specimen of *Gymnogramma sulphurea*.

Cut Flowers included some excellent *Roses* from Dr. Budd, Mr. Kerslake, and others. Dr. Budd had some beautiful blooms of Mrs. J. Laing—lovely in spring as in autumn. There was a class for six *Tulips*, also for *Pansies* in twenty-fours and twelves, some very fine blooms of the fancy varieties being staged. Boxes of twenty-four bunches of cut flowers were also shown, Mr. G. Tucker taking the 1st prize with an admirable lot; and he was 1st with twelve bunches of show *Pelargoniums*. Mr. F. Hooper,

Widcombe Hill Nursery, Bath, took the 1st prize, for twelve bunches of hardy herbaceous plants.

Vegetables.—A collection of nine dishes, shown by Mr. A. Miller, The Gardens, Rood Ashton, Trowbridge, reflected high credit on this well-known gardener. Red Tomatoes were wonderful, and a dish of Stratagem Pea superb for the second week in May. Cucumbers, Mushrooms, Peas, Potatoes, Asparagus, and baskets of salads were all good.

Miscellaneous collections included a tasteful and valuable collection of stove and greenhouse plants, including Orchids, from Messrs. Geo. Cooling & Sons, nurserymen, Bath; and a similar collection, including also a group of alpine and other hardy plants, from Messrs. R. T. Veitch & Son, nurserymen, Exeter.

Fruit and table decorations, bouquets, and wild flowers were likewise exhibited.

SOUTHAMPTON.

MAY 18.—The first show of the season was held by the Royal Horticultural Society of this town on the above date, and was the occasion of an attractive lot of exhibits. Substantial prizes were offered for miscellaneous plants arranged with an eye to effective grouping, and those exhibited by Mr. E. Carr, gr. to W. A. Gillett, Esq., Fair Oak Lodge, Bishopstoke, were far ahead of all the others shown in the Orchids and other plants, of which the groups consisted, being arranged with much good taste. Mr. Ladhams, florist, Shirley, took the 2nd place with a bright coloured group. In a similar class of smaller dimensions, Mr. G. Bushby, gr. to F. Willan, Esq., Thornhill Park, Bitterne, was the winner of the chief prize, with a collection of very suitable plants.

Calceolarias were well shown by Mr. Amys, gr. to the Hon. Mrs. Elliott Yorke, of Hamble Cliff, Netley, whose plants were broad, dwarf in habit, and very well flowered.

Gloxinias possessed high merit, and the six plants which won for Mr. Carr 1st prize, were as good as possible.

Spiræas, shown in a lot of six specimens, invited a brisk competition; and Mr. Hall, gr. to the President of the Society, S. Montague, Esq., South Stoneham, Southampton, staged the best.

Pelargoniums were very bright and attractive, especially those from Mr. Ladhams.

Mr. Amys, with a well-balanced specimen of *Kentia Fosteriana*, was 1st for one Palm.

A capital box of cut blooms of *Maréchal Niel* Roses gained for Mr. Stratton, Portswood, the 1st award in the class for cut blooms.

Herbaceous cut blooms, in twelve varieties, were interesting as regards the species and varieties, and showed much good culture. Mr. Maurice Pritchard, Southborne, Christchurch, had a nice lot, and was an easy 1st; *Cypripedium calceolus*, *Trillium grandiflorum*, *Trollius* in variety, and *Phlox frondosa* were amongst the plants which he had.

Non-competitive exhibits were numerous, and included a splendid collection of *Rhododendrons*, ornamental foliage and flowering shrubs in pots, from Mr. Rogers, Red Lodge Nurseries, which did him much credit, and were of themselves a great attraction.

Mr. Carr staged about two dozen specimen Orchids, including *Lælia purpurata*, *Cattleya Mossia*, *C. Mendelii*, *Odontoglossum citrosum*, *O. maculatum*, *Thunia Marshalliana*, and *Cymbidium Lowianum*.

Mr. Ladhams had an extensive display of *Pelargoniums*, *Saxifrages*, and *Petunias* in pots.

Mr. Amys contributed a collection of vegetables, of much merit.

ROYAL AQUARIUM EARLY SUMMER SHOW.

MAY 20.—This was the third of the series of shows promoted by the Royal Aquarium Company, and in some respects it was a very effective one. Groups of plants, arranged for effect, were a good feature, and Messrs. J. Laing & Sons, Stanstead Park Nursery, Forest Hill, were placed 1st, with a very effective arrangement; and Mr. James, nurseryman, Lower Norwood, was 2nd, also with a very full group. Ferns were shown in groups of twelve plants, and Mr. J. Hudd, gr. to F. W. Prior, Esq., Blackheath Park, was awarded the 1st prize for a good lot; Mr. H. James being 2nd.

Caladiums were a very fine feature, Messrs. J. Laing & Sons being awarded the 1st prize for a very fine lot of nine plants, comprising the following, in superb condition:—*Mithridate*, *Madame J. Kœchlin*,

Leopold, *Robert*, *Le Titien*, *Sanchoniatum*, *Madame F. Kœchlin*, and *Mons. D. Halloy*. Mr. J. Day, gr. to W. S. Gover, Esq., Herne Hill, was 2nd.

Mr. Henry James was the only exhibitor of twelve *Azaleas*, and was awarded a 1st prize.

Roses in pots were staged by Mr. W. Rumsey, Waltham Cross, twelve admirably grown and bloomed specimens taking the 1st prize.

Calceolarias were in good form from Mr. H. Guyett, gr. to T. Gabriel, Esq., Streatham; and in the class for six plants, Sutton's prize *Gloxinias*, Mr. C. Nunn, gr. to J. Soames, Esq., Greenwich Park, was 1st; Mr. C. Osman, South Metropolitan Schools, Sutton, 2nd.

Cut Flowers.—Messrs. Paul & Son, Old Nurseries, Cheshunt, were awarded a 1st prize for a group of hardy cut flowers and foliage, of a remarkably fine and extensive character; and also for twelve bunches of *Violas*. **Table Decorations.**—The 1st prizes for a single piece, and also for three pieces, for table decoration, were awarded to Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill House, Ealing; Mr. J. Lambert, Herne Hill was 2nd, with a single piece; and Mr. Geo. Collins, gr. to Mrs. Anderson Rose, Wandsworth Common, for three pieces.

Under the head of miscellaneous, Messrs. William Paul & Sons, Waltham Cross, staged a very fine bank of *Roses* in pots, and also twelve boxes of cut blooms—a remarkable collection of high quality. Messrs. Barr & Son, King Street, Covent Garden, had a large collection of hardy cut flowers; and Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, *Tree Pæonies* in great variety, and varieties of *Primula Sieboldii*. To each of these collections a Silver Medal was awarded. Messrs. Victor Lemoine et Fils sent from Nancy, France, a collection of new varieties of *Lilacs* of a very interesting character.

LAW NOTES.

CLAIM FOR SEEDS SUPPLIED.

In the Westminster County Court on May 14, the case of *Cowcroft v. Lee* was before His Honour Judge Bayley, by way of a judgment summons, to enforce payment of a balance of account for seeds and plants supplied to the defendant. The plaintiff was called, and said that judgment was recovered against the defendant a considerable time ago, and an order was made for him to pay the money by instalments, which he did do for some time, but when there was still a balance of £12 owing, he refused to pay any more, on the ground that he (plaintiff) refused to give him credit for further goods until the old account was actually paid up. The defendant had two florist's shops at New Cross station, in a good part of the High Road, and could well afford to pay the money.

The defendant appeared in person, and admitted that he had shops at New Cross, but denied that he was doing a very large business, or that he was well able to pay the money. His business had been very bad recently, and that was the reason why he had not paid, and not for the reason stated by the plaintiff. Moreover, he had several other judgments against him, and it was absolutely impossible for him to pay them all. If a smaller order was made, he would do his best to comply with it.

His Honour reduced the terms of the order, and made it payable by monthly instalments of £1.

Obituary.

JOHN WINGFIELD LARKING.—On Monday last, a remarkable man, John Wingfield Larking, Esq., J.P., died, in the ninetyeth year of his age, at his beautiful residence, The Firs, Lee, Kent. He occupied the position of British Consul at Alexandria for many years, under Mehemet Ali's régime, and served in other distinguished offices under Said and Ismail, Mehemet's successors.

During his long stay in Egypt, he did much to improve the public gardens, by advising as to their planting and improvement. A magnificent winter garden, built by Messrs. J. Weeks & Co. many years ago, was constructed, at Mr. Larking's sugges-

tion, for one of the royal gardens; but, owing to the deposition of Ismail, it was unfortunately never erected. Mr. Larking also took a great interest in Egyptian agriculture, and was looked upon as the best authority on the subject. About thirty years ago, Mr. Larking retired from Egypt, and purchased The Firs, Lee, as well as leased a country residence near Forest Row, in Sussex. Here he formed a model farm, erecting buildings of the most improved character, and engaged in stock-breeding on an extensive scale.

On the expiration of his lease, he removed entirely to The Firs, Lee, and then began to devote his leisure time to the formation of what proved to be one of the most delightful gardens in the country. He travelled extensively during the earlier period of his life, and taking a great interest in trees and shrubs, and landscapes, as well as possessing exceptional artistic ability, he was able to lay out his gardens in a thoroughly unconventional manner. Although the area of the pleasure-grounds was limited to a few acres, yet by the skilful manner in which he broke up the space into a series of miniature hills and dales, by judicious grouping of trees and shrubs, and arrangement of rock-beds, one would imagine the garden to be many times larger. The trees, shrubs, and flowers, were always arranged with the greatest care to ensure harmony of form and colour at all seasons. Mr. Larking would never tolerate the ordinary flower-bed; it was too garish and formal for his taste. All flowers had to be grown in borders, on the margin of groups of shrubs, so that they had an effect of background.

No expense was spared in regard to plants, the best and the choicest that could be had were his delight; he eschewed the ordinary bedders. In this garden are two of the finest examples of the Black Hickory (*Juglans nigra*) to be seen in this country, and Mr. Larking was justly proud of them; see *Gardeners' Chronicle*, November 13, 1886. Illustrations of both, also of a fine example of the June Berry (*Mespilus canadensis*) appeared in the *Gardeners' Chronicle* some years ago, described in our columns of April 30, 1887.

The structure known as the winter garden is a huge one, formed in three divisions, but all open inside. In here the same dislike to staging as for beds was shown. Instead of the former, the floor space was occupied by irregularly-shaped mounds and narrow winding gravel paths. Huge boulders of Kentish ragstone kept the soil in position, and in this were planted Ferns and foliage plants of the choicest description, flowering plants in season being interspersed among them with due regard to the production of a delightful harmony of form and colour. The flowering plants had their pots plunged to the rim in the soil, so that no pots were visible. Sundry trailing plants covered the soil, and with climber-clad roof and sides the whole produced a *tout ensemble* of the most *recherché* description.

His library of botanical and horticultural works, both British and foreign, was very extensive. The writer of the present brief sketch enjoyed Mr. Larking's friendship for over ten years, six of which were happily spent in the latter's service as gardener, during which time the majority of the improvements alluded to were carried out. The writer can recall many pleasant trips across the Channel to see continental gardening at his late employer's expense; but what he values most of all, is the education he received in the art of laying-out a garden such as it was his pleasure to assist in forming at The Firs, and the kindness and interest shown in the writer's welfare down to the former's death. T. W. Sanders.

TRADE NOTICE.

WE are informed that Messrs. J. FEED & SONS, of Roupell Park Nurseries, Norwood, have been appointed as nurserymen, &c., to the School Board of London.

THE BULB GARDEN.

TULIPA VITTELINA AND TULIPA
CARINATA LUTEA.

Both of the above very beautiful forms are now in flower at Ard-Cairn, Cork; good authorities on the subject of "old-fashioned" bulbs and plants, say they are both one and the same thing. I took the trouble of posting Mr. Samuel Barlow, of Manchester, bulbs of each, and will be glad to hear from him through the press. *T. vittelina* was figured in the *Garden* recently, and I have never seen in any horticultural journal mention of the other, *John Wm. Baylor Hartland, Ard-Cairn, Cork.*

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.			BRIGHT SUN.	
	Above (+) or below (—) the Mean for the week ending May 16.	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inch.					
1	1 —	45	10	+ 50	64	3	86	17.3	42	29
2	0 aver	53	9	— 23	81	2	53	6.9	50	32
3	1 +	49	0	— 38	78	3	60	5.5	52	29
4	1 +	64	0	— 27	118	3	59	4.9	55	33
5	3 +	75	0	— 11	98	2	54	6.0	53	31
6	3 +	88	0	— 35	142	2	51	6.6	50	33
7	0 aver	53	0	+ 21	29	2	62	11.3	49	32
8	1 +	62	0	+ 21	25	0 aver	52	6.5	46	30
9	4 +	85	0	— 5	106	4	52	8.8	60	37
10	0 aver	53	0	+ 1	17	2	67	8.0	55	32
11	1 +	73	0	+ 26	19	4	59	7.6	57	35
12	1 +	75	0	— 1	40	3	58	7.6	53	46

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 16, is furnished from the Meteorological Office:—

"The weather during this period has varied greatly. During the earlier half of the week it was fine, dry, and summer-like, but subsequently became very cold and rough, with heavy showers of rain, sleet, or snow over the more northern districts, and of rain and hail in the S. and S.W. Thunder and lightning were experienced in many parts of England on the 15th.

"The temperature was rather low during the first day of the period, but by the following day it had risen quickly, and remained high generally until the 14th; it then fell continuously for some days, and became very low. The range of temperature has been unusually large, amounting in nearly all parts of the Kingdom to between 45° and 52°. The highest of the maxima, which were generally recorded on the 12th, ranged from 80° to 82°, at many of the inland English districts to 75° over Ireland, and to between 71° and 76° in Scotland.

The lowest of the minima were registered on the 16th, and varied from 42° in the 'Channel Islands,' and 38° in 'Ireland, S.,' to 29° in the 'Midland Counties' and 'Scotland, N.,' and to 26° in 'England, E.'

"The rainfall has been rather more than the mean in 'Scotland, N.,' and has just equalled the normal in 'England, N.W.' In all other parts of the Kingdom it has been less.

"The bright sunshine has been more prevalent than it was during last week; and has exceeded the mean in all districts. The percentage of the possible duration varied from 42 in 'Scotland, N.,' to between 50 and 57 in most other districts, and to 60 in 'England, S.W.'"

MARKETS.

COVENT GARDEN, May 21.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. Ed.]

Owing to the holidays, trade has been disorganised; and, although supplies generally have been short, prices have receded. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.		s. d. s. d.	
Artichokes, Globe,	each ... 0 4-0 6	Endive, per dozen	... 4 0-...
Asparagus, wholesale,	Worcester, bundle 1 3-1 6	Herbs, per bunch	... 0 4-...
Cambridge, bundle.	1 3-1 6	Lettuces, per dozen	... 3 0-...
Various, sml. bdle.	0 6-10	Mushrooms, punnet	2 0-...
Beans, French, lb.	1 6-2 0	Mustard and Cress,	punnet ... 0 4-...
Beet, red, per dozen	2 0-3 0	Parsley, per bunch	... 0 4-...
Carrots, per bunch	0 6-...	Seakale, per basket	... 0 9-1 6
Cauliflowers, each	0 6-...	Shallots, per lb.	... 0 6-...
Celery, per bundle	2 6-3 6	Spinach, per bushel	... 7 0-...
Cucumbers, each	0 6-1 0	Tomatoes, per lb.	... 1 6-2 6
		Turnips, per bunch	0 6-...

OLD POTATOS.—Market firmer, with slight advance, caused by cooler weather.

NEW POTATOS.—Stocks and arrivals rather short. Market very firm, tendency upwards. Rounds, 12s. 6d. to 13s. *J. B. Thomas.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Anemones, 12 bun.	... 2 0-4 0	Narcissus Poeticus	(Pheasant Eye), 12 bunches ... 1 6-2 6
Arum Lilies, 12 blms.	... 2 0-6 0	Pansies, 12 bunches	0 6-1 0
Azalea, 12 sprays	... 0 6-1 0	Pelargoniums, scarlet,	12 spr. ... 0 4-0 6
Bouvardia, per bun.	1 0-1 6	12 sprays	... 0 6-1 0
Camellia, white, 12 blooms	... 2 0-3 0	Polyanthus, 12 bun.	1 0-2 0
"colrd., 12 blms.	0 9-2 0	Primroses, double,	p. 12 bunches 1 0-2 0
Carnations, 12 blms.	1 0-2 0	"p. 12 bunches	0 4-0 6
Cineraria, 12 bchs.	... 6 0-9 0	Primulas, double, 12 sprays	... 0 6-1 0
Cyclamens, per doz.	0 3-0 6	Ranunculus 12 bun.	1 0-2 0
Daffodils, various, 12 bunches	... 2 0-6 0	Roses, Tea, per doz.	1 0-3 0
Eucharis, per dozen	3 0-6 0	coloured, dozen	2 0-4 0
Gardenia, per doz.	1 6-3 0	yellow (Mare-chals), per doz.	3 0-6 0
Heliotropes, 12 spr.	0 6-1 0	red, per dozen	3 0-6 0
Lilac, best, p. bunch	4 0-6 0	do., French, doz.	1 0-3 0
"p. bunch	0 4-0 9	Spiraea, per bunch	0 4-0 6
Lilium Harrisii, doz.	3 0-4 0	Tuberose, 12 blms.	0 6-1 0
Lily of the Valley, 12 sprays	... 0 6-1 0	Tulips, various, per doz. bunches	... 3 0-6 0
Maiden Hair Fern, 12 bunches	... 4 0-9 0	Violets, 12 bun.	0 6-0 9
Marguerites, 12 bun.	3 0-6 0	Parma, Fr., bun.	3 0-3 6
Mignonette, Fr., bu.	0 4-0 6	dark, Fr., bun	1 0-1 6
Myosotis, 12 bun.	... 2 0-4 0	Wallflower, 12 bun.	2 0-4 0
Narcissus (yel.), 12 bun	2 0-4 0		
"double white, 12 bunches	4 0-6 0		

ORCHID-BLOOM in variety.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Aralia Sieboldi, doz.	6 0-18 0	Ficus elastica, each	1 6-7 0
Aspidistra, doz.	... 18 0-42 0	Foliage plants, various, each	... 2 0-10 0
—speci. plants, each	7 6-10 6	Genista, per dozen	... 6 0-9 0
Azalea, per dozen	... 12 0-30 0	Heliotrope, per doz.	4 0-8 0
Bedding plants, variety, per doz.	1 0-2 0	Ivy Pelargoniums, per dozen	... 4 0-6 0
Bouvardia, p. doz.	9 0-18 0	Liliums, various, per dozen	... 18 0-30 0
Calceolaria, p. doz.	6 0-10 0	Lobelia, per dozen	... 4 0-6 0
Cineraria, per dozen	4 0-8 0	Marguerites, doz.	... 6 0-12 0
Cyclamens, dozen	9 0-18 0	Mignonette, per doz.	4 0-9 0
Cyperus, per dozen	4 0-12 0	Musk, per doz.	... 3 0-6 0
Dielytra, per dozen	8 0-12 0	Myrtle, per doz. pots	6 0-12 0
Dracena terminalis, per dozen	... 30 0-60 0	Palms in variety, each	... 2 6-21 0
—viridis, per doz.	12 0-24 0	Pelargoniums, doz.	12 0-18 0
Euonymus, in var., per dozen	... 6 0-18 0	"scarlet, p. doz.	4 0-9 0
Ericas, various, doz.	8 0-24 0	Roots for bedding, in boxes, each	from 1 0-2 0
Evergreens, in var., per dozen	... 6 0-24 0	Spiraea, per dozen	... 6 0-9 0
Ferns, in variety, per dozen	... 4 0-18 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Apples, 4-sieve	... 3 6-6 0	Lemons, per case	... 15 0-25 0
—Nova Scotia, brl.	15 0-25 0	Pine-apples, St. Michael, each	... 2 0-8 0
—Tasmanian, case	12 0-14 0	Strawberries, p. lb.	... 3 0-6 0
Cobs, Kent, 100 lb.	... 45 0-50 0		
Grapes, new...	... 2 6-4 0		

SEEDS.

LONDON: May 20.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., describe today's market as of a holiday character, with but little business doing. Occasional small sowing orders still drop in, which are executed at the moderate rates now accepted. Stocks leave off light all round. Bird seeds keep very firm. Mustard in improved request. Rape seed tends upwards. Haricots and Peas are in narrow compass.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending May 16, and for the corresponding period last year:—1890, Wheat, 39s. 11d.; Barley, 27s. 11d.; Oats, 20s. 9d. 1891, Wheat, 32s. 6d.; Barley, 27s. 7d.; Oats, 19s. 3d. Difference:—Wheat, +7s. 6d.; Barley, +0s. 4d.; Oats, +1s. 6d.

FRUIT AND VEGETABLES.

STRATFORD: May 20.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the undermentioned prices:—Cabbages, 3s. 6d. to 6s. per tally; Greens, 3s. to 3s. 6d. per sack; do., 4s. to 5s. 6d. per dozen bunches; Cauliflowers, 2s. to 3s. per dozen; Carrots, household, 140s. to 150s. per ton; Mangels, 22s. to 24s. do.; Swedes, 20s. to 30s. do.; Onions, 110s. to 140s. do.; Apples, English, 3s. 6d. to 7s. per bushel; Radishes, 1s. to 1s. 3d. per dozen bunches; Cucumbers, 3s. to 6s. per dozen; Mint, 1s. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: May 19.—Quotations:—Hebrons, 120s. to 130s.; Magnums, 120s. to 135s.; Dunbars, best, 120s. to 130s.; Imperators, 110s. to 140s.; Regents, 100s. to 120s.; Champions, 90s. to 100s. per ton. New: Canary, 12s. to 16s.; Lisbon rounds, 9s. 6d. to 10s. 9d.; Malta do., 8s. 6d. to 10s.; Kidneys, 12s. to 16s. per cwt.

SPITALFIELDS: May 20.—Quotations:—Dunbars, 110s. to 120s.; Hebrons, 110s. to 130s.; Imperators, 110s. to 140s.; Regents, 100s. to 130s.; Champions, 90s. to 110s. per ton. New: foreign, 8s. to 16s. per cwt.

STRATFORD: May 20.—Quotations:—Magnums, 110s. to 130s.; Hebrons, 80s. to 100s.; Imperators, 100s. to 110s.; Scotch Magnums, 110s. to 140s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 102s. 6d.; inferior do., 46s. to 75s. hay, best, 60s. to 87s.; inferior do., 26s. to 59s.; and straw, 20s. to 35s. per load.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

HERBACEOUS PÆONIES.—The Curator of the Cambridge Botanic Garden desires to make a special study of a certain group of the genus *Pæonia*—that to which *P. peregrina* and *P. arietina* belong—and would therefore be grateful for a specimen of any kind that has divided leaflets distinctly glaucous and pubescent below, the foliage, when mature, being of pale green or greyish-green tint. Any of known wild origin are particularly desired.

NOTICES TO CORRESPONDENTS.

ANTS IN A PEACH-HOUSE: *Subscriber.* Find out their haunts, and pour a little carbolic acid mixed with water into these; or you may use Pyrethrum powder, dusting it about where the insects most abound. It is, unlike many insecticides, not injurious to plant-life. Boiling water will dislodge ants when poured into their nests.

BORDEAUX MIXTURE: *X.* There are various receipts for this, but the one generally used is copper sulphate 6 lb., lime 4 lb., water 22 gallons. Dissolve the copper in the water, slack the lime, add a little water to it, and then pour it into the copper solution. Keep the liquid stirred, and use with a spray pump.

CAMELLIA BORDER IN BAD STATE: *R. N. C.* The best time will be on the completion of the current season's growth; say in your district about the beginning of the month of July, there will then be a smaller risk of a second growth starting, which would necessarily fail to be matured.

CORRECTION.—CRYSTAL PALACE SHOW: By mistake our reporter gave Mr. Bishop the 1st Prize for three vases of flowers, instead of Mr. Thos. Butcher, South Norwood; Mr. Bishop was 1st for one vase.

CRICKETS IN A CUCUMBER-PIT: *A Gardener.* Use Pyrethrum powder—obtainable of most chemists.

DAFFODIL AROUND-RIDGE: *W. B. H.* The leaves are quite ripe, which would indicate the maturity of the bulbs and the proper time to lift them—as no one knows better than yourself.

GRAPES: *W. H. C.* The spots on the Grapes are the result of an unhealthy condition of the roots, brought about by an ill-drained and too deep a soil, and by some wrong method of management, as the robbing of the Vines of much of their foliage at one operation, instead of taking it a little at a time and often; the too liberal use of water at a low temperature; and in various other ways of lowering the vitality of the Vines. Not much can be done with the border at this season, except in digging down to the outlet drains, and seeing that they are not obstructed. In early autumn the border should be well examined, and renewed, if that be found needful, and made not deeper than 2½ feet, if it be now more than that, paying great attention to securing good drainage.

NAMES OF PLANTS: *E. H. C.* 1, *Myrsiphyllum asparagoides*; 2, *Ajuga reptans*.—*F. B.* 1, *Doronicum caucasicum*; 2, *Saxifraga granulata*, double flowered variety.—*X.* If you saw what a mess your plants arrived in, you would never again send such miserable scraps, packed so badly, and specially you would never use cotton wool. 1, is a *Veronica*; 2, *Pulmonaria officinalis*; 3, *Iberis coriifolia*; 4, *Cochlearia officinalis*.—*W. E. B.* *Hemantus natalensis*.—*O. O.* *Dendrobium palpebræ*.—*H. K.* *Streptosolen Jamesoni*.—*G. W.* 1, *Spiræa Thunbergii*; 2, *Heuchera micrantha*; 3, *Saxifraga muscoidea*.—*Ryde.* *Spiræa Thunbergii*.

GRAPES: *M. M.* The berries are spotted, probably with a fungus not yet fully developed. Symptoms of shanking are also apparent. If the disease progresses, send samples later on.

ORANGE-COLOURED POLYANTHUS: *J. H. S. K.* Very good in hue and substance—we have seen many as good, and a few better; but it is well worthy of perpetuation.

PEACH TREES: *J. B.* There are several species of fungus affecting the Peach, and we cannot detect which it is in your case. Please send specimens of shoots, leaves, and fruits. Meanwhile employ sulphur washes, and smear sulphur on the hot-water pipes if the trees are in a house, or place pans of water containing sulphur, where the sun heat can evaporate the water. Gather up and burn all the affected leaves and fruits.

WEEVILS: *C. P. K. G.* Look in the column in which your previous question was answered by us, and under "Beetles" you will find a way of trapping them mentioned.

CATALOGUES RECEIVED.

Messrs. FISHER, SON, & SIBBAY, Handsworth, Sheffield—Bedding and Border Plants, Table Plants, Climbers, &c.

Messrs. A. HAACK & CO., Kieselguhr Wharf, Homerton, E.—"Berkefeld" Filters.

J. CARTER & CO., 237 and 238, High Holborn, London—Cactus and other Succulents, Tubercus rooted, and Stove and Greenhouse plants.

COMMUNICATIONS RECEIVED.—*E. M.* (next week, if possible.)—*J. V. V.*, Brussels, many thanks. We shall give an illustration.—*Comte de R.*, Ghent.—*H. W.*,—Society for Promoting Christian Knowledge.—*C. A. M. C.*, in type, will be used shortly, when the pressure on our space is less urgent.—*Baron von M.*, Melbourne.—*R. J. L.*—*G. P.*—*F. R.*—*G. A. B.*—*Malcolm Dunn*.—*G. O.*—*W. Cutbush & Son*.—*H. C.*—*R. D.*—*J. A.*—*A. Meikle*.—*G. W.*—*W. E. B.*, Trinidad.—*B.*—*E. Schaeffel*, Paris.—*H.*—*W. D.*—*Peas*.—*A. L. E. C.*—*H. E.*—*J. McLean*.

DIED.—On the 18th, at Fallbarrow, Bowness, Windermere, the Rev. ARTHUR RAWSON, third son of the late W. H. Rawson, Esq., of The Haughend, Halifax, and vicar for thirty-nine years of Holy Trinity, Bromley Common, Kent, aged seventy-two. Mr. Rawson was a well-known grower of herbaceous plants, and an old correspondent of this Journal.

RANSOMES'

At the Jubilee Meeting of the R.A.S.E., Windsor, HER MAJESTY THE QUEEN and H.R.H. PRINCESS VICTORIA OF PRUSSIA each purchased a RANSOMES' LAWN MOWER.

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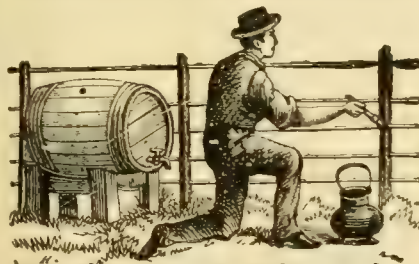


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CELEBRATED WESTON
FLOWER POTS
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POTTERY.

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HILL & SMITH'S BLACK VARNISH

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Price 1s. 6d. per gallon at the manufactory, or carriage paid to any railway station, 1s. 8d. per gallon in casks of 36, 18, or 9 gallons.

CAUTION.—Every Cask bears the above Registered Trade Mark. Beware of cheap imitations.

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15, VICTORIA STREET, WESTMINSTER, S.W.; and BACHELOR'S WALK, DUBLIN.—Discount for Cash.

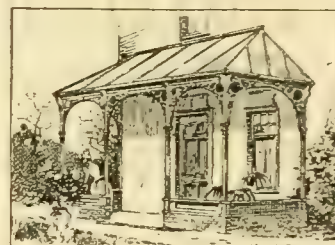
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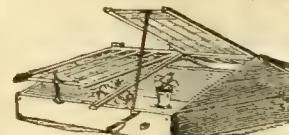
CASH PRICES. CARRIAGE PAID.

6 ft. by 3 ft. ... £2 0 0 | 6 ft. by 4 ft. ... £2 5 0
12 ft. by 3 ft. ... 3 2 0 | 12 ft. by 4 ft. ... 3 15 0

No. 73. NEW SPAN-ROOF GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0 | 12 ft. by 6 ft. ... £5 14 0
8 ft. by 6 ft. ... 4 4 0 | 16 ft. by 6 ft. ... 7 4 0



No. 74.

THREE-QUARTER SPAN GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0 | 12 ft. by 6 ft. ... £5 17 0
8 ft. by 6 ft. ... 4 5 6 | 16 ft. by 6 ft. ... 7 8 6

No. 75. MELON AND CUCUMBER FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 0 0 | 12 ft. by 6 ft. ... £4 3 0
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9 ft. by 4 ft. 2 7 6
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1 cwt., 19/-.



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GISHURST COMPOUND used since 1859 for Red Spider, Mildew, Thrips, Greenfly and other blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a winter dressing for Vines and Orchard-house trees, in latter from cake for American blight, and as an emulsion when paraffin is used. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

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FOR SHADING GLASS ROOFS OF ALL KIND
Is applied cold. Goes four times as far as the old preparations. Note its merits described below.

1 lb. (cost 1s.) makes half a gallon for use. Sample 1 lb. tin, post-free, 1s. 4d.

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"By order of the Directors we applied this Shading to the glass roofing of the Glasgow Exhibition, and found it possessed great advantages over all other preparations we had met with. Being applied cold it was most convenient to use, and while it resisted the action of the rain the whole season it was at once easily removed by gentle rubbing after wetting. It afforded a cool and pleasant shade, at same time admitting an abundance of light."

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Without which none is genuine.

Maintains its Superiority over all Rivals for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, etc. Saves many times its cost in labour, and will keep Walks, etc., clear of Weeds for a year or more.

Used in the proportion of 1 gallon to 25 gallons of Water.

THE BEST TESTIMONIAL IS
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SPECIAL QUOTATIONS FOR QUANTITIES.

Carriage paid on 10 gallons and upwards.

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The "STOTT" Fertiliser and
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BROWN FIBROUS PEAT for ORCHIDS,
31s. 6d. per Ton, or 126s. per Truck of 4 tons; Bags, 5s. each; 10 Bags, 45s.

BROWN and BLACK FIBROUS PEAT, 25s. per Ton, or 126s. per Truck of 4 tons; Bags, 5s. each; 10 Bags, 45s.

PEAT, for forming Rhododendron, Bog, and American Plant Beds, 21s. per Ton, or 84s. per Truck of 4 tons.

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THE CHEAPEST & BEST OF ALL. FIR-TREE OIL INSECTICIDE (soluble)

FOR PLANTS.—To make a solution for washing or cleansing purposes—Half-a-Pint of Fir-Tree Oil to ten gallons of water.

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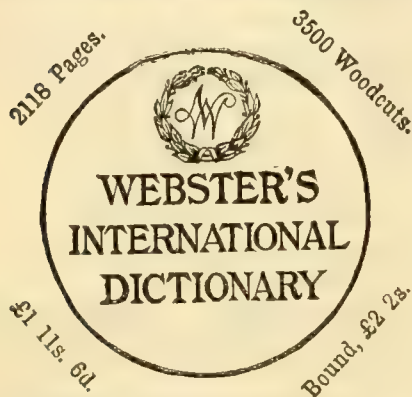
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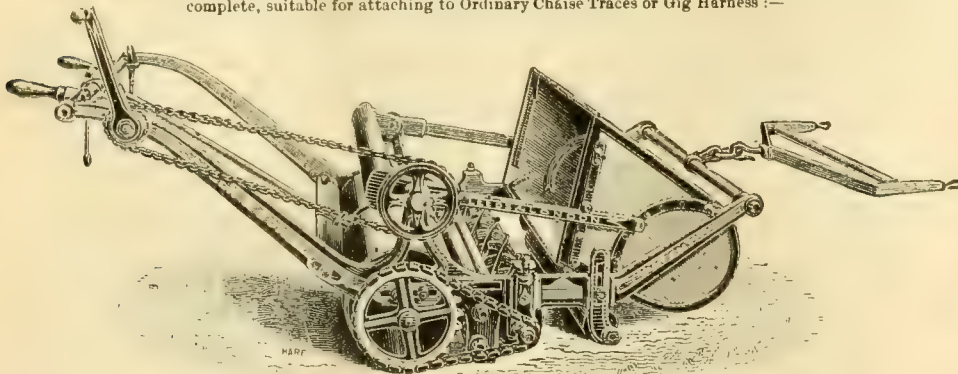
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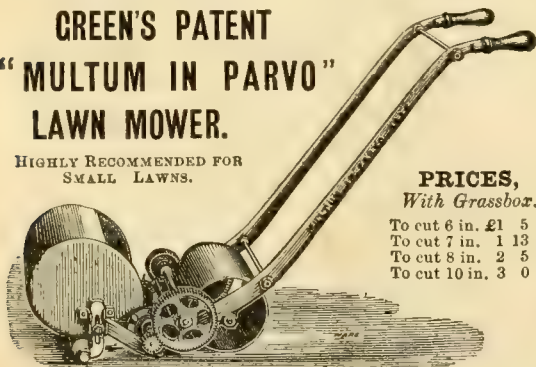
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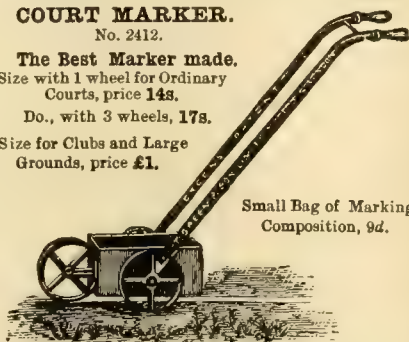
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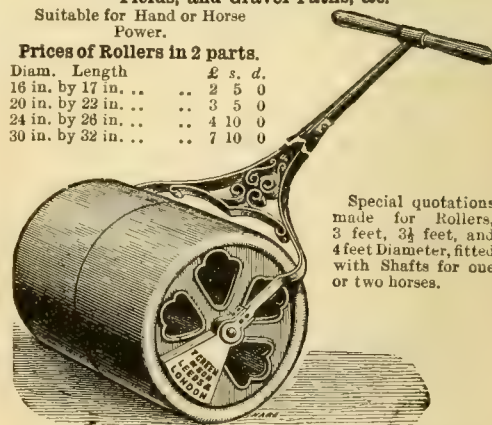
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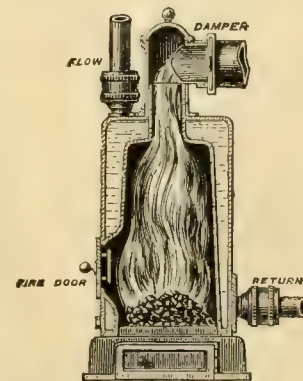
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The GARDENERS' CHRONICLE

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Now Ready, in Cloth, 11s. 6d., "The Gardeners' Chronicle," Vol. VIII., Third Series, July to December, 1890. The PUBLISHER, 41, Wellington Street, Strand, W.C.

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SALES BY AUCTION.

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On view Morning of Sale, and Catalogues had.

Thursday, June 18.

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Tuesday Next.

CATTLEYA MENDELI, without reserve.

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Wandsworth Common.

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MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, Burnt Wood, Wandsworth Common, 5 minutes' walk from Wandsworth Common Railway Station, on **THURSDAY NEXT**, June 4, at 2 o'clock, a large quantity of **STOVE** and **GREENHOUSE PLANTS**, *CAMELLIAS*, *AZALEAS*, *PALMS*, *FERNS*, a few *ORCHIDS*, 10,000 *GERANIUMS*, *LOBELIAS*, and other **BRIDGING PLANTS**; the erections of 6 **GREENHOUSES**, **PITS**, **FRAMES**, 1500 feet of 4-inch **HOT-WATER PIPING**, &c.

May be viewed two days prior to the Sale. Catalogues had on the Premises; of **MR. R. NEAL**, The Nursery, Trinity Road, Wandsworth Common; and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Friday Next.

ODONTOGLOSSUM ALEXANDREI and **PESCATOREI**; 150 **ESTABLISHED PLANTS** from a Private Collection.

MESSRS. PROTHEROE AND MORRIS will include the above in their **SALE** of **ORCHIDS**, on **FRIDAY NEXT**, June 5.

On view morning of Sale, and Catalogues had.

Friday Next, June 5.

By order of **MESSRS. LINDEN**, Directors of *L'Horticulture Internationale*, Brussels.

IMPORTANT SALE OF NEW AND RARE ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY NEXT**, June 5, at half-past 12 o'clock, **NEW** and **RARE ORCHIDS**, among which will be found the following grand species, many of which are offered for the first time in England, and nearly all are figured and described in the *Lindens*:

AGANISIA CYANEA, *BRASSIA CAUDATA*, *HIEROGLYPHICA*, *CIRRHOPETALUM O'BRIENIANUM*, *CEGLOGNE PELTASTES*, *CYPRIPEDIUM ARISU MENSI*, *C. BUNGEROTHII*, *C. HYBANUM*, *C. DESBOISIANUM* (in flower), *CATTLEYA BUYSSEANIANA*, *CORYANTHES BUNGEROTHII*, *DENDROBIUM MIRELIANUM*, *D. STRATIOTES*, *HOULETTIA ODORATISSIMA*, *LINDENI*, *KELLEUSTIMIA ISNOPTERA*, *LISSOCHILUS GIGANTEUS*, *MILTONIA LUBBERSII*, *MORMODES LAWRENCEANUM*, *PAPHINIA LINDENI*, *ZYGOPETALUM LINDENIÆ*, *Z. JORISIANUM*.

Fifty fine established unflowered plants of the splendid *CATTLEYA WAROCQUEANA*.

Some good **ESTABLISHED PLANTS** of the following desirable Orchids:—*ANGRECEUM SESQUIPEDALE*, *ANGULOA EBURNEA* (true), *SACCOLABUM CELESTE* (with flower-spikes), *EPIDENDRUM BICORNUM* (with flower-spikes), *LÆLIA PURPURATA*, *AERIDES HOULETTII*, *BURLINGTONIA GRANADENSIS*, *ODONTOGLOSSUM CONRARIUM*, &c., &c.

On view morning of Sale, and Catalogues had.

Stamford Hill.

GREAT ANNUAL PLANT SALE.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, The Stamford Hill Nursery, adjoining Stamford Hill Station, Great Eastern Railway, on **SATURDAY**, June 6, at 2 o'clock, by order of **MR. W. J. Sampson**, 100,000 **BEDDING**, **DECORATIVE**, and **FLOWERING PLANTS**, consisting of the best **Scarlet**, **Zonal**, and other **Geraniums**; **Verbenas**, **Coleus**, **Lobelias**, &c.; **Conservatory** and **Window Plants**, in variety; 2000 **Chrysanthemums**, and 1000 well grown **Foliage Plants**.

May be viewed three days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.; and Leytonstone, E.

Blackheath Park.

CLEARANCE SALE.

Highly important Sale of the celebrated Gordon House Collection of Exhibition **STOVE** and **GREENHOUSE PLANTS** and **ORCHIDS**, for Unreserved Sale, by order of **T. W. Prior, Esq.**, who is giving up his residence.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, Gordon House, Blackheath Park, close to Blackheath Railway Station, on **WEDNESDAY** and **THURSDAY**, June 10 and 11, at 1 o'clock precisely each day, without Reserve, the celebrated Collection of Exhibition **STOVE** and **GREENHOUSE PLANTS**, comprising magnificent Specimen Anthuriums, splendid examples of Crotons, beautifully coloured; a fine collection of Cape Heaths and Nepenthes, grand specimen Ferns, large Rhododendrons, *Cycas revoluta* and undulata, *Ixoras*, *Dracaenas*, *Palms*, *Eucharis*, *Camellias*, and *Azaleas*; four large *Lapagerias*, including the *Nash Court* variety; 550 well-grown *ORCHIDS*, amongst them 200 *Odontoglossum Alexandræ*, *Cattleya Mendeli*, *Mossie*, and *Percivaliana*; *Cypripediums*, *Dendrobium Wardianum*, *Lælia purpurata*; 1,000 *Bedding Geraniums*, 2000 *Lobelias*, and other plants.

May be viewed two days prior to the Sale. Catalogues may be had of the Head Gardener, on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—The Auctioneers desire to call special attention to this important Sale. The Collection is well known at the principal Metropolitan and Provincial Shows, where the plants have been awarded numerous prizes, and only at the Aquarium Show a few days since two first class prizes were obtained.

Bath.

IMPORTANT UNRESERVED SALE of the choice and exceedingly well-grown collection of **ESTABLISHED ORCHIDS**, **STOVE** and **GREENHOUSE PLANTS**, and **GLASS ERECTIONS**, by order of **Mrs. Studd**, who is compelled to give up their cultivation, in consequence of relinquishing the gardens.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to **SELL** by AUCTION, at the Assembly Rooms, Bennett Street, Bath (where the Orchids have been removed for convenience of Sale), on **TUESDAY** and **WEDNESDAY**, June 16 and 17, at half-past 12 o'clock each day, the choice collection of **ESTABLISHED ORCHIDS**, including, amongst many others, the following:—

<i>Odontoglossum Alexandræ</i> in variety	<i>Lycaste Skinneri</i> alba
" triumphans, specially fine variety	<i>Cymbidium Lowianum</i>
" <i>Pescatorei</i> , fine variety	<i>Masdevallia Veitchi</i> grandiflora
" <i>Uro Skinneri</i>	" <i>Harryana Bull's Blood</i>
<i>Roezli</i>	" varieties
<i>Sobralia macranthe rosea</i>	<i>Cattleya Mossie</i> varieties
<i>Dendrobium nobile Cook-soni</i>	" <i>Warocqueana</i>
" <i>Leechianum</i>	" <i>Dowiana</i>
" <i>nobile Cypheri</i>	<i>Schilleriana Regnellii</i>
" album	" <i>Wagneri</i>
" <i>Statterianum</i>	<i>Triana superba</i>
" <i>MacCarthiae</i>	" <i>Percivaliana</i>
" <i>MacFarlanei</i> (rare)	<i>Cypripedium Dayanum</i>
" <i>Ainsworthi</i>	" <i>Roezli</i>
" <i>splendissimum grandiflorum</i>	" grande
" <i>atro violaceum</i> (rare)	" <i>Rothschildianum</i>
<i>Lælia anceps Stella</i>	" <i>Leecanum</i>
" <i>Weddelliana</i>	" <i>Voitchianum</i>
" <i>alba</i>	" <i>insigne Maulei</i>
" <i>purpurata giganteum</i>	" <i>Lathamianum</i>
" <i>elegans</i>	<i>Phaius tuberosus</i>
	<i>Aerides Lawrenceanum</i>
	<i>Spathoglottis Kimballiana</i>

Also a quantity of

STOVE and **GREENHOUSE PLANTS** in variety.Six fine **KENTIAS** and other **PALMS**.The erections of **THREE GREENHOUSES**.

4-inch **HOT-WATER PIPING**, **GALVANISED TANKS**, &c. The Plants will be on view at the Assembly Rooms on the morning of each day's Sale, and the Greenhouses, by permission, three days prior to the Auction. Catalogues may be obtained at the Assembly Rooms, Bath, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Freehold Building Sites, either for Horticultural purposes, or for the erection of Villa residences, at Twickenham.

MR. J. N. GOATLY is favoured with instructions to **SELL** by AUCTION, at the "King's Head" Hotel, Twickenham, on **MONDAY**, June 8, at 6 for 7 o'clock in the evening, a very valuable enclosure of **FREEHOLD BUILDING LAND**, situate in the Hampton Road, Twickenham, between Arundel Villas and Box Cottage, and having a frontage to the said road of about 70 feet, and a depth of 230 feet, and being the only freehold site on the main road that is now available for building purposes. Also an enclosure of **COPYHOLD LAND**, immediately in the rear and adjoining the above, having a frontage to the Third Cross Road of 56 feet, and a depth of about 160 feet. The property is only 5 minutes' walk from Strawberry Hill Railway Station; which has become a most popular and attractive neighbourhood.

May be viewed, and particulars and conditions of Sale obtained at the place of Sale, and of the Auctioneer, Twickenham, Middlesex.

Bloomfield, Bolton, Lancashire.

LOMAX SONS AND MILLS have been instructed by the Executors of the late Mr. Wm. Marsden, to **SELL** by AUCTION, at the above residence, on **THURSDAY**, June 11, 1891, the very valuable Collection of **CHOICE ORCHIDS**, **STOVE** and **GREENHOUSE PLANTS**, **FERNS**, &c.

Catalogues may be obtained eight days prior to Sale, on application to the Auctioneers, 12, Norfolk Street, Manchester, and 15, Wood Street, Bolton.

WANTED, to RENT or PURCHASE, a **NURSERY**, or **GROUND** suitable for same.—**J. W. BAKER**, Holmsdale, Griffin Road, Plumstead.

WANTED, to RENT, 3000 to 5000 superficial feet of **GLASS-HOUSES**, Heated. State locality. **C. H. R.**, 13, Croydon Road, Penge, S.E.

TO BE SOLD, a bargain (through a death), a capital **MARKET NURSERY LEASE**, 11 good Glass-houses all well heated with 4-inch Hot-water Piping, and good Boilers, each house has tanks well supplied with water; also about 200 good Pit Lights and Fixtures, good Dwelling House, capital Stabling, and every convenience. Rent only £25 per annum, standing on 1 acre of ground. Eight miles from London. Possession at Midsummer.

Apply, **J. S.**, 2, E. m. Villa, Town Road, Lower Edmonton.

TO BE DISPOSED OF, cheap, a small **NURSERY**, with Flower and Seed Shop, doing a good business. Workshop, 4 Greenhouses, Pits, and Frames well stocked. ½-Acre of Ground, every thing to use; and Pony and Cart. A very prominent position—entrance to Queen's Road Station, Peckham. Held by owner sixteen years, but must be sold through ill-health. Come and see.

B. BIRD, Queen's Road Station, Peckham.

NURSERY and JOBBING GARDENER'S BUSINESS. Sure fortune to a practical gardener. Old established in county town in Middlesex. Convenient premises, consisting of house and shop, with stabling and sheds. Extensive range of glasshouses, and garden, all well stocked. Freehold for sale for the small sum of £1050. Part can remain on mortgage.

Apply to **DAY AND TILLY**, Agents, Staines Junction, L. & S. W. Ry.

TO BE SOLD, a **NURSERY**, with extensive Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, easy of access per rail; with commodious Dwelling-house. For further particulars, apply to

J. HOSKING, 16, Fenwick Street, Liverpool.

Rivers' Fruit Trees in Pots.

FOR SALE, by **PRIVATE CONTRACT**, at Spencer House, Cobham, Surrey, a Choice Collection of these Trees. Also an **ORCHARD HOUSE**, built on Rivers' instructions. Sold because of expiry of Lease. A very low price will be taken for the lot.

Apply to **THE GARDENER**, upon the Premises.

HANTS.—GARDEN, 16 Acres, with 20 Green and Vine Houses. Several 300 feet long, well laid out. Two Cottages. Rent £200, Tithe-free. Incoming £400. **E. Conservative Club**, Southsea.

TO LET or SELL—The old-established **NURSERY GARDEN**, known as **Leam Nursery**, Leam Terrace, East Leamington; comprising large Glasshouses, with excellent Vines, &c., and a good collection of Fruit trees in full bearing. The Nursery has been in present hands 40 years. Apply, **M. M.**, Ashlands, Leamington.

NORTH LANCASHIRE.—To Let, on Lease, Immediate Possession; practically new, old-fashioned, substantial, commodious **HOUSE**; three Sitting-Rooms, seven Bed-rooms, Stable, Coach-house, Loft, Cottage, good Garden, small Glass-houses, Vinery in full bearing, and Field; near Church, Station, and Post; Country, healthy and beautiful. Might suit any person retiring from the trade. Opportunity to Let Rooms.—Address, **Homestead**, Melling, Carnforth.

THE TOWER FURNISHING COMPANY (Limited), **SUPPLY GOODS ON HIRE**, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, **SECRETARY**, 43, Great Tower Street, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received a large and splendid importation of **ODONTOGLOSSUM ALEXANDRÆ**, the finest **PACHO TYPE**.

Also large and fine importations of the following and many other **ORCHIDS**:—*Odontoglossum grande*, *O. pulchellum majus*, *O. Cervantesi morada*, *Dendrobium Wardianum giganteum*, *D. Bensoni majus*, *D. Brymerianum*, *D. chrysotoxum superbum*, *D. nobile*, *D. densiflorum*, *Vanda teres*, *Cattleya bicolor*, *Lælia Perinii*, *L. superbiens*, &c.

The Company are constantly receiving importations from various parts of the world, and they have an immense stock of **Established ORCHIDS**. Descriptive **LISTS**, with full particulars, post-free on application to the

Vineyard and Nurseries, Garston, near Liverpool.

CHARLES NOBLE.

THE Entire Collection of CLEMATIS (the result of a lifetime of hybridisation and selection) is to be **DISPOSED OF AT ONCE**.

CHARLES NOBLE

has just received a consignment of **TREE** and **SHRUB SEEDS** from the Mountains of Sikkim, many supposed to be new and all valuable.

CHARLES NOBLE

feels his entire attention must be devoted to this collection and reluctantly sacrifices his old hobby.

The **CLEMATIS** will be **SOLD** (until the Stock is exhausted), at **HALF PRICE**.

These Clematis are invaluable for Bedding.

Bagshot, May, 1891.

OUR CATALOGUE of **GERANIUMS**, **DAHLIAS**, **CANNAS**, &c., is Now Ready, and will be sent free on application. **REID and BORNEMANN**, The Nurseries, Trewsbury Road, Sydenham, London, S.E.

EXHIBITIONS.

RICHMOND HORTICULTURAL SOCIETY.

The SUMMER SHOW will be held in the Old Deer Park, Richmond, Surrey, on WEDNESDAY, June 24, 1891.

THREE HUNDRED POUNDS offered in PRIZES.

For Schedules, and all particulars, apply to

22, George Street, Richmond. J. H. FORD, Hon. Sec.

Trade Offer.

W. ICETON begs to offer the following

PALMS:—

Strong ARECA LUTESCENS, in 60's, at 60s. per 100;
 " COCOS WEDDELLIANA, in thumbs, at 32s. and 50s.;
 " SEAFORTHIA ELEGANS, in thumbs, 20s. and 30s.;
 " KENTIAS, BELMOREANA and FOSTERIANA, in thumbs, 40s. and 75s.
 SEEDLINGS in Stores, at 30s. per 100.
 ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.
 Extra fine PANDANUS VEITCHII, in all Sizes.
 Putney Park Lane, S.W.

STRAWBERRY SEASON.

TO GROWERS and DEALERS.—

The CLYDESDALE BOX COMPANY, 45, Montrose Street, Glasgow, make a specialty of Manufacturing PUNNETS and TRAYS specially adapted for Strawberries and other soft Fruits. Illustrated PRICE LIST free by Post on application. Sample Parcels, containing 4 dozen assorted Punnetts and Trays, sent Post-free for 3s. 2d., or 6 dozen Trays only, assorted, 3s. 2d. The above Company are prepared to appoint Agents to hold Stock in the principal districts.

GARDEN.

For whatever is wanted, mentioned or not in these columns, please to write immediately to H. CANNELL AND SONS, whose Seed and Nursery Stock is very complete and extensive, and where nearly everything for the Garden is grown and supplied in large quantities, in the finest possible condition, at the lowest prices, consistent with correctness and superior character. Send for CATALOGUES.

SWANLEY, KENT.

FERNS A SPECIALITY.

The finest, most varied, choice and interesting collection in the Trade. 1400 species and varieties of stove, greenhouse, and hardy Ferns. Partially Descriptive Catalogue, including comprehensive List of useful Gardening Books, free on application.

ILLUSTRATED CATALOGUE (No. 21),

containing 120 Illustrations and much valuable information on the cultivation of Ferns, ONE SHILLING and SIXPENCE, post-free.

W. & J. BIRKENHEAD,
 FERN NURSERY, SALE, MANCHESTER.

TWO GRAND NOVELTIES.

A PURE WHITE BEDDING CLEMATIS, and the FERN which has lately received so many of the highest awards and proofs of admiration.

CLEMATIS, SMITH'S SNOW-WHITE JACKMANII.

The flowers are paper-white, about the same size as those of the old purple Jackmanii, but produced in even greater profusion. It is unrivalled for beds. Ready in August. 7s. 6d. each.

PTERIS TREMULA SMITHIANA.

This is a very valuable and distinct Fern. No Collection should be without it. Illustration and description free. 5s. to 10s. 6d. each.

We now have a very fine lot of the best varieties of CLEMATIS ready for planting out, also BEDDING PLANTS, and shall be pleased to send particulars.

RICHARD SMITH & Co.,
 Nurserymen and Seed Merchants,
 WORCESTER.

MAIDENHAIR and other choice FERNS for Decoration and Conservatory.—A large stock of grand stuff in 5-inch pots at 6s. per dozen; 7-inch pots, 10s. per dozen; and grand specimens up to 10s. 6d. each. Also ADIANTUM ELEGANS, in 5-inch pots, the best Fern for Decorations and Cutting, at 9s. per dozen; 3-inch pots, 4s. per dozen; from store pots cheaper by the 100.

COLLINS and COLLINS, Cumberland Park Nursery, Willesden Junction, N.W.

FERNS! FERNS!! FERNS!!!—Trade offer. Twenty most saleable sorts, 12s. per 100; Adiantum cuneatum, for potting on large stuff in 2½ pots, 16s. per 100; fine stuff in large 60's, 20s. per 100; in 48-pots, full of top, 50s. per 100. Large Ferns, in 48's, 45s. per 100, in 6 sorts. Packed free. Cash with order.

J. SMITH, London Fern Nurseries, Loughboro' Junction, S.W.

FOR ORCHIDS, and GARDENERS to Grow Them, apply to SANDER'S, St. Albans. The finest stock of Orchids in the World. 30 minutes from St. Pancras.

26 PRIZE FANCY PANSIES for 6s. 6d., post-free.—I, MICHAEL CUTHBERTSON, Florist, Rothsay, pledge myself to supply (as long as unsold), the following grand Exhibition Pansies for 6s. 6d., viz.:—A. Ollar, Bob Montgomery, C. Bann-rman, C. Stansell, Clara Laing (new), Dodo, D. Morrison, Dottie Irvine, Effie Dalglish, G. Crome, G. Goodall, G. J. Henderson, Gold-digger, John Crabbe, Lizzie Hutchieson, Lord Rosebery, Major Scoon, Miss Barclay, Miss M. T. Black, Miss Reese, Neil Mackay, Perfection, Princess Beatrice, Silverwings, Susan, and The Creole. 12 of the above (my choice) for 3s. 6d. Seed from the above, 1s. per packet. Catalogues free.—LEEK, Cuthbertson's New Hybrid, "the best in the world." Plants for ordinary use, 100 for 1s. 9d., 200 for 3s., 500 for 6s. 6d., post-free.—M. CUTHBERTSON, F.R.H.S., Rothsay.

PALM SEEDS.

ONLY THE BEST SPECIES.

KENTIAS, COCOS WEDDELLIANA, ARECA BAURI, A. LUTESCENS, &c., &c.

Customers' own selection, 7s. 6d. per 100.

Wholesale prices on application.

F. ROSS & CO., General Import & Commission Agents, BLECHINGLEY, REDHILL, SURREY.

AGENCE GÉNÉRALE HORTICOLE, BELGE

De HERDT and STRECKER,

ANTWERP.

Branch House and Plant Houses, Ghent, 74, Rue de la Forge. Plant Houses & Trial Grounds, Duzeld, lez Schooten, Antwerp. Cablegrams—STRECKER, Antwerp and Ghent.

Special Trade Offer.

ARECA LUTESCENS,

Splendid Seedlings for Potting—Very large size

(1½ YEAR).

PRICE, 12s. 6d. PER 100.

SAMPLES FREE ON APPLICATION.

WHITE ROMAN HYACINTHS.

BENJAMIN RIMBAUD,

BULB GROWER,

Quartier du Temple, Toulon (Var), France

(The largest Bulb Grower in the South of France).

Offers—

EARLY WHITE ROMAN HYACINTHS.

PAPER-WHITE NARCISSUS GRANDIFLORA and other NARCISSUS.

LILIUM CANDIDUM. FREESIA REFRACATA ALBA.

And all other Specialities of South of France.

Seeds and Plants of

CARNATIONS MARGARITE and other CARNATIONS.

PRICE LIST on application to the

LONDON AGENTS:—

Messrs. R. SILBERRAD & SON,

25, Savage Gardens, Crutched Friars, London, E.C.

STANDARD ROSES } Leading varieties, for
 IN POTS. } planting now, to fill vacancies, 2/6 to 3/6 each.

DICKSONS NURSERIES CHESTER
 (LIMITED)

Corporation of Stockton-on-Tees.

To CONTRACTORS and OTHERS.

THE PARK COMMITTEE invite TENDERS for WORKS as per the following CONTRACTS in connection with the FORMING and LAYING OUT of a PUBLIC PARK containing an area of 39½ acres.

Contract No. 1, includes EXCAVATING, EMBANKMENTS, DRAINAGE, ROAD-MAKING, PROMENADES, WALKS, &c.
 Contract No. 2, includes LODGES, BOUNDARY-WALLS, BAND STANDS, and OTHER BUILDINGS.

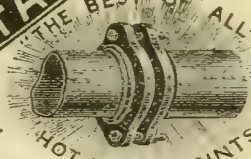
Contract No. 3, PLANTING.
 Parties desirous of Tendering, may, on and after May 15, inspect the Drawings, Specifications, Conditions of Contract, and obtain other Particulars on application to Mr. K. F. CAMPBELL, M.Inst.C.E., Borough Engineer, on payment of £2 2s., which sum will be returned on receipt of a bond *vide* Tender. Tenders, which must be on the prescribed Form, and accompanied by a full and true Bill of Quantities with the rates of charge and amount of each item, and total amount upon which the Tenders are based, are to be delivered at the Town Clerk's Office, addressed to the CHAIRMAN of the PARKS COMMITTEE, sealed, and endorsed "Tender for Public Park," not later than 10 A.M. on MONDAY, June 1. No Tender will be considered which is not fully filled up, or is detached from the Bill of Quantities.

The Committee do not bind themselves to accept the lowest or any Tender. By Order,

MAT. B. DODDS, Town Clerk.

Town Clerk's Office, Stockton-on-Tees.

HEATING APPARATUS
BUY DIRECT FROM
THOS W. ROBINSON,
STOURBRIDGE,
DENNIS PARK IRON WORKS
PRICE LISTS
FREE
"THE MANUFACTURER"
THE BEST OF ALL
EXPANDED JOINT
HOT WATER PIPES
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TELEGRAMS:—"ALPHA"
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ORCHID
SANKEY'S PATENT
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RANSOMES'

At the Jubilee Meeting of the R.A.S.E., Windsor, HER MAJESTY THE QUEEN and H.R.H. PRINCESS VICTORIA OF PRUSSIA each purchased a RANSOMES' LAWN MOWER.

All Mowers sent on a Month's Trial, Carriage Paid.

LAWN MOWERS,

The Best in the World.

In all sizes to meet every requirement.
 "NEW AUTOMATON," the Best Gear Machine.
 "CHAIN AUTOMATON," the Best Chain Machine.
 "NEW PARIS," the Best Small Machine.
 "EDGE CUTTER," the only one of real service.
 "BANK CUTTER," the Best for Cutting Slopes.
 THE BEST PONY and HORSE-POWER MOWERS
 Orders executed promptly by all Ironmongers.
 RANSOMES, SIMS & JEFFERIES, Ltd., IPSWICH.

CHEAPEST **W. PEN DENNIS & CO.** **BEST**
GARDEN
POT
PONKEY POTTERIES, RUABON.

PARISIAN BLINDS.

REDUCTION IN PRICE.



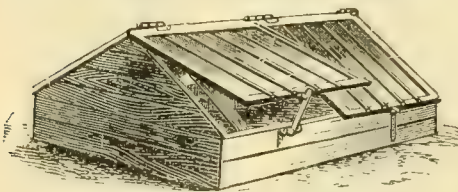
MADE OF WOOD and ZINC ONLY.

AWARDED 40 PRIZE MEDALS.

W. RICHARDSON & CO., Horticultural Works, DARLINGTON.

GREAT REDUCTION IN FRAMES

OUR WELL-KNOWN MAKE.



PORTABLE PLANT FRAMES.

The e Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by any one.

Sizes and Prices, Glazed and Painted.		£	s.	d.
6 feet long, 3 feet wide	CASH	2	0	0
6 feet " 4 feet "	PRICES,	2	5	0
12 feet " 4 feet "	PRICES,	4	0	0
6 feet " 5 feet "	CARRIAGE	2	15	0
12 feet " 5 feet "	CARRIAGE	4	15	0
12 feet " 6 feet "	PAID.	5	12	6

Larger sizes at proportionate prices.

R. HALLIDAY & CO.,
ROYAL HORTICULTURAL WORKS,
MIDDLETON, MANCHESTER.

London Agent, Mr. H. SKELTON, Seedsman, &c., 2, Holloway Rd., N.

PIT LIGHTS.

Best quality and workmanship, 2 inches thick, 6 ft. by 4 ft., iron bar across and very strong, 4s. each; free on rail in London. Cash or reference with order.

CUCUMBER HOUSES.

Timber sufficient to build 100 ft. by 12 ft. house, lights, door, &c. Put on rail in London. Low price. Send for detailed specification, to

W. DUNCAN TUCKER,
HORTICULTURAL WORKS, TOTTENHAM.



21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, delivered free and sound in the country, in quantity.

"HORTICULTURAL PUTTY." Own Special Manufacture.

GEORGE FARMLOE & SONS,

LEAD, GLASS, OIL, and COLOUR MERCHANTS,

34, St. John Street, West Smithfield, London, E.C.

Stock Lists and Prices on application. Please quote Chronicle.

GOOD MORNING! HAVE YOU USED ELLIOTT'S FLORAL SHADING FOR GLASSHOUSES, &c.?

It is the cheapest and best, and has the largest sale, which now exceeds 100,000 boxes annually. A TRIAL is ONLY NEEDED to ENSURE ITS CONTINUAL and EXTENSIVE USE.

Sold by Seedsmen, &c., in two colours, Green and Grey, in boxes, 1s. each.

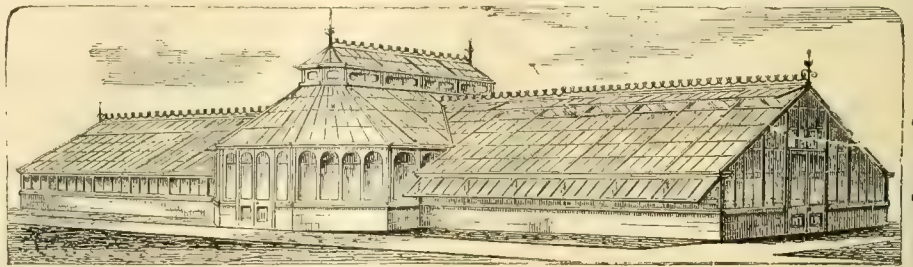
(One box of Grey makes 2 quarts of Shading, when mixed).

Sent post-free for value in Post-office Order, or Stamps, direct from the Manufacturer—

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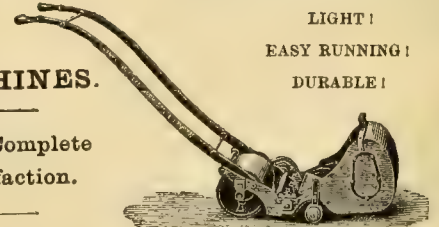


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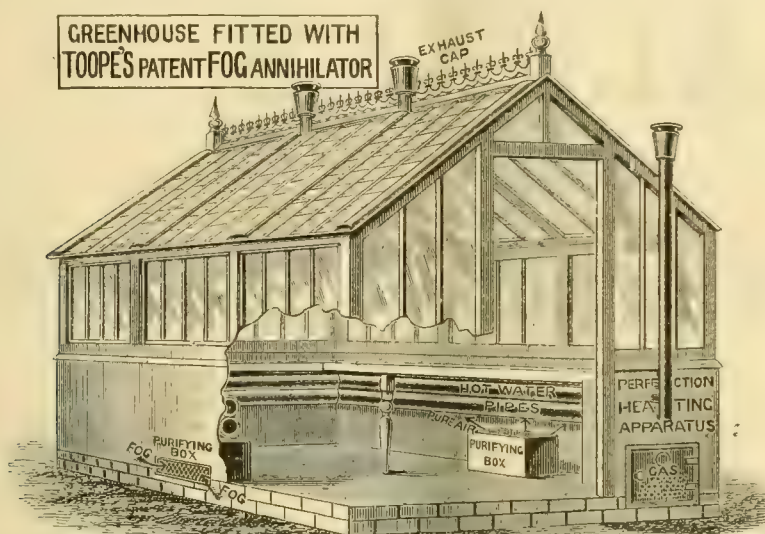
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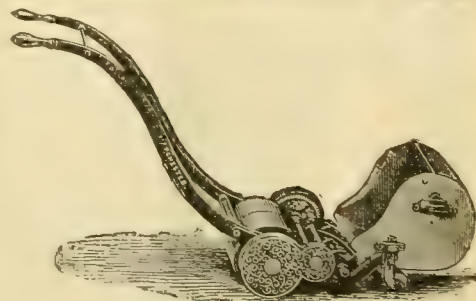
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THE

Gardeners' Chronicle.

SATURDAY, MAY 30, 1891.

BEARWOOD, WOKINGHAM.

IT is in the months of May and June that the magnificent domain of Bearwood, belonging to J. Walter, Esq., can be seen to the best advantage. It is becoming most fascinating in its vernal beauty. Since the "Merry Spring"—as the poets love to call it—commenced to throw garments of verdure over tree and shrub, and—

"Flower-wreaths gay with bud and bell,
Many a flower, and many a gem,"

the woods have been gay with Primrose, the wood Anemone, and wood Sorrel; and, on every hand, are signs of the general awakening that comes with April, though deferred later this year than usual. What a paradise for the birds, that fill the air with melody. The rabbits gambol, and pheasants feed, as one passes by, as if they feared no harm from human kind. There is a joyfulness in the air, and the woods abound with life—active, beautiful, and inspiring. The rich young verdure of the Larch is in singular contrast to the sombre hue of the Scotch Fir. The Sycamore and the Mountain Ash appear to be the quickest of the deciduous trees to get into leaf, followed by the Horse Chestnut. The earlier forms of the hardy Rhododendron are already in blossom, all crimson-flowered, as if the progeny of the brilliant R. arboreum, the precocity of which is seen in the offspring.

I was glad to hear from Mr. Tegg that but little harm, comparatively, had come to Bearwood from the severity of the winter. The Lucombe and Evergreen Oaks, and Garrya elliptica, have suffered most, but there are indications they will break into fresh growth from near the base: and while there will be a good bloom on the huge mounds of Rhododendrons, which are the glory of Bearwood, it will be thinner than usual, and it is not any infrequent sight to see the autumn-formed flower-buds completely destroyed. Kalmia latifolia promises to blossom with remarkable freedom, a happy plenteousness of bud is seen on every giant bush: and the American Azaleas are full of promise also. In June, the American plants will be in the height of their beauty, and a visit to Bearwood, towards the middle of the month, is one long to be remembered.

To the many charms attaching to Bearwood is the fact that the place is so admirably kept. Every department—the pleasure grounds, with their miles of walks; the immense sweep of lawn; the flower garden, houses, and kitchen garden are all models of order and cleanliness; it is an extensive place to keep in good trim, but it is done, and the greatest credit is reflected on Mr. Tegg.

In the fruit garden, the wealth of bloom is simply marvellous. Peaches and Nectarines on walls were laden with blossom: Hales Early and Stirling Castle Peaches, the two great favourites at Bear-

wood, promise abundantly; and Mr. Tegg says he has a good set of fruit. The Plums on walls are literally wreathed with clusters of white flowers—Jefferson's and Kirke's especially so. Apples, Pears, and Cherries all promise well. So do the bush fruits, Gooseberries in particular.

Here, as elsewhere, the slaughter of green vegetables has been serious; but young Cabbages and Spinach are coming on rapidly, and lines of early Peas are excellent and making rapid headway. The winding of white thread along the lines of sticks has effectually prevented damage from birds; and also to the lines Bath Cos Lettuce by the rows of Peas. Brussels Sprouts appear to have stood as well as any of the green crops.

Excellent crops of Black Hamburg and Buckland Sweetwater Grapes are seen in the early vineries, the former rapidly colouring; and there is such a show for Muscats as gladdens the heart of the cultivator. But there is a rare sight in the Fig-house. It is one of good dimensions, and it is filled by a magnificent tree, known here as the Violet Fig, the fruit of medium size, almost black, and of delicious flavour; and what a cropper—producing its fruit in clusters, plentiful and ripe, with succession crops putting in an appearance at their side. It is a plant of vigorous constitution, a certain and heavy cropper, and large supplies are drawn from it.

The favourite forcing Strawberry at Bearwood is Keen's Seedling, it can be seen bearing plentifully very fine and richly-coloured fruit.

A magnificent tree of Royal George fills a Peach-house—a tree of great proportions, all that can be desired in the matter of health, with an excellent crop beginning to swell. Elruge is the favourite indoor Nectarine—a splendid specimen in a house; there is not a trace of red-spider on the finely-developed leaves.

In the centre of the range of forcing-houses is one full of flowering plants. Azaleas are very gay, Calceolarias very fine, and Pelargoniums showing well for bloom. Rhododendron Veitchianum and R. Princess Alice are both in fine bloom—grand warm conservatory plants at this season of the year; Countess of Haddington, also, is very effective.

There are other houses of plants, and in the warmest are two magnificent specimens of *Lapageria alba* in pots, that bear enormous quantities of bloom; and the same can be said of *Allamanda Schottii* overhead.

There are pits of Pines already bearing, Melons, Cucumbers, French Beans, &c., and every department is full of activity.

It is gratifying to be able to record that no injury has been done by snow and frost to the magnificent avenue of Wellingtonias at the main approach to the mansion. They are making a vigorous growth, and are a fitting adjunct to one of the finest—perhaps the finest and best-kept domain in the county of Berks. R. D.

NEW OR NOTEWORTHY PLANTS.

TULBAGHIA NATALENSIS, Baker, n. sp.*

THIS resembles *T. alliacea* in leaf and general habit, but may easily be distinguished by having the segments of the perianth longer than the tube. It was received in October, 1890, from Mr. J. Medley Wood, of the Natal Botanic Garden, and has just flowered for the first time.

Leaves six to eight in a tuft, linear, bright green, with a strong alliaceous scent when broken, contemporary with the flowers, $\frac{1}{2}$ to 1 foot long, $\frac{1}{4}$ inch broad, channelled down the face. Scape slender, above a foot long. Flowers many in an umbel; pedicels $\frac{1}{4}$ to $\frac{1}{2}$ inch long. Spathe-valves two, lanceolate, an inch long. Perianth white; tube

campanulate, $\frac{1}{2}$ inch long; segments obovate-cuneate, longer than the tube. Corona greenish-white, half as long as the segments, lobed, minutely crenate. Stamens reaching out of the perianth-tube half-way up the corona. J. G. Baker, *Herbarium, Kew*.

SCILLA (LEDEBOURIA) LAXIFLORA, Baker, n. sp.*

A native of Cape Colony, the precise district not known; it has just flowered at Kew for the first time. We received it with a few other Cape bulbs from Messrs. Martin Clare & Co., 26, Wilson Street, Finsbury. It is allied to *S. revoluta*, Baker (*Bot. Mag.*, t. 1880).

Bulb globose, $1\frac{1}{2}$ inch diameter. Produced leaves 3 or 4, contemporary with the flowers, lanceolate, sub-erect, not narrowed to the base, the largest about 3 inches long, under an inch broad, pale green and spotted with darker green. Scape slender, terete, about 3 inches long. Raceme very lax, oblong, 3 inches long, by about half as broad; bracts minute, deltoid; pedicels spreading, pale mauve, $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Perianth green, $\frac{1}{2}$ inch long; segments oblong, sharply reflexing. Filaments bright mauve-purple, nearly as long as the perianth; anthers minute. Ovary globose; style just overtopping the anthers. J. G. Baker, *Herbarium, Kew*.

ODONTOGLOSSUM CRISPUM, ARDDARROCH VARIETY, n. var.

The best idea of this new form of *O. crispum* may be got by looking at the illustration of *O. c. punctatissimum* in the sale catalogue of the Fernside collection, but the above variety has a brighter rosy-lilac colour on the sepals and petals. The sepals have three to five large purplish blotches, and they, as well as the petals, have smaller purple spots all over them; there is a large blotch and five or six smaller ones on the lip, and the flowers are tinted all over with rosy-lilac. It is a showy and attractive form, and was imported and flowered by R. B. White, Esq., Arddarroch, Garelochhead, N.B. J. O'B.

LIST OF GARDEN ORCHIDS.

(Continued from p. 651.)

SOPHRONITIS.

88. SOPHRONITIS, Lindl., *Bot. Reg.*, xiv. (1828), sub t. 1147; Benth. et Hook. f., *Gen. Plant.*, iii., p. 535. *Sophronia*, Lindl., *Bot. Reg.*, xiii. (1827), t. 1129. *Lophoglotis*, Rafin., *Fl. Tellur.*, iv. (1836), p. 49.—A genus of dwarf epiphytes, with small pseudobulbs closely arranged along the creeping rhizome, each bearing a solitary coriaceous leaf. The peduncles bear from one to several flowers. It is closely allied to *Lælia*, chiefly differing in habit, in the small labellum, and the short column with a subpetaloid wing on each side of the stigmatic cavity. Species about six, of which the following appear to be in cultivation. All are natives of Brazil, most of them being found in the Organ mountains, near Rio de Janeiro. Lindley first called the genus *Sophronia*, but afterwards changed the name on the ground that a genus of fungi already bore the same name. Reichenbach (in *Gard. Chron.*, 1886, pt. 2, p. 263), has proposed to limit the genus to *S. violacea*, Lindl., referring the other species to *Lælia*, a course for which I fail to find any justification.

- (1.) *S. CERNUA*, Lindl., *Bot. Reg.*, xiv. (1828), sub t. 1147; *Bot. Mag.*, t. 3677; Paxt., *Fl. Gard.*, iii., p. 11, fig. 236. *Sophronia cernua*, Lindl., *Bot. Reg.*, xiii. (1827), t. 1129. *Sophronia modesta*, Lindl., *Bot. Reg.*, xiv. (1828), sub t. 1147. *Lælia cernua* Rchb. f., in *Gard. Chron.*, 1886, pt. 2, p. 263 (in note). *Sophronitis Hoffmannseggii*, Rchb. (pater), ex *Linnæa*, xvi. (1842), Litter., p. 286. *S. nutans*, Hoffmannsegg, *Verz. Orch.*, ex *Linnæa*, xvi. (1842), Litter., p. 286. *S.*

isopetala, Hoffmannsegg, *Verz. Orch.*, ex *Bot. Zeit.* i. (1843), p. 834.—Brazil. Discovered by Mr. William Harrison, a Liverpool and Brazilian merchant, growing upon trees at Botafogo, near Rio de Janeiro, and sent by him to his sister, Mrs. Arnold Harrison, of Aigburth, near Liverpool, in whose collection it flowered in December, 1826. It is the species upon which the genus was founded.

S. coccinea, Rchb. f. = *S. GRANDIFLORA*.

(2.) *S. GRANDIFLORA*, Lindl., *Sert. Orch.* (1838), t. 5, fig. 2; *Bot. Mag.*, t. 3709; Hook., *Cent. Orch.*, t. 41; Paxt., *Mag. Bot.*, ix., p. 193, with fig.; *id.*, *Fl. Gard.*, iii., p. 11, fig. 237; *Flore des Serres*, t. 19; Warn., *Sel. Orch.*, ser. 3, t. 3 (upper figure); *Gard. Chron.*, 1879, pt. 2, p. 304, fig. 48, I-J; *id.*, 1884, pt. 2, p. 561; *Fl. Mag.*, 1867, t. 329; Jenn., *Orch.*, t. 5; Puydt, *Les Orch.*, t. 41; *Rev. de Hort. Belge*, 1887, p. 5, with plate; *Ill. Hort.*, xxxiv., t. 32; *Orchidophile*, 1886, p. 124, with fig.; *Lindenia*, iv., t. 161. *Lælia grandiflora*, Rchb. f., in *Gard. Chron.*, 1886, pt. 2, p. 263 (in note). *Cattleya coccinea*, Lindl., *Bot. Reg.*, xxii. (1836), sub t. 1919. *Sophronitis coccinea*, Rchb. f., in *Flore des Serres*, xvii. (1867-8), p. 7, t. 1716. *S. militaris*, Rchb. f., in *Flore des Serres*, xvii., (1867-8), p. 7. *Lælia militaris*, Rchb. f., in *Gard. Chron.*, 1886, pt. 2, p. 263 (in note).—Brazil. This beautiful species was originally discovered by the French naturalist, Descourtilz, on the high mountains that separate Bananal from Ilha Grande. It was afterwards met with by Gardner on the Organ mountains, where it is said to be abundant, and from whence all recent importations have been sent. Gardner forwarded specimens to Messrs. Loddiges, of Hackney, in whose establishment they flowered for the first time in October, 1841. Among the large importations that have been received, the following varieties have appeared:—

Var. *AURANTIACA*, Carrière, in *Revue Hort.*, 1886, p. 492, with plate. A variety with dark orange-red flowers.

Var. *PURPUREA*, O'Brien, in *Gard. Chron.*, 1884, pt. 2, p. 563; Veitch, *Man. Orch. Pl.*, pt. 2, p. 106. *S. purpurea*, Rchb. f., in *Gard. Chron.*, 1878, pt. 1, p. 462. *Lælia purpurea*, Rchb. f., in *Gard. Chron.*, 1886, pt. 2, p. 263 (in note). *S. grandiflora*, Warn., *Sel. Orch.*, ser. 3, t. 3 (lower figure). Pseudobulbs and leaves shorter than in the typical form, and the flowers of a uniform bright carmine-purple. It is said to have first appeared in Hofrath Keil's garden at Leipsic, about the year 1850.

Var. *ROSEA*, Burbidge, in *The Garden*, xxv. (1884), p. 474, t. 443; O'Brien, in *Gard. Chron.*, 1884, pt. 2, p. 563. *S. rosea*, Gostling, in *Gard. Chron.*, 1884, pt. 1, p. 243.—Pseudobulbs and leaves as in the variety *purpurea*, flowers bright rose-purple.

S. Hoffmannseggii, Rchb. f. = *S. CERNUA*.

S. isopetala, Hoffmannsegg = *S. CERNUA*.

S. militaris, Rchb. f. = *S. GRANDIFLORA*.

S. nutans, Hoffmannsegg = *S. CERNUA*.

(3.) *S. PTEROCARPA*, Lindl., in Paxt., *Fl. Gard.*, iii. (1852-3), p. 11, fig. 239; O'Brien, in *Gard. Chron.*, 1884, pt. 2, p. 563. *Lælia pterocarpa*, Rchb. f., in *Gard. Chron.*, 1886, pt. 2, p. 263 (in note).—Brazil. Found by Martius on rotting trees near Mainarde, in the province of Minas Geraes, and by Gardner, in the Organ Mountains. Also, recently, by Balansa, in Paraguay. Lindley remarks that it is a very rare plant in gardens. It is closely allied to *S. cernua*, which it much resembles.

S. purpurea, Rchb. f. = *S. GRANDIFLORA* VAR. *PURPUREA*.

S. rosea, Gostling = *S. GRANDIFLORA* VAR. *ROSEA*.

(4.) *S. VIOLACEA*, Lindl., *Bot. Reg.*, xxvi. (1840), *Misc.*, p. 18; Paxt., *Fl. Gard.*, iii., p. 11, fig. 238; *Bot. Mag.*, t. 6880; Warn. and Will., *Orchid Album*, vii., t. 291.—Brazil. A very pretty little species, discovered by Gardner, on the Organ Mountains, in 1837. It is said to be common there, and has been frequently imported with *S. grandiflora*. It was described from the collection of Mrs. Cannon, of Stratford Green, where it flowered

* *Tulbaghia natalensis*, Baker, n. sp.—Foliis linearibus viridibus odore alliaceo; scapo gracili elongato; umbellis plurifloris; spathe valvis lanceolatis; pedicellis brevibus; perianthio albo, segmentis obovatis tubo campanulato angustioribus; corona lobata margine minute crenata.

* *Scilla (Ledebouria) laxiflora*, Baker, n. sp.—Bulbo magno globoso; foliis 3-4 parvis sessilibus lanceolatis maculatis; scapo brevi gracili; racemo multifloro laxissimo; pedicellis elongatis patulis; bracteis minutis deltoides; perianthio parvo viridi, segmentis recurvatis; filamentis purpureis segmentis brevioribus.



FIG. 127.—SOPHRONITES GRANDIFLORA. (SEE P. 668.)

in February, 1840. Reichenbach has proposed to limit the genus to this single species, referring the others to *Lœlia*, though I fail to see any reason for this. A variety *alba* has been described, but does not yet appear to be in cultivation.

(5) *S. WITTIGIANA*, Rodr., in *Revue Hort.*, 1878, p. 24; Rodr., *Gen. et Sp. Orch. Nov.*, pt. 2, p. 159—Brazil. Discovered in the province of Espírito Santo, by M. Emile Wittig. Plants are said to have been sent to London in 1880 by M. Wittig, which is all I know of its being in cultivation. It is said to have the habit of *S. cernua*, the flowers much like *S. coccinea*, and the colour of *S. violacea*. *R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

THE WINTER AND SPRING FLOWERING BEGONIAS.

So much attention is being bestowed upon tuberous-rooted Begonias, that the winter-flowering section, of which there are many beautiful species and varieties, is in danger of being much neglected; but it is certain that gardeners cannot afford to discard plants that are so generally useful. Many of us will remember with what pride were shown the handsome specimens of *Begonia fuchsioides*, grown into pyramids of 3 or 4 feet high, with their pendent corymbs of scarlet flowers set off by the copious deep green foliage. This and many other distinct and beautiful varieties and species were recently in flower in the nurseries of Messrs. Cannell & Sons, Swanley, where one of the long span-roofed houses is set apart for them. Mr. Purdie discovered *B. fuchsioides* on the Ocaña Mountains of New Grenada, when on a plant-collecting mission for Kew. He stated that the plant was commonly eaten by the mulattoes to allay their thirst. It flowers freely from November and onwards through the winter months.

The most useful variety in the collection was named *Carrieri*, a plant of a dwarfish habit, about a foot high, producing abundantly trusses of beautiful white flowers. A variety of it, with hairy leaves, has been named *B. villosa*. The trusses of flowers stand well up above the foliage, and give the plant an effective appearance. *B. semperflorens gigantea rosea* is an enlarged form of the Brazilian species, *B. setaria* and *B. Sellovi*, which has been cultivated in England for many years. It is a plant useful to train up to the walls of a stove, and is synonymous with *B. spatulata*. *B. corallina*, also in bloom, produces salmon-pink flowers, which will be of a bright coral-red colour later in the season, but the pale tint was pleasing and effective.

B. foliosa is useful, because of its scandent habit of growth, and the foliage is distinct and beautiful; but the white flowers are inconspicuous, and not abundant. *B. undulata* is a species of distinct character, with salmon-pink coloured flowers. In this respect it differs from the original plant, figured in *Bot. Mag.*, t. 2723, which has pure white flowers. This figure was the first published of this plant. It was named by Herr Otto, of Berlin, who sent it to the Botanic Garden of Edinburgh, with the information that it was a native of Brazil. Probably the rose variety is a form of the white-flowered species.

The species next in beauty and importance to the variety *Carrieri* is *B. nitida*—the original species figured in the *Botanical Magazine*, and which has large and showy pink flowers, freely produced. It is a summer and winter bloomer; it has many names—*B. obliqua*, *B. purpurea*, and *B. minor*. The white form is the prettier; the flowers being pure white, and the blooms stand well up above the leaves.

B. hydrocotylifolia is another, with light pink flowers, borne on erect trusses above the glossy green foliage. *B. manicata* is a well-known plant, easily grown into large-sized specimens. It has tall, branching cymes, of pale pink flowers, showing well above the foliage; a variety of this species has yellow blotches on the leaves. *B. Gloire de Sceaux* has distinct bronzy foliage, with pretty rose-coloured flowers. President de Bournilles has pleasing papil-

lose foliage, with a pretty pinkish suffusion; the flowers are rose-pink. One great recommendation that these winter-flowering Begonias have is the ease with which they may be increased and grown on into flowering plants. Cuttings of many of them would form roots, if they were merely thrown down on a bed of cocoa-fibre, in a hot-house. The cuttings may be made at any season, and should be put in a soil consisting of two parts loam to one of peat, and a small portion of leaf-mould and sand, if necessary. Small or moderately-sized plants are the most useful for garden purposes or room decoration. Begonias grow and flower in the best manner if they are freely exposed to light and air during their season of growth, and they are rarely affected by insect enemies, and give as good returns for the labour bestowed upon them as any plants known to me. Indeed, if a gardener or amateur can manage to cultivate any plants creditably, he can these Begonias. *J. Douglas.*

FORESTRY.

FIELD AND HEDGEROW TREES.

GRIEVOUS at times are the complaints made by farmers and others regarding the undue quantity of field and hedgerow timber, with which they are encumbered on their farms and holdings; complaints which in many, perhaps most, cases are not made without just reason, for that the injury done by these both in a direct and indirect way is often of a very serious nature cannot be disputed. Where an undue quantity of hedgerow and field trees exists, the evil effects produced on crops generally are often of a most serious kind, arising as they do, from the combined influences of excessive shade and the depredations of game, hares and rabbits particularly, which latter owing to the harbours afforded by trees and fences, often commit excessive damage on the farm crops within their reach.

To most persons the statement that the quantity of hedgerow and field timber in this country is in excess of that produced in woods and forests, will savour of gross exaggeration, but that a few years ago at least, such was the case, I was fully convinced. Of late years, however, owing largely to farm improvements, much of the worthless and too closely confined timber has been removed, and it is just within the range of possibility that during the next five-and-twenty years not one-tenth of the present quantity will be retained. Field and hedgerow timber, when woods were less abundant than now, must have been invaluable to the farmer in affording protection to his stock and crops; but with the well-wooded nature of the country generally, there are not a few districts that might be improved in this way, as numbers of those that exist might well be cleared away not only with great advantage to the landowners, but to the general appearance of the country as well.

That the wrong class of timber is used for hedgerow planting must, too, be patent to everyone who travels through the country, and is at all interested in the subject under discussion. For instance, the Ash is perhaps one of the commonest farm trees that could be named, and yet, when everything is taken into consideration, it is one of the worst imaginable for either the hedge or field, the top spreading over and the roots impoverishing to such an extent as to render the ground beneath, and for some distance around it, utterly barren and unfertile. Some kinds of Elm are in their unsuitableness for hedgerow and field planting not one whit behind the Ash, for the branch spread is excessive, and the root run far too superficial for the generality of our farm crops.

In planting hedgerow and field trees, there are general points bearing directly on the matter that the operator would do well to keep in mind, such as that in the trees used the spread of branches is comparatively speaking small in proportion to the height the tree attains, thus minimising greatly the evils of shading; that the roots do not run too near the surface, and have more of a downward

tendency; in other words, shallow or surface-rooting trees should not be planted, and thus will impoverishment of the surface soil be lessened.

That there are a number, small though it be, of trees suitable for field and hedgerow planting, or at least, to a great extent so, will be readily seen by anyone who studies the matter on a farm where such trees exist in numbers, for then it will be noticed that certain species are detrimental to crops, while others are much less so, or such as can be tolerated.

One of the best trees I know for a farm, field, or hedgerow, is the Cornish Elm (*Ulmus cornubiense*), a neat-foliaged, partially fastigiate tree, and one that, owing to its roots working downwards, is far less hurtful to crops than most other kinds. I have watched numbers of these trees in a large English park, for the express purpose of satisfying myself on the above points, and have now come to the conclusion that, so far as actual damage to growing crops is concerned, the above Elm can be credited with very little indeed, and certainly far less than almost any other tree, not even excepting the Lombardy Poplar.

This latter is likewise well worthy of attention, the small spread of branches and fairly deep root-run rendering it so far un hurtful to farm crops generally. It has, however, a drawback in that it is difficult to place a few dotted about as hedgerow trees, quite marring the landscape.

There is an upright habited form of our common English Oak—a tree that, unfortunately, is not half sufficiently known—that is peculiarly suitable for hedge and field culture. Being neither too stiff and upright, nor yet of too spreading a nature, it is a very fitting tree for the end in view; while the root, as that of all Oaks, runs deep, thus preventing poverty of the soil at and near the surface.

By careful management, the typical English Elm (*U. campestris*) may be made a most useful, valuable, and a tree of little damage to farm crops generally. As usually seen, the inclination is to form a fine, well-rounded bole, at the expense of many or large branches, while an extra value is obtained by the root-run, and readiness with which the timber may be disposed of.

Semi-upright varieties of most trees may also be recommended as suitable for hedgerow and field, but in all cases wise discrimination is necessary, so that an excessive quantity is not made use of.

The Lime and Sycamore, having many good points, are to be recommended also, while if their farthest spreading branches commit injury, a little timely pruning will set matters right.

In choosing trees for the field and hedgerow, individual qualities should not be lost sight of in the specimens, for in almost every species both the upright and spreading forms are to be found, and advantage might well be taken of the former for the planting of such places as we are now considering. Two Conifers at least are peculiarly suitable for the farm—the common Larch and Scotch Firs.

In the former we have a neat tree of not too spreading growth, and one in which the root run is comparatively speaking deep. Then it is an ornamental tree, although much neglected in that way, and one of the first to greet us in spring with its soft green leaves. It occasions, too, but little damage to the crops beneath its branches.

Of the Scotch Fir we cannot say so much, as the roots often appear above ground, but the shelter it affords compensates much for the evil it occasions.

Fruit trees, particularly the Plum, do little or no damage to the crops of the farmer when planted in field-corners and hedges, but they afford small shelter, and this latter is a point that should be thought of, as well as non-injury to the crops. *A. D. Webster.*

FRUIT AT HATTONHURST, HOUNSLOW.

SOME of the best fruit that enters Covent Garden is grown here, and at this date over 1000 pots of ripe Strawberries in one house is a beautiful sight, and

one that is seldom seen elsewhere. These plants are perfection in colour, size, and evenness of crop, each pot having from ten to fifteen fruits. Mr. Wells, the proprietor of these gardens, leaves the cultural details and choice of varieties to his grower, Mr. Thomson, who certainly gives his employer splendid examples of good culture. As size and colour form the chief aim of the Strawberry grower, only those kinds are cultivated at this part of the season which come up to the market standard, and in Strawberries Sir C. Napier is the variety chiefly grown for the supply in May. President is another variety which is grown in quantity to precede Sir Joseph Paxton, but not in equally large quantity, as it does not pay as well, the fruit being lighter. Paxton is a heavy fruit, bears transit well, and is but little subject to mildew, unlike some others, and as I have observed, flavour is not taken into account. Vicomtesse H. de Thury is that grown for the first early, and it gives good results, its only drawback being the small size; but as it forces well, that is sufficient recommendation. Sir J. Paxton does not

March with strong Strawberry plants layered last summer, and taken up with a compact ball of roots and soil from the open ground. These give the latest fruits under glass.

Grapes are grown largely and early; some in lean-to houses, but the greater quantity in large span-roofed houses. The Grapes were just colouring when I saw them, the Madresfield being in advance of the Black Hamburgh. Muscat of Alexandria, Madresfield Court, and Black Hamburgh are the kinds of Grape chiefly grown, and the bunches, berries, and foliage were very fine.

Peaches in variety are grown, but the size and appearance of the fruit, as with the Strawberries, are most valued, the grower not caring for flavour. Condor, Sea Eagle, Royal George, Grosse Mignonne, and Violette Hâtive, are the Peaches that are grown, the latter being most liked. There are many trees in splendid health in the open on walls to furnish the late supply. Pears are grown in quantity, and the trees are models of good pruning, chiefly standards or

the Sweet Briar, while the flower was 2 inches across, pale crimson, flushed on the under surface with a slight fawn-coloured tint.

GARDEN PALMS.

(Continued from p. 298).

PINANGA, BLUME.—This genus is closely related to *Areca* and *Kentia*, and indeed includes some species previously placed in these genera. Whilst Hooker, in the *Genera Plantarum*, accounts for twenty-five species, Beccari, who has published a monograph of this genus in *Malesia*, vol. iii., enumerates forty-three species, including several which are doubtful or insufficiently known.

The genus extends from the Eastern Himalayas to Borneo, and is limited to tropical regions. All the species have slender, erect, bamboo-like stems, some being caespitose, as in *Areca lutescens*, Hort., others having only a single stem. The leaves vary in form, some being unequally pinnate, the upper pinnæ largest and usually truncate at the apex, the lower being gradually narrowed to a point; in others the leaves are undivided except by a sinus at the top. The leaves of the largest species are not more than 6 feet long, whilst the smallest are only a foot or less in length. The spadix is monoecious, branching, produced from the stem below the leaves, a foot or less in length, at first green, changing to a brighter colour when in fruit. The fruits, which are coloured rich red or orange when ripe, are ovate, an inch or less in length, with a thin smooth outer shell, the inner fibrous, enclosing a smooth egg-shaped seed, with a conspicuous depression at the thicker end. The albumen is bony and ruminated, as in a Nutmeg.

Several of the species in cultivation at Kew flower and fruit annually, and when ripe the brilliant colours of the spadix and numerous fruits are quite an attraction.

Although some of the Pinangas have long been in cultivation in a few gardens in Europe, not one has yet become popular with horticulturists. They are really elegant pot plants, the stems in some being dwarf and slender, with a handsome head of foliage; they are therefore easily accommodated in an ordinary stove. One of the species at Kew, viz., *P. Smithii*, has a stem 12 feet high, but *P. coronata*, *P. patula*, and *P. Kuhlîi*, are less than half this height, although they flower and fruit annually. *P. Veitchii* is a dwarf, tufted species, remarkable in having "bifurcate fans, which are purple below and glaucous green above, blotched with brown." According to Beccari, when full grown it has thin bamboo-like stems about 5 feet high, leaves 10 to 12 inches long, two-lobed, the upper edges notched. It was discovered and introduced into England by Mr. Burbidge, when collecting in Borneo for Messrs. J. Veitch & Sons, who distributed it in 1880. Unfortunately, it did not thrive under cultivation, and so far as I can ascertain it does not exist in English collections now.

Pinangas thrive perfectly when planted in a strong loamy soil, and kept in a hot moist house. They like plenty of water at the roots, and shade from bright sunshine. There is a fine collection of Pinangas in the Botanic Gardens at Buitenzorg, in Java, from whence we sometimes receive seeds of the rarer kinds.

The following are in cultivation at Kew:—

- P. coronata*, Blume, Java.
- P. Dicksoni*, Blume. (*Areca Dicksoni*.)
- P. Kuhlîi*, Blume, Java.
- P. latisecta*, Blume, Sumatra.
- P. maculata*, Porte, Philippines. (*Illustr. Hort.* 1863, t. 361.)
- P. malaiana*, Scheff., Penang and Malacca.
- P. patula*, Blume, Sumatra. (*Bot. Mag.* t. 6581)
- P. Smithii*, Hort.
- P. spectabilis*, Hort. Bail, East Indies.
- P. ternatensis*, Scheff., Moluccas.
- P. specier*, aff. *P. coronata*.



FIG. 128 — HYBRID SWEET BRIAR: FLOWERS BRIGHT CRIMSON.

finish (says Mr. Thomson) so many large fruits as Napier does, and it is also a less trustworthy variety. There are on trial two or three newer varieties, about which it is at present too early to say anything.

The Strawberry-houses are about 100 feet long and 12 feet wide, span-roofed; some fitted with shelves close to the glass, others with a walk down the centre, and a flat stage on each side—an arrangement that is preferred, the fruit being more readily seen, and the plants attended to. The plants in fruit on the side stages were marvels of good culture, and a sight worth going far to see—not a trace of mildew anywhere. Mr. Thomson does not use a great deal of manure in his compost, if the loam is good, only spent manure mixed with a large proportion of loam; he takes the runners from plants put out for the special purpose of growing runners, and gets them as soon as they are strong enough. The stock of Strawberry plants is placed for the winter in cold frames. These frames are being put to good account at the present date, having been planted early in

bushes, and consist of *Souvenir du Congrès*, *Duchesse d'Angoulême*, and others, with large fruits. Tomatos in pots occupied several long houses, and were trained as upright cordons up either side of the steep pitch of the span-roofed houses. *G. Wythes*, *Sym House*, Brentford.

HYBRID SWEET BRIAR.

One of the most progressive and interesting papers read at the Rose Conference, was one by Lord Penzance, on the "Hybridisation of species of Rose," which was printed in full in the *Society's Journal*, vol. xi., part 3, October, 1889. On that occasion various interesting hybrids raised by his Lordship were shown, and at a recent meeting of the Society, another was shown by Lord Penzance's gardener (Mr. Basket), of which we now give an illustration (fig. 128). This Rose was raised from the pollen of the Sweet Briar applied to the stigma of the Austrian Briar, and was intermediate between the two parents, its foliage having the fragrance of

PLECTOCOMIA, MART.

This small genus of East Indian Palms is closely allied to Calamus, having the same scandent habit, numerous long flexuous stems clothed with pinnate leaves, the rachis very spiny on the under side, and prolonged beyond the pinnæ into a long whip-like thong. The pinnæ are lanceolate, tapering from the middle, with a long acuminate tip, grey-green above, glaucous beneath, and from 2 to 3 feet long. The sexes are in separate plants; the inflorescence springs from near the top of the stem, and is formed of a short peduncle bearing from six to ten long pendulous tail-like branches, which are furnished from base to tip with numerous large concave overlapping scale-like bracts or spathes. The flowers are borne on short pedicels beneath these bracts. The fruits which, when ripe, are packed in tightly between the bracts, are about the size of a Grape, and of a rich dark brown colour. The shell is formed of small tightly overlapping scales as in Calamus, and encloses a roundish seed, which has solid whitish albumen almost as hard as ivory.

There are six species known, and three of them are in cultivation at Kew, where *P. assamica* flowered about thirty years ago, and was figured in the *Botanical Magazine*. It was sent to Kew, in 1841, by Dr. Wallich, as *Zalacca assamica*. When it flowered, its stems had attained a length of 60 feet, with leaves 30 feet long, including the long wiry whip-like upper portion, which was thickly beset with stout compound spines, shaped like mole's feet. These hook on to the surrounding branches of trees, and so support the trunk. Sir William Hooker states that "A yet more wonderful provision of Nature is observed in the young and yet unfolded leaves of these plants during the period when they insert themselves upwards among the branches of the forests, for then these spines are upright, and lie flat against the stalk of the leaf, not becoming reflexed till they are needed as a means of support."

P. elongata is represented in the Palm-house in the Botanical Gardens at Herrenhausen, by a specimen with stems extending up and along the roof of the house to a length of about 100 feet. It forms one of many magnificent examples of this family, which are to be seen in the famous collection under Herr Wendland's care.

Young plants of *Plectocomia* are ornamental, but their spiny leaves are a drawback, as they are so easily broken, being much more fragile than Calami and most other Palms.

They require a hot moist house for their successful cultivation.

P. assamica, Griff., Assam.

P. elongata, Mart., Java, Malacca, Penang.

P. spectabilis, Hort., Malaya.

P. sp.

W. Watson, Kew.

BLADDER PLUMS.

A CORRESPONDENT sends us specimens, with the following letter:—"I enclose some extraordinary specimens of deformed fruits gathered from a tree of Coe's Golden Drop Plum. They resemble mildewed Kidney Beans in a young state, rather than incipient Plums. I am curious to know if it is usual for such monstrosities to present themselves in the early development of Plum fruits. There are a great many more on the same tree."

In reply, we may quote the following extract from Dr. Masters' *Vegetable Teratology*:—

"In the summer of 1839," says Dr. Robb, "I had an opportunity of watching the process of destruction among the Plums, and it was as follows:—Before, or soon after, the segments of the corolla had fallen off, the ovary had become greenish-yellow, soft, and flabby. As the fruit continued to increase in magnitude, its colour grew darker, and of a more ruddy yellow, and at the end of a fortnight or three weeks the size of the abortive fruit rather exceeded that of a ripe Walnut. In fact, an observer might imagine himself to be walking amongst trees laden with ripe Apricots, but, like the fabled fruit on the banks of the Dead Sea, these Plums, though tempting to the eye, when examined, were found to be hollow, containing air, and consisting only of a distended skin, insipid

and tasteless. By-and-by, a greenish mould is developed on the surface of the blighted fruit, then the surface becomes black and shrivelled, and at the expiration of a month from the time of flowering, the whole are rotten and decomposed. The flower appears about the beginning of June, and before August there is hardly a Plum to be seen. It is curious that where two flower-stalks arise from one point of the branch, one will often go on to ripen in the normal way, while the other will become abortive, as above described. In a specimen described by Mr. Berkeley, there were two distinct ovules of equal size close to the apex of the fruit, connected with the base by vessels running down the walls. It should be observed that there is a worthless variety of Plum, Kirke's Stoneless, or Sans Noyau, in which the kernel is not surrounded by any bony deposit."

The fungus causing these "deformed thieves" is known as *Exoascus* or *Taphrina pruni*. We have little doubt that, as the fungus is superficial, its growth may be checked by the employment of sulphur, or by spraying with copper solutions.



FIG. 129.—BLADDER PLUM.

De Bary, *Comparative Morphology and Biology of the Fungi*, &c. (English edition, 1887, p. 265), has the following:

"The fungus, when fully developed, is composed chiefly of a single palisade-like layer of asci, standing close beside one another, which breaks through the cuticle, and covers the outer surface of the epidermis of the part attacked. The species which live on the Amygdaleæ, *Exoascus pruni*, for example, and *E. deformans*, develop this layer from a filiform mycelium, which first spreads in the inner parenchyma of the part, and then thrusts its branches in between the outer walls of the epidermal cells and the cuticle. In this situation the branches ramify copiously, and spread out in the direction of the surface, the ramifications, which grow alongside and between one another, forming a single layer, and then becoming divided into isodiametric cells. Each of these cells next swells into a vesicle, and, breaking through the cuticle, elongates in a direction perpendicular to the substratum, and becomes club-shaped, and at length divides by a transverse wall into a lower cell, the short stalk-cell, which rests on the substratum, and an upper cell, the club-shaped ascus. The connection of the ascus-layer thus formed with the intra-matrical mycelium can be seen even when the asci are mature."

For full details concerning the malady, consult *Frank die Krankheiten der Pflanzen*, 1880; or *Sorauer Handbuch der Pflanzen Krankheiten*, 2nd ed. 1886, p. 274, t. xi.; also Hartig, *Lehrbuch der Baumkrankheiten*, 1889, p. 116. The fungus is closely allied to that which causes the blister in Peach leaves—*Exoascus deformans*, of which we also give figures (see p. 673).

FOREIGN CORRESPONDENCE.

WITLOOF.

IN the *Gardeners' Chronicle* of the 2nd inst., you give an historical account of the Witloof Chicory; wherein you say, quoting from the *Bulletin d'Arboriculture*, that the secret of producing the Whiteleaf was discovered by chance in 1850-55 by M. Bresiers, Head Gardener, Botanic Garden of Brussels, and that it was not made public until after his death. I take the liberty to inform you that the above information is not correct, and in the interest of truth, I beg leave to send you, in the original French language, copy of an article on the culture of the above vegetable in trenches, earthed up, and mulched with dung. The article appeared in the *Bon Jardinier* for 1828, and reads as follows:—

"M. Vandendriesse, marchand grainetier, Grande Place, à Bruxelles, et dont la maison de commerce jouit d'une réputation justement méritée, a bien voulu nous adresser les deux notes ci-après, sur la culture forcée de la Chicorée-sauvage et du Houblon en Belgique.

"C'est de la variété dite Chicorée à café dont il est question. En Octobre, on choisit un terrain léger sablonneux, plutôt sec qu'humide; on y trace une planche, large de 4 à 5 pieds, et d'une longueur proportionnée à la quantité de Chicorée qu'on veut forcer; on creuse cette planche de 4 à 5 pouces en jetant la terre sur les côtés, et on donne dans le fond un labour de 9 à 10 pouces de profondeur. Cela étant fait, on arrache les racines de Chicorée, on leur coupe les feuilles à 1 pouce du collet, et lorsqu'on en a rassemblé une quantité sur le bord de la planche, on ouvre une tranchée en travers dans le bout de la planche, et on y plante perpendiculairement une rangée de racines, épaisses de 2 à 3 pouces, et quand la terre est bien rapprochée de ces racines, de manière qu'on ne voie plus que le bout des feuilles, on fait une autre ligne semblable à 3 ou 4 pouces de distance, et ainsi de suite jusqu'à ce que la planche soit plantée; ensuite on remet sur la planche toute la terre qu'on en avait tirée. Quand cette terre est un peu affaïssée, on la charge d'environ 4 à 5 pouces d'autre terre, également douce et bien ameublée que l'on prend aux deux côtés de la planche, de manière que les racines de Chicorée soient couvertes d'environ 9 pouces de terre. Si l'on craignait la gelée, on répandrait dessus et par les côtés des feuilles ou de la litière.

"Quand on veut chauffer on apporte sur le bout de la planche, qui voit être consommée la première un plancher de fumier neuf, épais de 18 à 20 pouces, long de 1 à 2 toises, que l'on tasse bien afin qu'il s'échauffe, et on le maintient autant que possible à la même température, soit en mêlant d'autre fumier neuf, ou en le couvrant avec des paillassons.

"Les jeunes tiges de la Chicorée ne tardent pas à s'allonger, et à traverser toute l'épaisseur de la terre qui les recouvre. On les fouille en commençant par un bout et en prenant garde de les casser; et tous les 12 ou 15 jours on chauffe une portion de la planche jusqu'en Avril, époque où les Chicorées poussent sans chaleur artificielle. Les jeunes tiges fort blanches, très tendres et délicates s'appellent en flamand Witteleaf, et se mangent comme les cardes. Elles sont très estimées et fort recherchées à Bruxelles."

It will be seen by the above notes that the vegetable alluded to was already produced and known under the present name of Witteleaf (or Witloof) more than sixty-three years ago, and not thirty years, as stated in the *Bulletin d'Arboriculture*, E. Schaettel, Paris.

CULTIVATED ORCHIDS IN AMERICA.

In Mrs. J. W. Lasell's conservatory at Whitnissville, Mass., may be seen at the present time, a plant of *Cymbidium Lowianum* in full flower, with eleven spikes, on some of which are nineteen flowers; this is said to be the finest variety of the sort ever seen in these parts, the yellow of the flower being a rich golden hue; the lip is a rich dark brown, where in many others it is merely a dull red.

A *Cattleya amethystoglossa* recently produced a spike with twenty-three perfect flowers—a very fine variety of the sort; this has been sent to an artist in Boston to be photographed and painted. Mr. McWilliam imported both of the above plants from the famous Clapton nurseries a few years ago.

A bank of twenty-six pans of *Cœlogyne cristata* were a show while they lasted, from thirty to fifty fine spikes to each, were the admiration of all beholders. *Calanthes* also have done well, the *Veitchii*, of which there are four distinct varieties here, as seen in the shape and size of the bulbs, as well as in the colour of the flowers, many spikes $4\frac{1}{2}$ feet in length, producing thirty to forty-eight perfect flowers, and all well-coloured, were worth going to see.

Recently many *Dendrobium nobilis* Wardianum, *D. crassinode*, *Cattleya Trianae*, *C. intermedia*, *C. Percivaliana*, *C. speciosissima*, *C. citrina*, *Lycastes* in variety, *Masdevallias*, *Oncidiums*, and *Odontoglossums*, have been keeping the houses gay with flower, while many of the forty or more varieties of *Cypripediums* have helped the display.

Miltonia vexillarium does exceptionally well; one plant last year had thirteen spikes; there were as many as ninety-three flowers in all on the plant, all perfect; at present the same plant looks as promising as last year.

Dendrobium formosum giganteum has again been put into a house ready to start it into growth after a three months' rest, at 45° temperature. Mr. McWilliam expects these will do equally as well as last season, if not better. W. S.

COLONIAL NOTES.

INVERCARGILL, SOUTHLAND, NEW ZEALAND.

The position of Invercargill, the most southerly town in the British Empire, is extremely exposed, being only about 10 miles from the stormy Foveux Straits, the intervening region being a dreary waste of swamps and sand, intersected by the Oreti, or New River estuary, one channel of which comes right up to the town. Invercargill is a place of great expectations, for if the channel were deepened the large ships would come right up to the town, instead of lying at the Bluff, 17 miles away. It is, in the meantime, the centre and junction of all the railways in the southern part of this island, the railway to the Bluff having been one of the first to be constructed in New Zealand.

Although Invercargill is the outlet for one of the best farming districts of New Zealand—a district famous for its grass and Turnips, its frozen mutton, and dairy produce; the soil of the town and immediate neighbourhood is only of medium quality, being mostly a thin clay, or a poor peat, and in want of drainage. There is this peculiarity about the soil, however, especially where it was originally covered with the native bush, that the subsoil is of a free nature, and if the ground be drained and deeply worked a marvellous transformation is effected.

The climate of Invercargill gets the name of being the worst in New Zealand, and certainly we have our share of windy, wet weather; but it is, upon the whole, to be preferred to the climate of Canterbury, where they have often hot north-west winds and drought. Our trees may be one-sided, and may not grow very fast; but grass and Oats and Wheat are never shrivelled up for want of moisture. We have sometimes quite severe frosts, but never equal to what they have been getting in England this year. The hardest of our winters is just about equal to the

ordinary South of England winters. I have, however, observed, that the frosts are harder and the winters

native bush. About twenty years ago, it was a common thing to see the North Island *Clianthus puniceus* in private gardens here, but now it is never seen, having been killed out by frosts.

The species of trees which do best, are *Pinus insignis*, *P. muricata*, *P. austriaca*, *Cupressus macrocarpa*, *Eucalyptus Gunnii* (two varieties), *E. coccoifera*, *E. urnigera*. The hardy evergreen shrubs also do well, such as *Holly*, *Berberis*, *Escallonia*, *Laurustinus*, also the native *Veronicas*, of which we have a large collection. The deciduous trees do not succeed so well, being often blasted by fierce westerly gales just as they are coming into leaf. Elm and Beech will do with a little shelter, but the others are scarcely worth trying.

The four sorts of *Eucalyptus* sent by Baron von Mueller are quite hardy, and have never been frosted, even as seedlings in the open ground, and I am certain they would all grow in England, if the constitution of the young trees were not enfeebled by being raised under glass. Those which may be called half-hardy, are *E. alpina*, *E. pauciflora*, *E. Sieberiana*, *E. amygdalina*, *E. Stuartiana*, *E. longifolia*, *E. Gunnii* (the Lowland variety), and *E. viminalis*.

It is, perhaps, the wind as much as the frost which destroys the very long-leaved kinds. The species which it is useless to try any longer, are *E. globulus* (this used to grow in the early days), *E. obliqua*, *E. rostrata*, *E. leucoxydon*, and the species from South Australia and New South Wales.

The extent of our Recreation Reserves is about 350 acres, and of this, 180 acres is comprised in one square block, to the north of the town, and called the Park; the remainder consists of small divisions, averaging 5 acres each, and forming a belt all round the town, and also dividing the town in two, where there was formerly a winding sluggish creek and low swampy ground; and in addition to the recreation reserves, there are several thousands of acres of inferior land by the side of the estuary and along the ocean, which belong to the town.

The improvements consist of straightening the creeks, drainage, fencing, taking out stumps, suppressing Gorse, Docks and other weeds, filling in hollows and gravel holes, ploughing and sowing down in grass; and planting since we commenced operations in 1873, over 90,000 trees. The planting is done in belts and clumps for shelter, and also to take away the bare appearance from the landscape. We have no fine lawns nor flower beds, but only a nursery where we raise the young trees, and have some borders of ornamental shrubs. On a part of the ocean beach where the sand blows into the estuary, we have been for several years experimenting with various plants for stopping driving sand, and have at length succeeded in acclimatising *Arundo arenaria*, which we hope will now spread naturally from both seeds and roots.

The estimated cost for this year of our reserves is £268, but a few years ago the expenditure was for several years about £400. The revenue is derived from the rents of numerous small grazing paddocks, which we let annually, supplemented from the rates; but as these rates are already very high, the Borough Council is obliged to limit the expenditure strictly to the income derived from the reserves. After providing for keeping up the fences, and for planting a few thousands of trees each season, there is not much left for any fine work. Our establishment resembles more a farm than a town pleasure-ground; but we are minding the main thing—the tree planting.

In private gardens, fruit-growing is receiving great attention of late years, the hardy kinds of Apples doing very well where there is shelter; and as for the small fruits, Strawberries, Raspberries, Gooseberries, and Currants, they will almost grow wild.

The soil and climate of Southland rapidly improve as one goes inland, and about 20 miles from town, to the north, the west, and the east, there is the finest agricultural land, and pastures not to be beaten in any country; and but for land booms and reckless speculation, Invercargill and Southland would have been in a good position, and will yet overcome all difficulties. Thomas Waugh, Corporation Gardener.

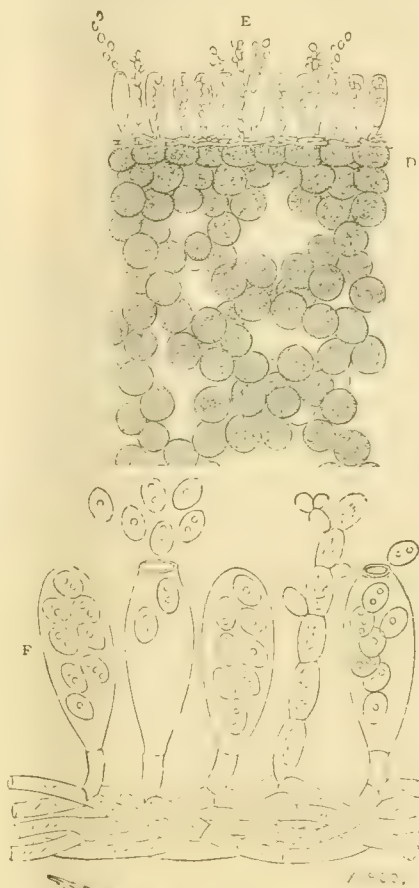


FIG 130.—PEACH CURL FUNGUS. (SEE P. 672.)

A, Peach leaf affected with blister; B, C, section of upper part of healthy leaf; D, section of leaf affected by fungus at D, the constituent cells at D are distended, and the spaces between them enlarged; E, the fungus enlarged.

drier than thirty-two years ago, when I first came here. This is accounted for by some people, by the drying up of the swamps, and the clearing of the

SINGAPORE.

Orchids seem to adapt themselves to circumstances, much in the same way as other leaves, and you can tell the habitat of an Orchid generally from the texture and shape of the leaves. *Modoca singaporiensis* is very common here, and there are several other species. *Passifloras* we really hardly have at all. I believe there is a wild one somewhere in the peninsula, but otherwise we have nothing but *fatida*, and one or two cultivated ones run wild. Of Conifers, we have *Dacrydium elatum* and *Podocarpus cupressinus* on the mountains, and I have two scraps of what may be *Pinus Merkusii*, from Mount Ophir; and some of the travellers talk of Pines in the mountains, but they mix up *Casuarinas* and *Dacrydiums*, &c., altogether. But I am off in a few days to find the biggest mountain in the peninsula, said to be 14,000 feet altitude, and I may get *Pinus* there. We can just keep *P. elatus* (?) alive in the garden, and that is all we can do in Pines here; but we grow nearly all the *Araucarias*, *Cryptomerias*, *Cupressus funebris*, *Biota*, *Podocarpus*, three or four species; and *Dammara* have even fruit. *Podocarpus neriiifolius* is a common seashore plant, and makes a fine gnarled tree sometimes. We have a good lot of *Gentians*. I made the discovery of a wild *Rhododendron* here in Singapore—an unexpected find. It is considered to be a variety of *R. javanicum* var. *longiflorum*, but is as distinct from *R. javanicum* as can be. It grew on a very high tree in the highest part of the island—500 feet altitude only! I am trying to propagate it. Dr. Trimen has been here for a short time, and is going on to Java. He was surprised to find we had so much botanical collecting-ground in the island, thinking that the whole of Singapore was under cultivation. We really have much of wild forest still, however. R.

NEW ZEALAND.

Mina lobata.—Last year I procured some seeds of this new climber from that *dépôt* of gems, Benary's, of Erfurt, to see how it would behave in this climate. Knowing it to be a native of Mexico, some care was taken in its earlier stages. Shortly after being planted out, it grew at a marvellous rate, its brown twining shoots reminding me of the old *Periploca græca*, and its crimson golden flowers were very striking; but its extreme tenderness, with the short time it flowers, will prevent it becoming popular here.

LILIU AURATUM.

On March 14, 1891, I received from the gardens of S. F. Smithson, Esq., a floral curiosity, in the way of a malformed spike of this grand Lily. The peculiarity consisted in its fasciated shape, which contained 125 fully expanded blooms; the volume of odour from this head of floriferousness was something to remember. I may add that this gentleman and his gardener bestow a lot of attention on things rare and novel.

ST. BRIGID ANEMONES.

These are the best things in the way of flowers that have been imported into this colony for a number of years. What I mean by the term best, the easiest managed, the most useful, and the most durable; and adapts itself to our windy climate in a wonderfully quick way. Seeds sown in spring will most of them flower in autumn, and will flower four or five months continuously, producing a charming variety of double and single flowers of many colours, and will flower again in autumn. The named varieties are simply nowhere in comparison; indeed, they degenerate and die out. St. Brigid certainly deserves our best thanks for this improvement on a pretty class of plants. T. Smith, Timaru, N.Z.

QUEENSLAND FLORA.

Recent bulletins of the department of Agriculture, Brisbane, contain a record of new introductions to the flora of the Colony, by the Colonial botanist, Mr. F. M. Bailey.

NATAL BOTANIC GARDEN.

From the annual report, we learn that there has been a considerable demand for fruit and timber

trees. The mean minimum temperatures are:—January, 67°; February, 69°; March, 66°; April, 61°; May, 57°; June, 55°; July, 55°; August, 58°; September, 60°; October, 59°; November, 64°; December, 65°; the mean minimum of the year being 61°. The highest temperature was 89° in January, the lowest minimum, in July, 55°.

THE WEEK'S WORK.

THE FLOWER GARDEN.

THE LATE FROSTS.—The variableness, sudden changeability, and uncertainty of the English climate has, perhaps, never been so forcibly and unpleasantly exemplified and brought home to the mind and sight of the flower-gardener, as they have since I penned my last remarks about the weather and the work to be done, as at that time it was all that could be desired, and, I fear, lured many into risking their tender plants out. If so, they have had every reason since to regret their ardour, as frost has most unexpectedly come upon us, and done great damage in gardens. Although all who have to do with them must lament this, it is no use dwelling or brooding over the trouble and loss, and the thing now left us to do is to surmount both in the best way we can. To raise fresh plants by means of cuttings at this late period, to replace those destroyed, is hopeless; but much may be done if we turn our attention to annuals, as they will come in after the middle of the season, and make a fine show. Among the most useful of them are the *Asters*, *Zinnias*, and *Stocks*; and to get these up quickly and ready to plant out as soon as possible, they should be sown either under handlights, or in boxes and stood in any close frame; if sown thinly in rich soil, the plants will not require pricking out, but it will be necessary to watch for and make choice of dull showery weather when they are transferred to the beds.

HARDY PERENNIALS.—Many of these have suffered from the severe frosts that occurred on the 5th, but the rains and warm weather will soon obliterate all traces of injury, and set them growing fast, and staking will therefore be necessary for all such as make tall stems, small gas-pipes or iron rods being very useful for the purpose, as both are neat and strong, and if painted of a green colour, they are scarcely, if at all, noticed, which is much in their favour. For standard *Roses*, *Hollyhocks*, and plants of that class, they are quite unsurpassed, and though the first cost is greater than that for stakes, they are cheaper in the end.

BULBOUS PLANTS.—*Daffodils*, *Tulips*, and such like, as they go out of bloom, should not be disturbed in any way, or have their foliage interfered with till it is perfectly ripe and dead, as any reduction of it tends very materially to weaken the roots. J. Sheppard, Woolverstone Park, Ipswich.

THE APIARY.

BUYING AND HIVING SWARMS.—Without doubt the most satisfactory way to buy swarms is by weight, as then an almost exact idea can be formed of the number of bees acquired, and consequently the value for money obtained, and the risk of any dispute or argument as to what constitutes a strong swarm is considerably lessened. When sold in this way the present price is about 3s. 6d. per pound, for about 3500 bees, so that if required for a skep at least 3 lb. would be necessary, or for a frame hive 5 lb. or more. The most expeditious way of hiving in a frame hive, is to get the latter furnished with frames, containing either full sheets of foundation, or starters, and placing over it an empty body, into which shoot the bees on the tops of the frames. Now, if the carbolie cloth is held over them they will run down, in a very few minutes, when the quilt can be placed in position, or a crate of sections put on, if the weather be favourable. Should it be cold, or wet, feeding must not be neglected, and Porto Rica sugar in a dummy feeder gives the least trouble.

TREATMENT OF SWARMS FROM HIVES WITH SUPERS ON, ETC.—The best way to treat swarms that issue from hives having supers on, is to return them to the parent stock—but before doing this, several of the frames, containing brood and queen cells, must be removed, with the adhering bees, which can either be placed in a fresh hive, in a new

position, or made into nuclei, containing three frames each. Care must be taken to cut out any remaining queen cells in the frames left in the old hive, which must be alternated with frames containing full sheets of foundation, in place of those taken out, and the sections put on as before. The bees will then go on storing in the super as if nothing had happened, and there will be no fear of any after-swarms issuing, unless they chance to be of the Carniolan variety. Should increase be desired, and no natural swarms come out, the best way to arrange matters, so as to get the benefit of the honey-harvest, is to wait till this is over, and then make artificial swarms by dividing strong stocks into two, except, of course, in Heather districts. This could generally be done by the end of July, and laying queens should be on hand, or obtained, for the purpose of queening them.

TAKING SWARMS.—There is nothing so useful in taking swarms that settle in difficult places as the carbolie solution, of the strength of 1½ oz. (Calvert's No. 5) to 1 quart of warm water. By dipping a wing in it, and sprinkling the swarm, after as many bees as possible have been shaken or got into a skep, they quickly make off somewhere else, or go into the skep, if it is propped up near. I had a swarm last year alight on the top of a wooden fence, along which they distributed themselves for 20 feet or more. I walked by the side, brushing as many bees as possible into a skep the while, afterwards sprinkling the fence with the acid solution, the result being that they gave little or no further trouble. Expert.

THE KITCHEN GARDEN.

POTATOS.—The main crop plants are now showing well above ground; and the heavy rains, prevalent in many parts, with the seasonable warmth of the weather, will cause growth to be rapid. Whilst the stems are erect is a good time to hoe between the rows of plants, to kill weeds and loosen the soil. When about 8 inches in height, the plants should be moulded up from 6 to 8 inches high, according to strength of top; and previous to moulding up, the robust-growing varieties, which throw up several shoots from the set, should have the weaker ones removed, two or three of the strongest only being reserved. The thinning of the stems of *Potatos* is, in my opinion, an important point of their cultivation, and leads to increase of crop and size of tuber. Where more shoots than these are allowed to remain, they become crowded, and light and air are excluded, and a weakening of the plant supervenes, to be followed in some seasons by disease. Early varieties of *Potatos* which may be growing at the foot of south walls, and on south borders, will be much benefited if a small quantity of earth be placed over the roots, and a slight dressing of guano between the rows, the latter being afforded in showery weather, and just previous to the earthing-up being done.

ONIONS.—The plants should be thinned when a few inches high, and vacancies in the rows made good with the strongest plants. The thinning of the Onions might be carried out at a later period, and the thinnings would be of more use in the kitchen; but it is best for the future crop to remove some of the seedlings whilst they are quite small, more especially if much crowded together. In thinning the plants at this early stage, they may be left at 1 or 2 inches apart, and at the final thinning at 4 or 6 inches apart, and if very large bulbs are desired, 8 or 10 inches would not be too much space. Use the hoe between the rows of seedlings as soon as the thinning is finished; this will fill up the holes made by drawing the plants, which, in dry weather, if left open, would be injurious to them. Sow thickly in beds any kind of Onion for salad purposes once a month throughout the summer. The main crops should be frequently dressed with soot and salt in land where the Onion-maggot is troublesome, taking advantage of dewy mornings for doing it.

LEEKs.—Those raised in frames may now be planted in manured trenches, the manure used being quite decayed; and put the plants at 12 inches apart, which is not too much for such kinds as *Prizetaker*, the *Lyon's*, and *Oxonian*, if really fine roots are required, and the smaller-growing varieties at 8 inches apart. In lifting the plants, keep as much of the soil about the roots as possible; and if the weather prove dry, afford the plants plenty of water until they are established.

BRUSSELS SPROUTS.—Plants raised early may be planted on well-prepared land in rows 2½ feet apart each way. Deep drills should be drawn, in which to plant, so that water may be readily afforded them. Secure good balls of earth with each, and plant them firmly with a trowel in the drills. A row or two of Lettuces, or other quick crop, may be planted between the rows. I grow about 2000 Lettuces each year between the rows of these plants, and find it a good place for them; a little shade being afforded them by the Brussels Sprouts, which in hot weather is very beneficial.

VEITCH'S AUTUMN GIANT CAULIFLOWERS, ETC.—Another sowing may be made, which will afford a valuable successional to those sown earlier. A small sowing of Coleworts may also be made on well-prepared soil, either broadcast or in drills. From this sowing plants will be drawn for filling vacant plots in the late summer and autumn to produce heads in the late autumn and winter.

ENDIVE.—A small sowing of Batavian and the curled leaved Endives should be made, the seed being scattered thinly in drill-rows at about 12 inches apart. As soon as large enough to handle, the plants may be planted 12 inches apart. The strongest thinnings may also be planted out, and copiously supplied with water in dry weather, otherwise these early sowings are particularly liable to run to seed. *C. J. Waite, Glenhurst, Esher.*

FRUITS UNDER GLASS.

PINE-APPLES: FRUITERS.—These, in common with other forced fruits, will have required much care during the period of changeable weather we have passed through, including a few days of scorching sun, with scarcely any wind, when those who have movable shading at their disposal for Pine-pits and houses would appreciate their usefulness. Permanent shade, had it been put on the glass, would not have been required in the sunless weather which followed, and would have done much harm. On cold nights, movable shading can be utilised with great advantage as a covering for the glass, preventing loss of fire-heat, and conserving moisture in the Pine-stoves. Some fruits of the earliest Queen Pines will now be increasing in size, and an occasional watering with weak guano-water or other suitable manure, will stimulate growth. It is good practice to change the manure that is employed at intervals. Plants on which the fruits have ceased to swell should not have so much water afforded them, or overhead syringing.

It is always best to have the plants with fruit in the ripening stage kept all together in one part of the Pinery, if a small house cannot be given up to them, as, by doing so, the *regimen* of more air and less moisture can be readily adopted. Still, when I advise more air, the temperature should not be much lowered; and a fair amount of moisture ought to be distributed on the floors, walls, and the surface of the beds, and the growth of the plants till the fruits are ripe fully maintained.

The evaporating troughs on the keeping of the hotwater pipes filled with liquid manure, should get attention, and a bottom-heat of 80° be maintained—a safe amount of warmth for the plants that follow the earliest fruiters; and in case these are coming in too rapidly, it will be advisable to ventilate more freely on sunny days, and shade the plants a little heavier, but taking care not to cause a check to growth by a sudden lowering of the temperature. Ventilate the house early in the day, and lower the night warmth somewhat. By this means a glut of fruit at any one time may be avoided.

SUCCESSION-PITS.—The plants should be growing freely in these structures, and due attention must be paid to shutting up early in the afternoon—thus economising fire-heat, to keeping a moist atmosphere, and syringing lightly overhead on bright days, and a moist state of the soil, but not too wet. The bottom-heat may remain as previously advised. Large early potted-up suckers will give good results in the early part of next year, if they are kept steadily moving in a higher temperature than the later ones need, and in a bottom-heat of 90°, if the plants have been repotted as advised. The smaller suckers may now be with safety transferred to frames, providing a suitable bottom-heat can be given them. I find that suckers grown in this way and close to the glass are preferable to those grown crowded together in Pine-stoves. Suckers taken off plants which have borne fruit should be potted when

large enough; these soon make nice plants if only a few were allowed to remain on the plants. Fruit crowns of any varieties which do not readily afford suckers should be saved, potted, and placed in a bottom-heat of 90°, with a top warmth at night of 65 to 70°, and 10° increase by day. These plants in frames will not dry so rapidly as those in more heat, so that less root and top moisture will be required. *G. Wythes, Squin House, Brentford.*

THE HARDY FRUIT GARDEN.

THE WALL TREES.—Now that the fruit of Peaches and Nectarines is swelling rapidly, since the heavy rain set in, no time should be lost in going over the trees and thinning off such of the fruits as are between the shoots and the wall; and where they are in thick clusters. In Kent the prospect of a good Peach year is now a certainty, but as the heavy cropping of trees is sometimes indulged in, in good years, it must be remembered that this tends to the production of inferior fruits, crippling the energies of the trees for a year or two; therefore I would advise early thinning, and the retention finally of not more fruit than would average one in every 10 inches square of tree surface, and less on trees not particularly robust. On strong-growing trees, 8 inches apart will not be too close, but at the present, for the fruits to stand another thinning, one in about every 3 inches square should be left, repeating the thinning in a fortnight hence. Apricots, when in clusters, should be thinned, the numbers left on each not being many if fine fruits are required. Care should be taken to remove all nails which press on the fruits, whether of Apricots or Peaches. Tree coverings of all sorts may be removed from the trees and bundled up when dry, to come into use in the case of nets, for the Strawberry beds and other fruit.

PEARS.—The late frosts have in this part caused some loss of bloom and young fruit, therefore the thinning of the fruit should not be pushed on for awhile, except in cases where it is seen the fruit is quite unhurt.

STRAWBERRIES.—The beds may be littered down with clean straw, if it be obtainable. Grass mowing, though much used by gardeners, is very objectionable, damp weather rotting it; moreover, the grass will stick on to the berries. Those who make it a practice to plant in cold frames and on warm borders for early fruit, should see that the blossom-trusses are early thinned, and the fruit supported on forked pegs, or tied up, so as to fully expose it. The use of Birch twigs stuck close to the plants, and dropping the fruit between the twigs, is a good means of bringing it up to the light. *H. Mackham, Moneworth Castle, Maccleston.*

PLANTS UNDER GLASS.

WINTER FLOWERING CARNATIONS.—Cuttings of these plants struck in early spring, and which are now in small pots, and have been stopped, will have formed three or four shoots on each, and if they are to be grown during the summer in pots, they should be potted into those which they will occupy for that period. In most cases 32's will be large enough, as nothing is gained by giving them more root-space than is required for good growth. A suitable compost for Carnations consists of rich fibry loam, such as that obtained from grass-land fed off by stock, and to this, which should have been stacked one year at the shortest, some rotten manure and sharp sand should be added. The drainage must be good, and at least 1½ inch deep, so as to ensure the rapid exit of the surplus water. When the young shoots have grown some 4 inches in length, the points may be again pinched out, and the shoots arising from this act of stopping will be found sufficient to furnish the plant. After potting them, stand the plants in an open sunny place, either on boards, or plunged to half their depth in a bed of fine coal-ashes. On the first appearance of aphides or of mildew, either of which if allowed to go on unchecked will soon ruin the plants, dip the plants in weak tobacco-water for the first, and dust affected parts with flowers-of-sulphur for the second.

KALOSANTHES. The plants which are intended to give flowers in the summer of 1892, either as large or small specimens, should shortly be stood in the open air, and unless this is done, there is no certainty that they will bloom freely at that time,

and however large the stock, or strong the shoots may be, only a small portion of them will bloom without this exposure. [The leaves should acquire a reddish tint, and some sign of woodiness appear in the current year's shoots; these are the certain forerunners of good flowers. Ed.] Plants that require more root-space, and that have not yet been attended to in this respect, should be looked to at once, as, delayed longer, it will be too late. All newly-potted Kalosanthos in wet seasons like the present are better if kept under glass till established.

GESNERAS.—Pot up tubers of the winter-flowering species, such as *G. zebrina*, placing one or two tubers in 48-pots, or a number of them together, in pans or shallow boxes, to be potted off either singly or in pairs after they have started into growth. A night temperature of 60° to 65° with a rise of 10° by day, will be found sufficient for these plants, and they must have plenty of light; but be very careful to shade them at all times when the sun is shining brightly, and to give them as much air in the day-time as is admissible without drying the atmosphere overmuch. The summer-flowering species have few equals among stove plants for the display they make when in bloom, especially *G. Cooperi*, which is one of the brightest coloured plants grown. If the tubers are strong, and the plants have been kept free from insects, the plants, when they have finished flowering, should be still kept in the stove, and the soil in the pots in a moderate degree of moistness, and they will push up a second growth, which will bloom in the autumn. *R. Milner, Peaslee Castle, Swansea.*

THE ORCHID HOUSES.

INTERMEDIATE-HOUSE.—Plants of *Miltonia vexillaria* which have passed out of flower may be repotted; even large plants growing satisfactorily require repotting each year. No plant makes such large specimens in a few years as *Miltonia vexillaria*, when it is treated aright, small plants in the course of three or four years growing into exhibition size. It is usually spoken of as one which thrives are very partial to, and undoubtedly is the case where the plants are kept too warm and dry. I have found that it is not so particular in regard to temperature as moisture, which must be ample. I have grown them in perfection in an East India-house, but with fuller experience I should not now advise that house for them, as they are much better off in the intermediate-house.

Should very good varieties appear among newly-purchased imported plants, they may be safely increased by division, if that should seem desirable. It is an operation which must be carefully done, and, instead of cutting through the rhizome and the roots with a knife, they should be gently parted with the hands, loosening the roots here and there as much as possible. In repotting these plants, always err, if at all, on the side of using small pots. Little water will be necessary at the root for about a month afterwards, but the plants should receive a good syringing at least twice a day. The position they should occupy in the house should be one near the glass, and where the ventilation is very good; and unless this is the case, the syringing must be curtailed somewhat, or damping-off of the smaller leaves on the young growth may occur.

Peleones are growing with vigour, and should receive assistance at this season from liquid manure, and I have found nothing better than guano for them after trying several kinds of manure. I apply it once a week regularly, as soon as the roots are seen to be taking hold of the sides of the pots. *Chionoglossum grande* is now breaking into growth. This plant may also have a little guano-water about once in a week, or at each alternate watering.

Vanda tricolor and *V. suavis*, if now in flower, should not be allowed to carry their flowers for any long period, or loss of the lower leaves may occur if the bloom is abundant. *Epidendrum Wallisi*, now in flower, is a splendid Orchid, and lasts for at least three months in perfection; it is a plant of very easy culture. We have a plant of it which has never been out of flower during the last two years; it is now, of course, at its best, and is carrying many flowers. It does well when potted in about one half peat and one half sphagnum-moss, the plants being elevated somewhat above the top of the pans, as the roots, although not going over the sides, run along the top of the sphagnum moss before going downwards. It is a plant that requires good ventilation. The temperatures of the various houses may remain as before. *A. G. Carr, Peaslee Castle, Swansea.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY,	JUNE 4	—Linnean Society.
FRIDAY,	JUNE 5	—Dundee Horticultural Association.
SATURDAY,	JUNE 6	{ Preston and Fullwood Horticultural Society.

SHOWS.

WEDNESDAY,	JUNE 3	{ Reading Horticultural. Bath and West of England and Southern Counties Association at Bath, and 4th, 5th, 6th, and 8th.
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SALES.

TUESDAY,	JUNE 2	{ Sale of Established and Imported Orchids, at Protheroe & Morris Rooms.
THURSDAY,	JUNE 4	{ Sale of Plants and Glass Erections at Burntwood, Wandsworth Com- mon, by Protheroe & Morris. Sale of Orchids in Flower and Bud, at Stevens' Rooms.
FRIDAY,	JUNE 5	{ Important Sale of Orchids at Pro- theroe & Morris' Rooms.
SATURDAY,	JUNE 6	{ Sale of Greenhouse and Bedding Plants, at the Stamford Hill Nur- sery, by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSU-
ING WEEK, DEDUCED FROM THE OBSERVATIONS
OF FORTY-THREE YEARS, AT CHISWICK.—58°·9.

The
Temple Show.

BIGGER, if not better than ever, must, we fancy, be the verdict, when the time comes for finally reviewing the great show which is being held in the Temple Gardens under the auspices of the Royal Horticultural Society as these sheets are passing through the press. We cannot pretend to emulate the prowess of one of our contemporaries, who has published a report, and a good one too, in the main, of the show, and which we find on our table hours before the show was opened even to the prying reporter. All that we can do is to give here a general impression of the show and to add, in another column, as many details as the circumstances of the time permit. The show is certainly larger than either of its three predecessors in the same locality, and its quality throughout, is excellent. The amateurs, especially in the Orchid classes, show brilliantly, and this is a circumstance upon which we cordially congratulate the Society. Four large—some very large—tents are completely crammed with exhibits, the Orchids in particular being of a high standard, both in quality and in numbers. The collections of the President, Sir Trevor Lawrence, Baron Schroder, Messrs. VEITCH, SANDER, WILLIAMS, LOW, and others, are of first-rate rank. The arrangement of a long row of *Odontoglossum citrosimum* suspended above the other exhibits by Messrs. SANDER is a novel feature, which we hope to see repeated and improved upon on a future occasion; for, if we must hint at a defect in the show, it is a prevalent impression of flatness—a circumstance due to the want of fine specimen plants, Palms, Tree Ferns, &c., intermixed with dwarfer-growing plants, and to the almost complete absence of any fine group arranged for effect. A small group of Palms and Lilies exhibited at one end of one of the large tents, by Mr. ICETON, illustrates our meaning. But, in truth, the arrangers of the show have to contend with several adverse circumstances, such as an over-abundant supply of material, which leads to crowding, while the vast size of the principal tent, at any rate, dwarfs the enclosed plants, and hardly shows them to advantage. Some day or other, when the idea of a new

Horticultural Hall is actually realised, as we are told may now soon be the case, we may hope for something like the four acres of Eden which JOHN GIBSON gave us in 1866. We have waited long for a repetition of 1866, but we have not lost heart, and the present exhibition shows us at least that we have the material, and we should be mean-spirited indeed if we refused to believe that the other conditions will not be met when the time comes.

Reverting to the Temple Show of the present, we may say that it occupies four large tents, filling up the greater part of the historic garden. The first tent is a long one, filled with *Gloxinias*, *Tulips*, a remarkable group of hybrid *Streptocarpus* from Messrs. VEITCH, some wonderful *Pæonies* from Messrs. KELWAY and WARE, an excellent exhibit of dwarf *Calceolarias*, from Mr. JAMES. *Petunias* from Messrs. CARTER, who also show a nice little lot of *Cacti*. The *Begonias* of Messrs. CANNELL and Messrs. LAING will be noted in another column; they are a striking illustration of what our growers can do. Twenty-five years ago they were hardly, if at all, in existence; but now—to fill up the sentence the reader must visit the Temple show for himself! In this tent, also, is a charming arrangement of cut *Masdevallias*, from the gardens of the Right Hon. J. CHAMBERLAIN, whose gardener has had the happy inspiration of cutting spikes of variously-coloured varieties, and arranging them loosely with Ferns, so as to display their lovely shades of colour to the best advantage. In the same tent is a lovely little Palm, in the way of *Cocos Weddellii*, exhibited under the provisional name of *Cocos Pynerti*, by Messrs. SANDER, of St. Albans.

The largest tent of all is filled with Orchids, fine enough to make demands upon all our superlatives, but for which we must refer to our detailed report in another column. We must not avoid mentioning Messrs. PAUL & SONS' *Roses*, which, like those of Messrs. W. PAUL & SON are marvels of cultivation—not so much for the sake of the *Roses* themselves—which are dealt with elsewhere—as for the sake of mentioning the beautiful effect produced by staging them in front of various hardy Bamboos—a beautiful feature. Messrs. VEITCH show in the same tent a small but excellent collection of hardy flowering shrubs, including the beautiful white hardy *Rhododendron Rosalie Seidel*. The *Carnations* (*Malmaison*) shown by Mr. LEOPOLD DE ROTHSCHILD, are wonderful specimens; but to our taste, at least, much too big. We really do not want *Cauliflowers* in our button-holes.

The fourth tent is filled with vegetables, fruits, cut flowers, and various miscellaneous exhibits, among which we can only find space here to mention Messrs. RIVERS' fragrant group of Peach trees and Oranges. Messrs. DOBBIE'S *Pansies* deserve special recognition, not only for their merit, but also for the enterprise which has brought them from far-off Rothesay.

New plants, we are sorry to say, are conspicuous by their absence, and there is little for the visitor of purely botanical tastes to gloat over. Some of our readers—we are sorry to say they can be but relatively few—will read this account while there is still time to see the show on Friday. We earnestly advise them to do so, and to join with us in congratulating the grand old Society on this its latest effort in the cause of horticulture pure and simple. The weather on Thursday was fitful, but at the time when H.R.H. the Princess CHRISTIAN opened the show, the showers were obliging enough to suspend operations, and the attendance has been very large.

A GROUP OF CYPRIPEDIUMS.—Our Supplementary sheet illustrates a group of these quaint and attractive Orchids, which at the Temple Show of the Royal Horticultural Society, as they do wherever they are exhibited, commanded their full share of attention from the visitors. At the top will be seen the singular and beautiful *Cypripedium caudatum*, whose tail-like elongation of petal always attracts the curious in those things, no matter how often they may have observed it, and creates much wonderment amongst those who see it for the first time. Beside it, on the right hand, will be seen a side and front view of *C. Boxalli*, and below it its congener, if not its specific superior, *C. villosum*. In front is the neat little Apricot-yellow coloured *C. concolor*; and to the left of that one at the corner in the same group is *C. bellatulum*, also its brightest addition. Above *C. bellatulum* is the old garden favourite, *C. venustum*, and shown above it in the left centre are front and back views of the curious *C. hirsutissimum*. In the very centre is seen a heavily-spotted form of *C. Argus*, and at the top towards the left *C. superbiens*, or, as it is commonly called, *C. Veitchii*, which is still one of the most admired *Cypripediums*. All these, it will be observed, are imported species, of which a goodly number are in cultivation, and among which the Orchid hybridists have created a progeny difficult to number, and whose ranks are almost daily being added to. Provided that only the distinct ones are retained, however, there cannot be too many, for the *Cypripediums* are a showy and easily-cultivated class of plants.

NEW PLANTS.—Amongst the novelties announced for the first time by Mr. WILLIAM BULL are:—

Alberta magna.—Described as being one of the finest flowering plants of Natal. It has deep green shining evergreen leaves, and is of shrubby growth, producing dense terminal panicles of bright red flowers, afterwards succeeded by beautiful fruits, each crowned with two enlarged calyx lobes nearly an inch long, giving the plant a very striking appearance. It belongs to the *Rubiaceæ*, and should be grown in a greenhouse or conservatory, although, as it comes from an elevation of 4000 to 5000 feet, it may prove half-hardy in favourable situations.

Ansellia humilis.—From its compact, free-growing character, and the abundant manner in which its flowers are produced, this is a desirable introduction. It has been imported from the upper reaches of the Zambesi River. The blossoms, which are produced in large panicles, are about 2 inches in diameter, the ground-colour lemon-yellow, heavily blotched and barred with chocolate-crimson. The pseudobulbs vary in height from 9 to 15 inches.

Bulbophyllum Pechei.—A species with ovoid corrugated pseudobulbs borne on creeping monophyllous rhizomes, the leaves being linear oblong. The flower-scapes are erect, 4 to 5 inches high, and bear racemes of buff or orange-yellow flowers marked with reddish-brown.

Cirrhopetalum mundulum.—This species has been imported from the Shan States, and has ovoid pseudobulbs, the leaves being about 5 inches long, linear-oblong. The flowers are borne on slender erect scapes, in a one-sided umbel of six to ten blossoms, which are of a buff-yellow colour, the dorsal sepal being slightly spotted.

Dipladenia illustris glabra.—A handsome flowering climbing stove plant, a native of Brazil, which produces a profusion of medium-sized blossoms, the corolla being of a pleasing rosy-pink colour, with a crimson-rayed ring encircling the mouth of the throat. The foliage is somewhat variable in different plants, being from oblong to orbicular. It has been figured and described in the *Botanical Magazine*, t. 7156.

Pteris Victorie.—This variegated *Pteris* has been imported from the Eastern Archipelago. The plant is of graceful habit, throwing up a tuft of fertile pinnate fronds, each composed of a long linear end segment, and three or four distant pairs of sessile pinnæ, many of them being forked at the base.



GROUP OF ORCHIDS

These segments are entire, about one-sixth of an inch broad, and beautifully variegated throughout, with close lanceolate white teeth, extending from the midrib nearly to the edge, forming a striking contrast to the dark green ground colour; the sterile fronds have broader and shorter segments.

Of the Fern we can speak *de visu*, having been privileged to see it some months ago, so that we can confirm the statement that it is remarkable and beautiful. Moreover, the coloured plate issued in Mr. BULL's catalogue can by no means be accused of exaggeration, but rather it fails to do the plant justice.

In the catalogue of the HORTICULTURE INTERNATIONALE we find offered for the first time the following Orchids:—*Aërides Augustianum*, *Cypripedium Bungeorothi*, *Catasetum saccatum*, *C. Rodigasianum*, *Cattleya Buyssonianana*, *C. rex*, *C. Warocqueana*, *Cirrhopetalum Mastersianum*, *Cochlioda Noezliana*, *Coryanthes Bungeorothi*, *Cypripedium insigne* var. *coloratum*, *C. præstans* var. *Kimballiana*, *Hæmaria Otleæ*, *Houlletia odoratissima* var. *Lindenii*, *Lælia Schroderi* var. *delicata*, *Maxillaria longispala*, *Mormodes Lawrenceanum*, *Oncidium Leopoldianum*, *Peristeria aspersa*, *Phalænopsis Esmeralda* var. *candidula*, *Restrepia striata*, *Zygopetalum Jorisianum*, *Z. Lindenii*. Most of these have been described in the *Lindenii*, or in the *Gardeners' Chronicle*.

PHENOLOGICAL OBSERVATIONS.—In a paper in the *Transactions of the Hertfordshire Natural History Society* for May, 1891, Mr. EDWARD MAWLEY deals with the question of Phenology, a term indicative of the records of the first appearance of wild flowers, insects, &c. For statistical purposes, it is desirable to select a small number of specially suitable species, and to observe these carefully, and record them faithfully. The plants recommended by the Royal Meteorological Society are *Hazel*, *Corylus Avellana*; *Coltsfoot*, *Tussilago Farfara*; *Wood Anemone*, *Anemone nemorosa*; *Blackthorn*, *Prunus spinosa*; *Garlic Hedge Mustard*, *Erysimum alliaria*; *Horse Chestnut*, *Æsculus hippocastanum*; *Hawthorn*, *Cratægus oxyacantha*, *White Ox-eye*, *Chrysanthemum leucanthemum*; *Dog Rose*, *Rosa canina*; *Black Knapweed*, *Centaurea nigra*; *Harebell*, *Campanula rotundifolia*; *Greater Bindweed*, *Convolvulus Sepium*; *Ivy*, *Hedera helix*. It is scarcely necessary to add that, so far as possible, the same individual plant should be observed each year, otherwise discrepancies may creep in from the great amount of variation in these respects in different individuals. We have not space to include the birds or insects, the appearance of which it is desirable to record. Forms and full instructions may be had from Mr. E. MAWLEY, Berkhamsted.

THE FLOWER TRADE IN PARIS.—The supplement to the *Paris Figaro* of the 16th inst., a large sheet of four pages, with six columns to a page, is devoted entirely to "La fleur à Paris," comprising an account of the principal flowers grown in the environs of Paris, the methods of culture, and other details. A map of Paris and its environs is given, with indications of the specialties cultivated in each suburb. Thus within the fortifications at Mont Rouge and other places, *Roses* are forced, the *Roses* being procured from the great Rose-growers of Brie-Comte Robert, Bourg-la-Reine, and Ivry; *Piepus* furnishes *Wallflowers*, *Versailles* the *Azaleas*. Forced *Lilac* comes from Vitry-sur-Seine; *Montreuil* furnishes *Paris* with *Camellias*, *Gardenias*, *Narcissus* *Hyacinths*, *Hydrangeas*, and *Cyclamens*; while later in the season everything must give way to the culture of the *Peach*, for which this suburb is famous. *Bourg-la-Reine*, *Fontenay-sous-Bois*, *Clamart*, and *Verrières*, devote themselves to the cultivation of *Parma Violets*, as does also *Fontenay-aux-Roses*. Forced *Lilies of the Valley* come from Neuilly; *Chinese Primroses* and *Cinerarias* come from *Fontenay-sous-Bois*. We have not space to enumerate the names of other suburbs, where the cultivation of other varieties is carried on. M. Henri de Vilmorin estimates the number of wholesale growers for the *Paris* market, at between four and five

hundred, of whom twenty produce forced *Lilac* at Vitry—in which commune alone no fewer than 260 hectares are devoted to this industry; fifteen cultivate *Ferns*, ten *Orchids*; and one only supplies *Orange flowers*, gathered from the tree, in *Paris* itself, at all times and all seasons. A description is then given of the methods of forcing generally adopted, whether for *Lilacs*, *Roses*, *Lilies of the Valley*, *Cyclamens*, *Violets*, *bulbs*, *Mignonnets*, *Orchids*, or wedding flowers. In the winter season from November, *Paris* is supplied with flowers from *Provence* and the *French Riviera*. Cut flowers of all descriptions arrive from the South by rail at the Halles Centrales, with the exception of flowers of superior quality, called "*très beau midi*," which pass directly into the hands of the principal florists. At the markets the flowers are received by the porters ("*les forts*"), who form a special corporation of commissioners, and who arrange the flowers for sale. The dealer arrives, takes the receipt from the members of the "*fort*," and proceeds to unpack his goods about 11 o'clock at night. After the railway vans, come the market-carts from the suburbs of *Paris*, which leave home, according to the distance, about 1 or 2 o'clock in the morning. The routes taken and the times of arrival are regulated by the police, with a view to prevent inconvenient crowding in the neighbourhood of Les Halles. The public sale begins at 3 o'clock in the morning (4 in winter), and terminates about 8 or 9, the goods being classified into ordinary, fine, and extra-fine, the various classes of goods being purchased by florists of corresponding grade, and after these have been supplied, it is the turn of the "*ambulants*" (itinerant dealers). The remainder of the article is devoted to the various uses made of flowers for decorative and domestic purposes.

THE PROPOSED HALL FOR HORTICULTURE.—We have pleasure in inserting the following notification to the Fellows of the Royal Horticultural Society, by Rev. W. WILKS, the Secretary:—"An opportunity offers for at once beginning the new hall and premises. If every Fellow of the Society would lend the Trustees an average of £7, the thing would be done, and England no longer be behind France and America in the possession of a horticultural hall. A friend has offered £5000 on condition of the hall being promptly commenced. Will you not help to secure this?"

HOOKE'S "ICONES PLANTARUM."—The last issued part contains lithographic illustrations of various plants from China and other countries, and which have been lately determined in the herbarium at Kew. *Davidia involucreta*, t. 1961, a very remarkable tree, is, says Professor Oliver, "almost deserving a special mission to Western China, with a view to its introduction to European gardens." Dr. HENRY describes it as 30 feet in height; "the large white bracts, mingled with the green leaves of the tree, give it an extraordinary and beautiful appearance." It belongs to the *Cornaceæ*, *Gentiana Herriediana*, t. 1962. A species from the mountains of Peru is also worth looking after. It is described as "*maxima speciosissima*," with erect panicles of large stalked, bell-shaped purple flowers. *Arun-dinaria kurilensis* var., t. 1869, is the plant described in our columns, 1888, vol. v., p. 521, as *A. Veitchii*.

DR. WILHELM KARL VON NÆGELI, the late Keeper of the Botanical Museum and Garden in Munich, who died recently in his seventy-fourth year, was a Swiss by birth. He was for some years Professor of Botany at the University of Zurich, but in 1857 was invited by King Maximilian II. to the post which he so long occupied. He was a many-sided man, a great mathematician and microscopist, as he showed in his *Das Mikroskop* (Leipzig, 1865, 1867, and 1877). His obituarist in the *Allgemeine Zeitung* contends that morphology owes, peculiarly to him, its present strong scientific foundation. His contributions to alpine botany are numerous. The new scientific movement called forth by DARWIN's great work found an energetic opponent in NÆGELI. The Swiss papers give a long

list of his works. In 1885 and the following years he and Professor PETER, of Göttingen, brought out the *Hieracien Mitteleuropas*, in which he handled the problem of "*mittelformen*," without whose existence the transmutation of species would be impossible to explain. His study throughout life, as he said, was to understand "the very least of the very little." *Athenæum*, May 23, 1891.

APPLE SCAB, ETC.—*Central Experimental Farm, Department of Agriculture, Ottawa, Canada; Bulletin, No. 10.* "Treatment of Apple-Scab, Grape, and Gooseberry Mildew." Mr. CRAIG recommends the use for Apple-scab of an ammoniacal carbonate of copper, made as follows:—Carbonate of copper, 8 oz.; ammonia, 1 gallon; water 100 gallons. Or, carbonate of copper, 2 oz.; strong liquid ammonia, 1 quart; dissolve the copper in the ammonia, pour into a barrel, and add 25 gallons of water. The solution should be sprayed in June and July. As a combined fungicide and insecticide, Mr. CRAIG recommends a trial of—carbonate of copper, 1½ oz.; ammonia, 1½ pint; Paris Green, 1½ oz.; water, 25 gallons.

ROYAL BOTANIC SOCIETY OF LONDON.—Mr. W. CARRUTHERS, F.R.S., Head of the Botanical Department of the British Museum, gave, on Friday week, the concluding portion of his lecture on "The Story of Plant Life on the Globe," before a large number of Fellows and visitors to the Gardens. Tracing the evolution of plants through the Pine trees and Cycads of the lower rocks to the cretaceous series, where plants similar to those at present existing first appear, he showed how unbroken had been the continuity of vegetable life from the first dim traces of seaweeds in the earliest strata to the complex and highly differentiated floras at present upon the earth, yet all bearing in form or structure links connecting them with the remote past, as illustrated for us in the plant fragments which sank in the ooze and mud of prehistoric river and sea, to be found still unchanged in the rocks of to-day.

CARBONATE OF COPPER may be made by dissolving 1 lb. of copper sulphate in 2 gallons of water, and 1½ lb. of soda carbonate in half a gallon of water; mix the two solutions; a brownish powder will be precipitated; the water should be poured off from the precipitate, which is the copper carbonate.

INSECTICIDES, ETC.—Our growers, whose general apathy with regard to the employment of remedies, even for experimental purposes, is profound, and who appear to leave unread the evidence that is put before them, are, at any rate, not the only persons similarly affected. This is what is said by the *Colonial Botanist* at the Cape:—"I have urged several importers to speculate in a sample, and done everything except thump them over it. But they, one and all, seem to think the Cape fruit grower will not bother over his fruit trees, or put either money or elbow-grease into the protective measures which the Yankee fruitist finds to pay hand over hand. Let us hope they are mistaken."

THE FRAGRANT EARTH.—In the *Chemical News* for April 17, there is an interesting note by Dr. T. L. PHIPSON on the cause of the odour emitted by the soil of a garden after a summer shower. After making a considerable number of experiments, it seems that Dr. PHIPSON arrived at the conclusion that the odour emitted by the soil after a heavy shower of rain during summer time was due to the presence of certain organic substances which are closely related to the essential oils of plants. He is of opinion that the porous surface of the soil absorbs the fragrance emitted by flowers and plants, and that when the rain penetrates into the pores, it displaces the various volatile substances imprisoned therein, which are only very slightly soluble in water. Dr. PHIPSON made his earliest observations upon the chalk soils of Picardy, but he found that not only chalk, but also marls, compact limestone, phosphatic rocks and some kinds of schists and amphibolites

are porous enough to absorb the fragrance of flowers, and to emit a decided odour when they are strongly breathed upon; he believes, moreover, that many other kinds of soil possess this absorbent property. The French researches referred to are those recently made by Professor BERTHELOT and M. ANDRÉ; these chemists have confined their attention to recently-ploughed land. Every one will be familiar with the peculiar and by no means disagreeable odour emitted by recently-turned soil, especially after a sharp summer shower. It is this odour or principle which Professor BERTHELOT and M. ANDRÉ have endeavoured to isolate and determine the nature of. Their experiments tend to establish that the essential principle of the odour of soil resides in a neutral organic substance belonging to the aromatic series of carbon compounds; this is capable of being carried away by the vapour of water, as is the case usually with bodies of this class, which possess a very feeble tension. When isolated, the odour of this substance is penetrating—almost piquant, and analogous to the Camphors. The odoriferous principle of soil illustrates the powerful effect of traces of matter under certain conditions. Everyone knows how marked is this odour after a summer shower, yet the substance in which it resides exists in such small quantity, that the proportion can only be regarded as a few millionths per cent. The new principle is neither an acid nor an alkali, nor even, as might be surmised a normal aldehyde; its concentrated aqueous solution may be precipitated with carbonate of potash, leaving a resinous substance. When heated with potash an acrid odour is evolved, and it does not reduce ammoniacal nitrate of silver. With iodine and potash it gives an abundant yield of iodoform, a property which is common to a large class of substances. But these are by no means all the facts which have been elicited; the other information would scarcely be suited to the general reader, and any who wish to pry more deeply into the constitution and behaviour of this curious substance, are referred to the *Comptes Rendus*, tome cxii, No. 12, March 23, 1891, p. 598; when they will find in full the original paper by MM. BERTHELOT and ANDRÉ. Dr. PHIPSON found that the odoriferous substance could be arrested and retained by an aqueous solution of bromine, and is of opinion from the chemical and physical properties which he observed, that it is very similar to, if not identical with bromo-cedren, a substance derived from essence of cedar; moreover, when highly concentrated the substance emits a strong odour of cedar-wood. The perfume manufacturers have laid nearly every family of flowers under contribution in the production of pleasing scents, and we have for a long while been familiar with the perfume which professes to be that of new-mown hay. We wonder whether ladies will now be afforded an opportunity of scenting their *mouchoirs* with "Odeur propre de la terre," "Scent of Ploughed Fields," &c.

COPPER SULPHATE AS A FUNGICIDE.—"The various compounds of copper offer efficient protection to many cultivated crops against the exceedingly destructive ravages of fungous parasites. Without treatment, these rots, rusts, mildews, and blights, frequently destroy a large proportion of, or even the entire, products of fields and fruit plantations. The applications, in the shape of watery sprays, are made so readily, and with so little expense in money and labour, that everyone interested should at once undertake the work. The practical results already attained, constitute the greatest advance made in recent times in the application of science to horticulture. A little well-directed effort may be confidently expected to return a hundred, or a thousand times its cost. Still there is need for much vigilance and careful attention to every detail. Mistakes may be made even then, and sometimes failures may occur, for which existing knowledge may offer no explanation. But we should persevere, gain all possible information upon the subject, and watch well the effects in every test. In this way, every one may hope to conquer, practically, these insidious and, heretofore, invincible foes." Such are the conclu-

sions, after numerous experiments, made by Dr. BURRILL of the Illinois Agricultural Station, and they are in conformity with general experience in America and in France. When will our people wake up?

BOTANICAL ENTERPRISE IN THE WEST INDIES.

—The May number of the *Kew Bulletin* is devoted to a record of the steps that have been taken to organise botanical stations for the introduction, trial, and diffusion of plants of economic importance. This *Bulletin* also contains the text of Mr. MORRIS report on his recent visit to the West Indies, embodying the results of his visits to the several islands, and the lectures therein given. His mission occupied 106 days, and the distance covered was a little over 12,000 miles. As we shall have another opportunity of alluding to Mr. MORRIS' work, and of illustrating a new dwarf Palm discovered by him, we content ourselves for the present with this brief mention.

KINGSWOOD, GLOUCESTERSHIRE.—The sometime proposed Horticultural Society at the above town has taken definite shape, and at a meeting held there recently, Mr. J. W. YOUNG was appointed chairman of committee; Mr. J. MARRIOTT, treasurer; and Messrs. J. STUBBS and P. JULIEN, hon. secretaries.

FLOWER SELLERS.—The London flower girl, says the *Star*, has to work hard, and have her wits about her; however, if all goes well, a fair sum may be made each day, and the initial capital wanted to start a "basket" is only 5s. Many start with far less. Three times a week a regular flower market is held in Covent Garden, and as early as four o'clock the whole place is alive with buyers and sellers; the Violets done up in bunches, thirteen to the dozen, are the popular blossoms. Boxes full of white, red, and yellow Roses recall the southern hanging gardens where they still climbed and clustered two days ago. Lilies of the Valley are getting delightfully cheap, but their subtle odour is overpowered by the overwhelming scent of cartloads of Hyacinths, white, pink, and blue, still redolent of clean, stiff Holland. From all this heap—to say nothing of the nodding Daffodils and pale Primroses, come up from Sussex and Kent by the vanload—the careful flower girl makes her choice accordingly as she sells in the East or West-end, Strand, or Oxford Street. The blossoms are all unmounted, innocent as yet of the hard wire or dirty white cotton with which they are afterwards to be allied. The Strand flower-seller invests in Roses, Lilies, and Parma Violets; the West-end in Primroses and Daffodils. Till eight the girls are busily employed in making up the button-holes, Maiden-hair, Ivy leaves, Ferns, and sometimes, but rarely, the leaf belonging to the flower itself is used as an accompaniment. Some of the girls show more taste than others, and this makes, it seems, all the difference in the world to the receipts. This is so well known, that often flower-sellers will pay a few coppers to have their baskets "got ready" by a comrade, whose taste they believe is superior to their own. Two to five shillings a day can be earned by the average flower-girl in a busy quarter of the town. Men buy more readily than ladies, and will often leave a sixpence for a pretty flower, not waiting for the fivepence change; but a woman never does that. In old days, the flower-seller annoyed the passer-by by thrusting her wares under his nose. There is now less of this objectionable practice carried on, and it does not look as though the flower-girl's trade had suffered in consequence.

STUART & MEIN'S CABBAGE COMPETITION.

—The third annual Cabbage competition, says the *Kelso Mail*, May 20, took place on Saturday, the 16th inst., for a prize of £5. Formerly, the Cabbages intended for competition had to be sent to Kelso to be judged, thus entailing much expense in the way of carriage on distant competitors; but this year's competition was held on novel and ingenious lines, which completely did away with this obstacle to

many coming forward. Seed of Mein's No. 1 Cabbage was supplied last July to 8568 competitors, who each received a certificate bearing a registered number, and which had to be filled up. The certificate was as follows:—"These are to certify that on Saturday, May 16, 1891, a specimen of Mein's No. 1 Cabbage, grown by Mr. —, at —, weighed — lb. — oz." This certificate had to be signed by the competitor, and two witnesses to the weighing. Notwithstanding the severe winter, the weights of the Cabbages now to hand are, we think, extraordinary in the records of big spring Cabbages. The prize Cabbage was grown by Miss HILDEGADE A. SOMERVILLE, of Drishane, Skibbereen, county Cork, and was certified by Colonel SOMERVILLE, J.P., D.L., of Drishane, and EGBERTON B. COGHILL, Esq., of Castletownshend, to weigh 9 lb. 4 oz. This speaks much for the mildness of the climate of county Cork, as the Cabbage was grown in the open air. The next best weights were from Great Malvern (Worcestershire), Shankhill (co. Dublin), St. Lawrence and Bifrons (Jersey), Dover (Kent), Lisbury (Northumberland), Camborne, Polkerris, and St. Blazey (Cornwall), Maldon (Essex), Old Montrose (Forfarshire), Paignton (Devon), &c.

"THE BOTANICAL MAGAZINE" (JAPANESE).

—Dr. RYOKICHI YATABE describes in the April number, a new Japanese *Acrostichum*, under the name *Acrostichum Yosinagai*. It is a species with narrow, lanceolate fronds, tapering at the base, with long scaly stalks, and is nearly allied to *A. conforme*.

M. BERTIN.—The French journal, *Le Jardin*, records the death of the *doyen* of French horticulture, in the person of M. PIERRE BERTIN, of Versailles, in his ninety-third year. M. BERTIN was formerly the proprietor of the establishment now owned by M. MOSER, and had secured the warm esteem of his colleagues.

MR. EDWARD LOW.—We learn that this gentleman has brought with him from New York a plant of the rare *Cypripedium Lawrenceanum* Hyanum, discovered, says the *American Florist*, among a lot of the type in the collection of Mr. LONSDALE. Mr. Low suffered severely from influenza, and had to curtail his travels in consequence.

M. BORNET.—The Linnean Medal was awarded by the Linnean Society, at the anniversary meeting on Monday last, to M. BORNET. No better selection could have been made. The patient accuracy with which M. BORNET has conducted his researches, the beautiful manner in which he has illustrated them, his modesty and perfect loyalty, amply justify such an award. To horticulturists M. BORNET is known by his many experiments on the hybridisation of *Cisti* and other plants in the grounds of his late friend and fellow-worker, M. THURET, of Antibes.

ENFIELD HORTICULTURAL SOCIETY.—The annual exhibition of this Society will take place on Wednesday, July 8, in the grounds of Chase Side House. Among the special prizes offered for competition on this occasion, is a series of three for the best Short Essay on the structural or other peculiarities of any plant, illustrated by living specimens, which must be contained on two sides of a sheet of letter-paper; the size of the pot in which the plant is exhibited is limited to that known as No. 48. This is a novel step, and one likely to prove instructive to visitors and exhibitors alike. How and by whom the prizes will be awarded is not stated; probably it will fall to the lot of the judges who will be engaged to make the awards.

M. P. E. DE PUYDT.—From Brussels we learn of the death, at Mons, on May 20, of this well-known horticultural writer. M. DE PUYDT was born in 1810, and at an early age devoted himself to the study of stove plants, and especially of Orchids, of which plants he was one of the first cultivators in Belgium. He was Secretary of the Royal Horticultural Society of Mons for sixty years, and in spite of his advanced age, still laboured in its interest; indeed, he may be said to have died in harness, since

only five days before his death an article from his pen appeared in the *Journal des Orchidées*. He was a prolific writer in the Belgian horticultural periodicals, and was also the author of separate treatises on the culture of greenhouse plants, of stove plants, and of Orchids—works which are constantly referred to by practitioners. Many other contributions to literary and economic subjects issued from his pen, and are mostly distinguished by elegance of style, accuracy, and clearness of thought. Personally, his modesty and willingness to assist his fellows endeared him to all who had the pleasure of his acquaintance.

"KEW BULLETIN."—The second Appendix for 1891 comprises a list of all the plants introduced to our gardens in 1890. The list is most valuable, as comprising in a small compass the plants mentioned at intervals in the various horticultural journals. In future issues a uniform mode of spelling of personal names might advantageously be adopted. It is difficult to see why *Cattleya ballantiniiana* should be so written, while *Clematis Stanleyi* has its specific name written with a capital. There are many such instances, which must prove embarrassing to the gardener.

COVENT GARDEN MARKET.—Among the plants now to be found in quantity in the market worthy of note, are *Hydrangea paniculata grandiflora* and *Saxifraga pyramidalis*—it is a wonder why the latter does not become a more general favourite with gardeners, as it has a good many qualities to recommend it. There are plenty of hardy cut flowers, but very few choice kinds. The Orchids are represented by *Cattleya labiata*, *Dendrobium thyrsiflorum*, *Oncidium flexuosum*, and a few others. Among the Roses, William Allan Richardson is still a great favourite. There is a good show of *Gladiolus* The Bride, Tree Carnations, and others; also a few Spanish Iris. The bulk of the fruit is foreign. A few English Peaches have put in their appearance for the first time; a few Plums also may be seen. Strawberries, Cherries, Melons, and Apricots, seem to be getting plentiful. Among the vegetables there is nothing very special. The French Beans and Peas are coming in.

THE NARCISSUS FLY.—On reading a paragraph that has gone the round of the press relating to the "discovery" of the mischief done by this insect in the Scilly Isles, what we are tempted to ask is, whether Queen ANNE is really dead? The creature—we mean the fly—has been so often described and figured in our columns from year to year, that we had supposed all Narcissus growers were familiar with the facts, but the people who really read seem to be relatively few even now.

VARIEGATED ROSE.—Messrs. HANNAFORD & SON, of Teignmouth, send us leaves of a Rose of the type of Charles Lefebvre, beautifully blotched with gold, and the younger ones flushed with bronze and crimson. Messrs. HANNAFORD say that the variegation has proved constant for the last four years, and that being the case, the Rose appears to us well worth propagating as a variation.

PUBLICATIONS RECEIVED.—*Les Cyripediums*, par ANGIOLI PUGGI, Florence, published by L. NICCOLAI; apparently a valuable descriptive list, to which we shall refer on another occasion.

HOME CORRESPONDENCE.

THE FROSTS IN MID-KENT.—With the delightfully hot days of the 11th, 12th, and 13th of May, many gardeners in this locality had come to the conclusion that at last spring had arrived (and certainly it is not to be wondered at, when one saw the rapid strides vegetation made), and also that our troubles were over as regards frost; "but, oh, dear no," for during the night of the 16th, "he" comes by way of a parting grip with 6°. A great deal of the Apple bloom, especially upon trees from 2 to 6 feet high, was very much injured, others at a greater height appeared

not to be so much hurt; but as we had such a very large quantity of blossom, I trust there is more than sufficient left unhurt to produce a good crop. Amongst the many other things that have more or less suffered, are Asparagus, Peas, William the First, worse than any other; Strawberries—all the blooms that were expanded, also Gooseberries that were exposed, and Red and Black Currants. Singular to say, the Horse Chestnuts upon the lawn showed no injury. At the present it is difficult to say what will be the effect upon Plums and Pears, but considering they were so well-clothed with foliage, I hope the injury will be slight. A Nectarine upon a west wall which had set its fruit, shows upon examination to have a large quantity of its fruit touched. We had ice upon our tanks as thick as a penny-piece. G. Woodward, Barham Court, Maidstone, May 19.

WEATHER NOTES.—It is rather strange that there should be such a wide difference in the readings of the thermometer on a certain day in two places not far distant from each other. I note it is said in the *Gardeners' Chronicle*, p. 646, that the temperature in the shade, during the early part of the third week of May, reached 78° at Southampton, while at this place, which is distant but 12 miles, in a straight line, we registered at the same time 86° in the shade, which is exceptionally warm for the time of year. What a change was that which took place in five days afterwards, when the thermometer went down to 23°, on Sunday morning, a difference in the temperature of 61°. Nearly enough to check any kind of vegetation, one would think. We experienced exactly the same amount of frost as Mr. Rogers records as having occurred at Southampton. This garden is situated on a high and breezy hill, at a greater altitude than Red Lodge Nursery, I should say. In this neighbourhood, the frost was felt very severely, and all the crops, which others appear to have lost, are lost also in this neighbourhood. Perhaps the most striking result of the cold is seen in some plantations of Larch, the trees resembling in colour what one expects to find in October, when they have assumed their autumn tints. E. Molyneux, Hants.

POLYANTHUSES.—I read with pleasure that Polyanthuses are utilised materially this year for the decoration of the flower beds in the London parks. Better late than never, but I have often urged that could such masses of them be displayed in the London parks as we have here every season, thousands of lovers of flowers would be enraptured. Judging by what I saw of Polyanthuses in St. James's Park last year, I thought that, arising from soil or smoke, or some other cause, Londoners did not see these beautiful flowers in all that glory and richness which we see them in here. Perhaps they are better in Hyde Park; I hope so, for the sake of the flowers. Really, we have these spring flowers at their best this year just about a month later than usual. In some respects the plants have suffered from the long protracted cold, and the umbels do not come up with that same evenness and freedom seen when the season is more really spring-like. All the same, they are wondrously beautiful. Just at the moment the old plants are blooming their best, and are putting out in quantity seedling plants for next spring blooming. The seed being sown in heat in the open ground in August, the little plants have remained densely together in the seed-beds all the winter, and now having long penetrating roots, dibble out in the blooming-ground, with ease and safety. Such plants not only have a marked advantage over spring-sown seedlings, but they will develop into extra fine plants, each carrying large heads of bloom, very early next season. To get really fine effects from the Polyanthus, it is best to have them, so far as is possible, grouped into colours. The gold-laced forms, and the old garden varieties, are not for a moment worth consideration for decorative purposes, when compared with the superb self and fancy forms, and I presume it is of such mention is made as being found in Hyde Park. It is very easy where seed is of no consequence, to go over the seedling plants as they show bloom, and lift and block them into at least a dozen diverse colours. Some of these colours come freely enough; thus, we may always rely upon plenty of whites, sulphurs, and yellows. These latter especially are both abundant, wondrously free, and robust—indeed, seem to almost excel all others; reds, crimsons, and purples, are also fairly plentiful, but with alternating shades, so that it is not so easy to get them into clearly-defined blotches of colour,

except by plant propagation. Such colours as a lilac—a lovely hue indeed in a mass, especially on a hose-and-hose variety: buff and brown, although individually not so attractive, are very effective indeed when seen in large clumps. Some of these colours, not acceptable to the eye closely, are very striking when seen at remote distances. Lilac and mauve tints are also effective, and merit special selection. I think it is possible to secure fixed colours in the Polyanthus from seed, but only where the colours were when in bloom, well assorted, and divided from each other by long distances. Where it is desirable to keep old plants alive from year to year for bedding or massing, it is needful to sacrifice all the bloom-stems. So soon as the flowers are over, lift the plants, divide them, and replant into fresh, rich holding soil, where they can have ample waterings in hot weather. Failing the waterings, the plants would probably generally fail. Also, where it is needful to rely upon seedling plants, then it is best to sow seed as I do, so that there may be a huge breadth of them to select colours from for filling the beds as needed. Really, the Polyanthus is one of the most glorious of spring bedding plants. A. D.

THE LATE REV. A. RAWSON.—The death of Mr. Rawson deprives me of an occasional correspondent upon matters connected with flowers, whose communications were always pleasant, and never without interest. Of late years he had devoted considerable attention to the Primrose and Polyanthus, had secured very fine strains of each, and had laboured hard for some time past to produce a really blue form of the Primrose. Every year he sent me flowers to mark the stages by which he was advancing towards the attainment of his ideal—this year he was silent. I imagine failing health kept him from his garden, and probably we shall never know what his blue Primroses of 1891 have proved to be. He took a great interest in abnormal forms of the Polyanthus, and every season sent me examples he had raised. He was also labouring to secure a striped Auricula, but had reached only an initial stage. Of late years he had taken a great interest in the Carnation, more especially the yellow-ground varieties, and in the spring of last year he sent me two of his own raising, viz., Lemon Drop and Falbarrow Yellow, the former a very promising flower, the latter failed to bloom. Unfortunately, both went down before the onslaught of the cruel winter of 1890–91. He also raised among other Carnations, Masterpiece, a very good crimson self; and Mary, a useful white self. Mr. Rawson was a great lover of the Pelargonium, and amongst those he raised, the best are Maid of Kent, a light-fringed, petalled variety, with rose-coloured spots; Creole, a very dark purple; and Darkie, another dark flower, but rather small in size. For a considerable time he devoted his attention to the raising of a striped variety, and eventually produced Striatum, the lower petals rose, with a dark blotch, the upper petals striped and flaked with crimson. This variety was placed in the hands of Mr. C. Turner, of Slough, for distribution, but proved somewhat inconstant. He also raised a large single white variety of *Viola odorata*, known as Rawson's white. R. Dean.

LILIES OF THE VALLEY.—Enclosed I send you a few Lilies of the Valley, gathered from my Lily grounds this morning, May 25. The blooms are very late this year, owing to the cold spring, otherwise the plants look stronger and healthier than ever. On the 19th inst. we had a sharp frost, but fortunately the bells were not open, and although the buds were covered with ice, it did not injure them much, as you will see by the flowers sent. T. Jannoch, Dersingham, Norfolk. [A very nice lot of bloom spikes, showing great vigour. Ed.]

HARDY GREENS.—I think it will be wise not to dogmatise too much in reference to the hardihood or otherwise of any particular variety of greens, as conditions of which we have little knowledge operate to preserve or destroy. I hear one gardener say that his Brussels Sprouts stood the test best of all his green stuff; another close by, and apparently growing under the self-same conditions, will say just the reverse. Within a few hundred yards of where I live was as promising a piece of Brussels Sprouts as I ever saw—in extent about 2 acres, and not a plant survived, though they were growing in a sheltered spot, and in a rather light and warm early gravelly soil; but I have seen a piece of Brussels Sprouts growing in a strong clay that passed through the ordeal much better than might have been supposed. As far as my own observation has gone, plots of winter greens

in some of our allotment gardens stood pretty well, though serious gaps were made in some of them; but in the much more highly-manured market gardens close by, not a plant survived. The late summer and autumn weather was favourable to a strong succulent growth, and the more generously manured the soil, the more succulent was the growth; and it is, perhaps, not to be wondered at that the market garden crops were the worst hit. A great breadth of spring Cabbages put out near here was much injured, and on inspection, I find the young and smaller plants, first pulled from the seed beds, and transplanted to the open, have sustained many losses; the older and scrubrier ones, with thick stems and a somewhat unpromising character, that were put out very much later, have certainly done the best, and I hear the same reliable testimony from other market gardeners. In conversation with our allotment holders, one will assert his Coleworts stood best, another his Kale, another his Savoy, and so on, and it is because of this varied testimony that I hesitate to dogmatise about the hardness of one type over another. Depend upon it, conditions, the operation of which we do not perceive, and cannot accurately define, have much to do with the preservation or destruction of crops during frosts of unusual severity. So much has been said and written from time to time as to the hardihood of the Cottagers' Kale, that I thought this variety would stand the test of the winter best of all. Alas! in not a few allotment gardens, it is one of the most punished of our popular vegetables. The circumstances under which the seed crops were grown should be considered as bearing upon the constitutional vigour of the plants, or otherwise R. D.

ALYSSUM SAXATILE VARIEGATUM.—It can scarcely be said that this Madwort shows a pleasing combination of colour, as all plants with a golden variation in the leaves appear to need flowers of a different colour. I have noticed the same in other plants, and do not consider that plants having these characteristics are deserving of much cultivation by gardeners. A.

DORONICUM AUSTRIACUM IN BEDS.—There are few hardy plants which can rival the above in freely producing flowers during the months of April and May, and for this reason it deserves some consideration where spring bedding is carried out, and old-fashioned plants are liked. Clumps planted out at the end of October, should give desirable results in the spring, if they are fairly strong. A thin mulching of sifted decayed leaves will prove of advantage to the plants, when their roots have absorbed much of the goodness from the soil of the bed. It does not take long to obtain a strong stock of this plant, the roots dividing easily and safely. A.

STRAWBERRIES.—The few fruits sent are a fair sample of our favourite, Sir C. Napier. Please picture a house, containing three hundred plants with a heavy crop of fruit, many of which are ripe, and others ripening, all with the berries set well up above the foliage, the latter bent back, and fastened with a hook peg. In my eye, no Orchard-house full of bloom ever had a more pleasing appearance. H. Markham. [Excellent in size and finish, and the flavour very good for the variety. Ed.]

THE WEATHER.—The following particulars of the weather may be of interest to your readers:—After a long drought, with white frosts in the morning and continuous cold winds, a sudden change to heat occurred, the thermometer registering 72° in the shade on the 12th and 13th; on the 15th and 16th, thunder with hail, rain, and slight frost; on the 17th the thermometer fell to 26°, or 6° of frost, showers of hail, rain and snow—at night the thermometer fell to freezing point, remaining so all night. Potatoes, well earthed, are much cut; Peas were podding; Broad Beans in full bloom; French Beans were breaking through the ground—also Scarlet Runners; all tender plants are cut; Gooseberries and Black Currants are all falling off with the slightest touch. The damage cannot at present be estimated, as the Apples, Pears, and some of the Plums were in full bloom, but I may be enabled to give more particulars later on. I may also state that we registered 6° of frost on three different times in April—on 1st, 13th, and 18th. We look due south, situated on a hill, on a dry, light loam, over Kentish Ragstone, and well-sheltered by forest trees; before the frost we had to water our early Peas and Strawberries on south borders. W. Divers, Wiston House, Maidstone.

SOCIETIES.

ROYAL HORTICULTURAL.

Show in the Temple Gardens.

MAY 29 AND 30.—Great expectations had been formed as to this show, and we are bound to say they have been amply realised. The weather was not quite so kind as it might have been, but, on the other hand, it might have been much worse; whilst as for the show it could hardly have been better under the circumstances, unless in the matter of arrangement. A very large attendance was present to greet H.R.H. the Princess Christian, who opened the Show at 3 P.M. Some general remarks on the Show are given in another column. The following details are as full as the time at our disposal permits:—

Amateurs.

ORCHIDS, &c.—The groups exhibited in the amateurs' section were of the most meritorious description, well arranged and replete with the rarest and choicest species and varieties. The first in order on entering the large tent was from Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (grower, Mr. White). It contained amongst rare plants, *Cypripedium picturatum*, a *C. Spicerianum* and *C. barbatum* hybrid; *C. Stonei grande*, with four grand flowers; *C. caudatum Wallisii*, the lovely light form; *C. grande atratum*, a dark-coloured variety of this garden hybrid; *C. Fraseri*, with a fine dark coloured slipper raised between *C. barbatum* and *C. hirsutissimum*; a lovely plant of *Cattleya Mossiae*, Wagner's variety; *Cattleya Schroderae*, with eighteen grand flowers.

Beside these were many fine forms of *C. Mossiae* in large well-grouped specimens; *Cattleya Mendeli*, with a finely-frilled, violet-crimson lip; an immense spike of *Cypripedium Rothschildianum*, near to a handsome specimen of *Cypripedium superciliale*.

Lælia purpurata was present in beautiful varieties, ranging from the soft-toned variety *Russelliana* to the richly tinted *Bryceana*. The *Masdevallias* gave a richness of colour to the whole. There were the deep crimson Bull's-blood of collectors; *M. sanguinea*, and other fine varieties of *M. Harryana*, and amongst them the vivid red-flowered variety *M. H. miniata*, a very lovely thing; *Miltonia vexillaria*, *Fairy Queen*, almost pure white, is a very pretty variety of this favourite species; *Maxillaria Sanderiana*, with the darkest of maroon blotches; with other fine species and varieties too numerous to mention, made up the group.

The next group in order was that from Baron Schroder's garden, The Dell, Egham (gr., Mr. Ballantine), and a magnificent group it was, and well maintained the reputation of this famous collection. Passing down the group, the first object of interest was the Dell variety of *Odontoglossum excellens*, a clear primrose-yellow, richly blotched and spotted; *O. Pescatorei Veitchianum*, with two well-flowered spikes; this is remarkable, and by far the best of the spotted forms; then an *O. Wilckeanum*, with forty-seven large flowers on its branched spike. There were many fine varieties of *O. crispum*, the heavily-blotched *Bonnyanum* being conspicuous; the varieties of *O. triumphans* were also very fine. A charming spike of the beautiful white variety of *Aërides Fieldingi* made a very lovely addition to the group; *Miltonia vexillaria* in variety was found, from the white-tipped *M. v. Cobbiana*, to the deepest rose-coloured forms, all being conspicuously large and well-flowered specimens, the variety *M. v. radiata* being the most striking. The background of the group was furnished with magnificent specimens, including some of *Cattleya Skinneri*, with thirty-nine spikes, on which were 250 flowers; *Lælia purpurata*, with twenty-one flowers, another with twenty-seven; *Cypripedium grande*, with seven spikes; a *Masdevallia Veitchiana*, in a 7-inch pot, with twenty-seven flowers. The hybrid *Cypripedium superciliale* had eight fine flowers; *C. Lawrenceanum*, so rich in colour; the long-tailed *C. caudatum*, a nice example of *C. porphyrochlamys*, *C. Dayanum*, *C. bellatulum*, very fine; *Cattleya Mendeli*, Blunt's variety, with six lovely white flowers. Other richly coloured forms of *Mendeli* were conspicuous.

Of the green and black-flowered *Cologyne pandurata* there was a spike with seven flowers; *Vanda cœrulescens Boxalli*, a gem of the purest water, with two fine spikes.

From T. B. Haywood, Esq., Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter), came an elegant

group of considerable extent. It was composed principally of well grown examples of *Odontoglossum crispum*, richly coloured varieties of *Masdevallia Harryana* and *M. Veitchii*, *Odontoglossum Pescatorei*, with many branched spikes; *Dendrobium chrysotoxum*, rich yellow; numerous well grown plants of *Miltonia vexillaria*, *Cypripediums*, &c. The plants were well arranged over a base of *Adiantum cuneatum*. A. H. Smee, Esq., The Grange, Carshalton (gr., Mr. G. W. Cummins), sent a very nice group, it was not of large extent, but the plants bore evidence of good cultivation. It was composed principally of richly coloured varieties of *Cattleya Mossiae*, the pale rose-tinted variety, the sepals and petals almost white, with just a suspicion of rose; the variety *Studleyana*, almost white, but not the best form. Mr. Smee's variety had eighteen large broad-petalled flowers of a charming rose tint, forming a grand specimen. C. Mendeli Hackbridgensis is unique in its richly coloured labellum, and broad purplish stripe on the petals. The variety Alfred Smee had four distinct flowers. The Hackbridge variety of *Cypripedium Lawrenceanum*, also shown, is the richest coloured variety yet seen. A few *Odontoglossums* and *Masdevallias* made an excellent finish to the group.

There was sent an extensive group from the gardens of his Grace the Duke of Marlborough, Blenheim, Woodstock (gr., Mr. T. Whillans). The centre plant was a very handsome specimen of *Cymbidium Lowianum*, a fine variety, with grand spikes; large handsome specimens of *Lælia purpurata* in excellent variety; *Cattleya Lawrenceana*, C. Mendeli, and other fine Orchids well arranged, and the groups margined with plants of *Adiantum cuneatum*. A small but select group was sent by F. Wigan, Esq., Clare Lawn, East Sheen (gr., Mr. W. H. Young); in it were well grown *Vanda teres*, *V. suavis* with two spikes; *Oncidium Marshallianum* with a very handsome spike; *Cypripedium Curtisii* in two fine varieties, *C. ciliolare*, C. Stonei, and *C. levigatum*, and *Cattleya Mendeli*—a well grown example; the whole well arranged with *Adiantum*.

From Malcolm S. Cooke, Esq., Kingston Hill, Surrey, was sent a meritorious group, consisting of *Cypripedium Druryi*, with four of its quaint flowers; *C. Lowii*, with two handsome spikes, and a good *C. selligerum*, *Epidendrum vitellinum majus*, with six handsome spikes; a nice pair of the pretty little *Leptotes bicolor*, *Oncidium serratum* and *O. crispum*, besides two fine *Oncidiums*, examples of good culture.

From Messrs. de Rothschild, Gunnersbury Park, Acton (gr., Mr. G. Reynolds), a group was sent, which consisted of entirely well-flowered examples of *Vanda teres*, arranged over a groundwork of pretty Palms and Ferns. Mrs. Arbuthnot, Bridgend Place, Bexley (gr., Mr. J. Mitchell), sent a remarkably good group, in the centre of which was a conspicuous example of *Sobralia macrantha*, a handsome specimen of *Anthurium Scherzerianum*; the background was of *Lælia purpurata* and *Cattleya Mendeli*, in well grown plants of good varieties; *Cypripedium caudatum*; *Miltonia vexillaria* magnifica, and many other fine things, very creditable indeed to the cultivator.

General S. Berkeley, Bitterne (gr., Mr. James Godfrey), sent a choice little group of *Phalenopsis* of the speciosa and *Luddemanniana* group principally, with a few plants of the lovely white *P. tetraspis*. Mr. G. Burnett, 17, Paget Road, Stoke Newington, sent plants of *Lælia purpurata* in large well grown specimens.

Cut Orchids came from T. Statter, Esq., Stand Hall, Whitefield, and were very meritorious. They consisted of remarkably fine *Cattleyas*.

A group of foliage plants, *Lælias*, and *Cattleyas* came from Mr. F. Darnell, Esq., Stamford Hill (gr., Mr. G. Elliot). It was nicely arranged, and the plants were clean, and examples of good cultivation.

Nurserymen.

Orchids, &c.—The tent set apart for trade exhibitors of Orchids was filled to overflowing. Messrs. F. Sander & Co. arranged a remarkable group, the whole length of the tent, and occupied 100 feet run of tabling. The group was noteworthy, alike for the high quality of the exhibits, and its artistic arrangement. The background was formed of graceful Palms, and a large number of well-grown plants of *Odontoglossum citrosium* in baskets, the spikes depending therefrom in a natural manner. At one end of the collection was a group of specimen plants of *Cymbidium Lowianum*, the spikes arching, and without any artificial support; the centre plant of this

group had nineteen fine spikes on it; next to this was a group of specimen plants of *Lælia purpurata* in many fine varieties. Separating this from a group of *Cattleya Skinneri* was a specimen of the dusky-flowered *Oncidium apulentum*, *O. lamelligerum*, *Odontoglossum Halli*, *O. Harry-anum*, &c. Between plants of *C. Skinneri*, and a prominent collection of well-grown plants of *Oncidium ampliatus majus*, the spikes and flowers in a high state of development, was *Dendrobium Dal-housianum*, very effective with its large maroon-blotched flowers. The centre of the group was formed of the choicer plants in the collection, viz., richly-coloured varieties of *Miltonia vexillaria*, *Cattleya Mossiæ Mesuresiana*, *Odontoglossum excellens Sanderæ*, with flowers of large size and richly spotted; the best of this species, *Cattleya hybrida Prince of Wales*, an evident cross between *C. Mossiæ Wagnerii* and *Lælia elegans*; *Odontoglossum crispum Amesianum*, white ground, heavily blotched reddish violet; *Odontoglossum excellens Princess Christian* with a very long spike, well-spotted flowers. *Odontoglossum polyanthum*, *Masdevallia*, groups of *Odontoglossum crispum*, both white and spotted varieties, &c. Immense masses of *Miltonia vexillaria*, specimens of *Lælia elegans* and *Grammatophyllum Measurianum*, of the latter a fine specimen with four long spikes.

Mr. Cypher, of Cheltenham, arranged a miscellaneous and effective group, backed with Palms and relieved with plants of *Adiantum*. He had for the centre an immense mass of *Dendrobium Jamesianum*, a distinct variety of *D. nobile*, and made a good specimen. The leading feature of the group was the remarkably fine example of *Lælia purpurata*, in particularly fine varieties; there were twenty-four large and small specimens of *Masdevallia Harryana*, in many fine varieties, and *M. Veitchiana*, which gave added richness to the group. The weird-looking *M. Schlimii* was well grown and flowered, as also were five plants of *Cypripedium caudatum*.

Messrs. B. S. Williams & Son arranged a remarkably well-grown group of plants, conspicuous in the centre of which was a specimen of *Cymbidium Lowianum*, with well-developed spikes; *Vanda tricolor* in variety, and Palms as a background, the distinct looking *Calanthe masuca*, *Oncidium macranthum*, *Cypripedium selligerum*, fine forms of *Masdevallia Harryana* and *M. Veitchiana* arranged in masses. The pretty clear yellow *Oncidium concolor*, the more stately *Oncidium Marshallianum*, with fine spikes; *Aërides Fieldingii*, with a branched flower-spike; and many other choice Orchids that formed a truly representative collection. *Utricularia montana* in large masses of well-grown examples formed a prominent feature in this group.

Messrs. Hugh Low & Co. arranged an excellent collection—conspicuous in it being immense masses of *Dendrobium Bensonæ*, a species with delicate looking and sweetly perfumed flowers as could not fail to please. *Dendrobium thyrsiflorum*, *Lælia purpurata*, and Palms formed an excellent background to the group, with the intermixture of the drooping flower-spikes of *Dendrobium Dalhousianum*. Of *Cypripedium bellatulum* there were several handsomely spotted varieties; also *C. niveum*—very pretty; *Dendrobium Parishii*, and a whitish form of the same. *Phalenopsis amabilis* in fine spikes of its charming white flowers.

Azaleas.—These are somewhat sparingly shown, owing to the lateness of the season. Mr. Charles Turner, Royal Nursery, Slough, has a collection of pyramidally-grown plants, of such varieties as *La Pucelle de Gand*, white *Comte de Chambord*, blush suffused with pink; *Bijou de Nice*, white slightly striped with crimson; *Mrs. Turner, Grandis*, salmon-carmine; and *Perfection de Gand*, new, crimson, very bright and free.

Begonias.—Of these very extensive and valuable collections were staged. Messrs. Henry Cannell & Sons, Nurserymen, Swanley, had large batches of double and single varieties set up separately. The single flowered were remarkable for the striking hues of orange and gold; one of the former was *William Marshall*, named in honour of the chairman of the Floral Committee, rich deep golden-orange, of fine form. A fine white, *Mrs. Farrington*, was also good. Among the doubles was *Lady Addington*, buff salmon-rose—very fine; *Miss L. Maude*, *Lady Richards*, Col. G. Watson, *Miss G. Norman*, *Miss M. Wilson*, *Lady Victoria Fuller*, &c. Messrs. J. Laing & Sons, Stanstead Park Nursery, Forest Hill, S.E., had a corresponding collection on the other side of the tent, fine double and single varieties being mixed together. Of the former, *Rose Laing*, clear rose; *Baron Schroder*, crimson; *Sir Trevor Law-*

rence, rich crimson; and of single varieties: *Prince of Wales*, crimson; *Countess Grosvenor*, white, edged bright scarlet, *Mrs. Richard Dean*, light centre with broad picotée edge of rosy carmine; *Darkest Africa*, maroon crimson; *Picotée*, light edged pink, &c.

Calceolarias were in good form, and in all cases well grown, bloomed, and of fine quality. In No. 3 tent, Mr. J. Ford, gr. to Sir C. Pigott, Bart., Wexham Court, Slough, had two dozen medium-sized but perfect specimens, one named *Crimson King*, very rich in colour, and of fine quality. In tent No. 1, Messrs. James Carter & Co., seed merchants, Holborn, W.C., have a number of well-bloomed plants of an excellent strain, and by their side a collection of a very dwarf strain from Mr. J. James, Woodside, Farnham Royal, almost too dwarf to be effective. Messrs. B. Peed & Son, Roupell Nurseries, Streatham, had a number of plants of a fine strain also.

Roses.—Some very fine collections of these were staged in tent No. 3, generally in the form of specimen plants. Messrs. Paul & Son, Old Nurseries, Cheshunt, arranged a group with *Azaleas*, *Amaryllis*, *Genista Andreana*, &c., forming a front line. There were two magnificent examples of *Charles Lawson*, recalling the specimen *Roses* of a dozen years ago; *Madame de Montchevaux*, pink; *Etoile de Lyon*, pale yellow; *Paul's single white Duchess of Albany*, *Inigo Jones*, &c. Messrs. William Paul & Son, nurserymen, Waltham Cross, also had a larger collection of finely-grown and flowered specimen plants,



FIG. 11.—VERMOREL'S KNAPSACK SPRAY PUMP. (SEE P. 683.)

including *Crimson Queen*, a grand new crimson H.P., *Tea-scented Corinna*, *Clio*, a delicate blush of the type of *Baroness Rothschild*, *Gloire de l'Exposition de Bruxelles*, *Souvenir de Rosieriste Gounod*, *Merveille du Lyon*, *Madame J. Laing* (very fine), *Danmark*. In front of the plants was a line of twelve boxes of cut blooms, that were very attractive. Mr. William Rumsey, Nurseryman, Waltham Cross, also had a collection of nearly fifty specimen *Roses* in pots, and several boxes of cut blooms.

Show Pelargoniums, in excellent specimens, came from several exhibitors. Mr. C. Turner had some excellent plants, the leading varieties being *Duke of Norfolk*, *Orient*, *Outlaw*, *Spotted Beauty*, *Joe, Pluto*, *Gold Mine*, *Emperor William*, *Florence*, very rich in colour, *Excellent*, very bright, *Indian Yellow*, *Achievement*, and the *Czar*; a very fine glow of colour. Mr. J. Wiggins, gr. to D. Baldwin, Esq., Hillingdon Heath, had several fine specimens also, such as *Emperor*, *Decorator*, *Kingston Beauty*, *Sister of Mercy*, *Brilliant*, *Mauve Queen*, and a basket of a richly-coloured and variegated zonal, named *Harbour Lights*. Mr. R. Miller, Southdown Nursery, Margate, had plants and cut blooms of a white-flowering decorative *Pelargonium*, named *Pearl*, quite pure, and very free.

Clematises were represented by several plants of snow-white *Jackmanni*, from Messrs. Richard Smith & Co., St. John's Nursery, Worcester, which is said to be very fine and pure in the open ground.

Gloxinias.—A very fine collection of these beautiful flowers was staged by Messrs. J. Carter & Co., High Holborn. Many of the plants were large and finely

bloomed. The greater portion had erect flowers, purplish and blue markings predominating. Messrs. Veitch & Sons also had a very attractive collection, many of the plants carrying blooms of intense colours. *Nestor*, an almost vermilion-scarlet, is a fine type of the strain. Many of the deep-coloured flowers were also beautifully edged with a clear white margin. Next these, and suffering somewhat from the contiguity, was from the same firm a large group of *Streptocarpus* hybrids of the *Kew* strain, all very pretty, and having regard to their long floriferousness, and half hardness, are wonderfully pleasing. Some of the rose tints show evidence of new distinctive colours.

Petunias.—From Messrs. Carter came also a striking and capital collection of single and double *Petunias* in pots. Blue, purple, rose, carmine, white, and numerous diverse and telling colours. The doubles were exceptionally fine. The collection showed how admirably the *Petunia* adapts itself to the production of effect in groups, or as specimens. All these plants were raised from seed, a pretty group of *Spotted Mimulus* came from Messrs. Carter & Co., the flowers being large and richly coloured.

Messrs. Carter & Co. had a small group of *Cacti* in quaint and pleasing forms.

Zonal Pelargoniums.—Messrs. H. Cannell & Sons staged several remarkably fine bunches of the leading decorative varieties, several of recent Continental introduction. Most noticeable were *Princess Maud*, *Mrs. J. C. Stone*, *Mrs. Perkins*, *Black Diamond*, *Lady Folkestone*, *La Billardière*, *Hamlet et Ophelia*, *Rose Queen*, *President Harrison*, *Volonté Nationale*, *Alba*, *Radiant*, *Cannell's Double White*, and *Bush Hill Beauty*. Mr. John Walker, Nurseryman, Thame, staged some boxes of bunches of zonal varieties, grandly bloomed.

Ferns and Selaginellas.—No one interested in these plants could fail to notice the choiceness, and health which characterised those exhibited. Messrs. W. & J. Birkenhead, Sale, Manchester, staged a superb collection, comprising upwards of 400 species and varieties, and arranged them in two main sections—exotic and British, and it was specially pleasing to note that the hardy British Ferns were little inferior in frondage and beauty to the more delicate exotic Ferns. Such varieties of British Ferns as *Scolopendrium capitatum*, *S. cristatum*, *Lastrea æmula densa*, *Lastrea cristata fimbriata*, and *Athyrium Girdlestonei* were especially worthy of notice; also a variety of *Osmunda regalis*, viz., *cristata*. The filmy Ferns were represented by some nice plants of *Todea grandipinnula*, *Hymenophyllum Wilsoni*, *H. tunbridgense*, *Trichomenes reniforme*, *T. radicans* and its varieties.

The exotic Ferns were well selected, scarcely a common variety being observable amongst them. Among the *Davallias* were nice plants of *D. membranulosa*, *D. parvula*, *D. hemiptera*, and *D. Mariesii*. A specimen of the valuable and rare *Platynerium Wallichii* was to be seen by the side of a large plant of *P. grande*.

Gardeners would have been pleased to see *Asplenium nobile* as a good substitute for the slow-growing *Asplenium viviparum*, as it is a much more free-growing variety.

Mr. H. B. May, The Nurseries, Upper Edmon-ton, N., exhibited a group of Ferns, intermixed with coloured-foliage plants, such as *Crotons*, *Caladiums*, *Dracenas*, &c., as only such nurserymen that make Ferns a specialty could do. The plants had a decided healthy, compact, and saleable look about them, not generally seen among plants at exhibitions. The crested forms of *Pteris cretica* were especially worthy of notice. *P. Mayii* is a comparatively new departure in this line. Some nicely-coloured plants of *Selaginella cæsia*, *S. Emilianua*, and *S. circinalis* were represented in this class.

Messrs. Williams & Son, of Holloway, showed *Pteris tremula*, var. *Smithiana*, a new and valuable variety. With the exception of specimens shown by the above nurserymen, Ferns were not shown separately by any other exhibitors, although many were employed for effect in arranging with the Orchids and other floral exhibits.

HARDY PLANTS.

Pæonies.—Of these there was, as may be anticipated, a fine show both of plants in pots and of cut flowers. Mr. T. S. Ware, Tottenham, had of the former a large collection, including new varieties, as *Raineri*, *Rosa Mundi*, *Vander Meulin*, *Madame de Vetry*, and *Zenobia*, being very finely bloomed. These plants were fronted by a large number of cut blooms.

Messrs. Barr & Sons, Covent Garden, showed plants of various European species, not so fine of flower

but some brilliantly coloured, such as *anamalia* and *insignis* and *hybrida*.

Of cut blooms the wonderful show made by Messrs. Kelway & Sons, Langport, commands chief notice. These blooms were wonderfully fresh and if somewhat formally displayed, which could hardly be avoided; of doubles *Rigida violacea*, *Reine des Fleurs*, *Mad. de St. Rome*, *Mrs. W. Kelway*, a grand white; *Mouton flore plena*, *Elizabeth*, &c., were very fine; of singles *moutan simplex*, *Aretina*, *Andersonii*, *Baxteri*, *Decora pallida*, *Adonis*, &c., were excellent.

From the same firm came *Amaryllis* in variety plants and cut flowers, also cut blooms of single *Pyrethrum*, small, but charmingly coloured; also varieties of *Iris Florentina*, *atroviolacea*, and the white *Iris Princess of Wales*.

Hardy plants were of course in profusion from numerous exhibitors, although there was of necessity considerable sameness or repetition. Messrs. Jas. Veitch & Sons had a large collection, which in common with many so other collections, suffered somewhat from overcrowding, and included a large variety of late single *Tulips*, as *Gesneriana*, *Carinata rubra*, the curious *Viridiflora*, many flamed and bizarre as well as self show forms, also the quaint *Parrot tulips*. There were also single and double *Narcissi*, *Camassia esculenta*, *Pæonies*, *Scillas* white and blue, *Oxalis cernua simplex*, *Adonis vernalis*, single and double *Anemones*, *Ixias*—in fact a remarkable collection of beautiful flowers. In the centre were well-bloomed plants of *Lilium longiflorum*.

Mr. T. Ware, of Tottenham, staged a most interesting group of plants and flowers. Some plants very striking of *Spirea japonica multiflora compacta*, the spikes of bloom being very dense and pure white, also *Saxifragas* in variety, *Primulas*, *Obconica*, *Sieboldi japonica*, &c., and various late *Narcissi* and *Tulips* in beautiful variety. Mr. Ware also showed a collection of *Iris germanica* and *I. Florentina*, and the white fancy *Pink*, *Her Majesty*.

Messrs. Barr had a large collection of cut blooms of *Pæonies*, *Iris*, *Narcissi*, still in considerable variety; *Anemones*, double and single; *Tulips*, especially the curious *Parrot* varieties; *Scillas*, *Saxifraga pyramidalis*, &c. The brilliant *Tulipa gesneriana* was specially attractive. Also the firm had numerous pans of *Violas* in bloom, *Bullion*, *Mrs. Smith*, *Ardwell Gem*, *Admiration*, *Countess of Kintore*, *Archie Grant*, and others.

From Messrs. Hennequin & Denis, Angers, France, came blooms of *Anemone coronaria* in brilliant colours, and double *Pyrethrums*, rather small.

A remarkably pretty exhibit was set up by Mr. Pritchard, of Christchurch, Hants. This included bunches of blooms of hardy plants, *Dielytra spectabilis*, *Eriophorum vaginatum*, or *Cotton-grass*; *Clematis montana*, *Columbines*, *Anthuriums*, &c.; also small plants of *Gentiana verna*, a lovely blue; the pretty *Ramondia pyrenica*, *Saxifraga longiflora*, *Veronica prostrata*, and *Arenaria purpureascens*, all set up in a bed of moss very artistically.

Hardy Herbaceous Plants.—In tent No. 3, a large and interesting collection of these was staged by Messrs. Paul & Son. Plants and pans of *Alpines* were staged with them; and there was an attractive collection of cut blooms of *Violas* also. Messrs. Dobbie & Co., Seed Growers, Rothsay, N.B., had a collection of about a hundred bunches of bedding *Violas*, and quite 200 blooms of remarkably fine fancy *Pansies*. Among the former were *Cottage Maid*, purple, edged with white; *Mrs. Bellamy*, maroon, the upper petals mauve, margined with white; *Son of the Rock*, yellow, broadly edged with white; *Skylark*, &c. Messrs. Ryder & Son, nurserymen, Sale, contributed a number of bunches of the newer varieties of *Primula Sieboldi*, particularly noticeable being *Ruby Queen*, *Miss M. Barnard*, *L. H. Grindon*, *Distinction*, *Albamagnifica*, *Queen of Whites*, and *Bruce Findlay*, mauve. Mr. F. Hooper, Nurseryman, Bath, had bunches of *Violas*, several stands of very fine fancy *Pansies*, &c. Mr. J. Chambers, Westlake Nursery, Isleworth, had his white *Viola Snowflake*, in good character. Mr. J. J. Smyth, of Ballinacurra, Cork, showed cut flower spikes of the very elegant white-flowered *Eremurus himalaicum*.

Tulips, of the late Florists Section, were shown by Mr. Joseph Lakin, Temple Cowley, Oxford, who had several fine seedlings raised by a noted Derbyshire grower. Mr. F. Hooper, Bath, and Mr. John Walker, Thame, also staged attractive specimens.

Roses.—Cut-blooms in great variety were shown by Messrs. Paul & Son, Messrs. William Paul & Son, Mr. F. Hooper, and Mr. John Walker, the latter having very fine and deep-coloured *Maréchal Niel*.

Hardy Shrubs.—An interesting collection of new double varieties of *Lilacs* came from Messrs. Victor Lemoine et Fils, Nancy, France; they consisted of *Michael Buckner*, very fine silvery-lilac; *Belle de Nancy*, pale greyish-lilac; *Madame Lemoine*, white; *Alphonse Lavallée*, blue-lilac; *Leon Simon*, pink; and *Maxime Cornu*, semi-double.

Hardy Herbaceous Plants.—Messrs. Hennequin, Denis & Co., Angers, France, sent a large collection of cut blooms of single *Anemone coronaria*, and bunches of *Double Pyrethrum*.

NEW ORCHIDS.

Messrs. F. Sander & Co., St. Albans, entered a very fine lot of new Orchids for the consideration of the committee, and a fair proportion of them secured awards, while others will, doubtless, be distinguished on their gaining greater strength. Among the best of Messrs. Sanders' new plants, were *Cattleya hybrida*, *Prince of Wales*, which it was stated was the result of a cross between the light form of *C. calummata* and *C. Wagneri*. The plant exhibited had flowers as large as those of a plant of *C. Mossii* of its strength would have had, sepals and petals pure white, lip white tinged with rose—a beautifully formed flowered. *Cattleya hybrida Lowiana* is another hybrid *Cattleya*. Its flowers are equal to a good *C. intermedia* in size; sepals and petals wax-like, while the front lobe of the lip is of a peculiar blue-tinted rose. *Grammatophyllum Measuresianum* is a noble new Orchid, of which much has been expected, and the expectations have been realised. The plant exhibited had several 4 feet spikes of numerous large flowers, the sepals and petals greenish white, barred with chocolate colour, and the curiously-formed labellum very prettily marked. It is a noble plant, either in or out of flower. Another very handsome hybrid of Messrs. F. Sander & Co. is *Masdevallia Mundyana* ×, the result of intercrossing *M. ignea aurantiaca* and *M. Veitchii*. Its large orange-coloured flowers have a wonderful development, and are strikingly handsome. *Odontoglossum excellens Sanderæ* from the same firm is certainly one of the very finest forms of *O. excellens*, its flowers large and richly spotted with dark crimson. The lip, too, is very ample, white, with a few crimson spots. Of hybrid *Cypripediums*, Messrs. Sander exhibited *C. barbato-superbiens* × and *C. Euryale* var. (*Lawrenceanum* × *Superbiens*)—the latter a very stately flower. The same firm also exhibited two grand dark forms of the *Bryslana* section of *Lælia purpurata*, *Odontoglossum crispum Amesianum*—certainly one of the most beautiful of the heavily-spotted *O. crispums*; two new forms of *O. Wilckeanum*; *O. Corradinei albanense*, a distinct plant, which seems different to *O. Corradinei*, and is very pretty; *O. excellens* "Princess Christian;" *O. excellens* "Baroness Schroder;" a grand form of *O. polyanthum*, the pretty new rose-flowered *Aërides Savageanum*; and various other distinct species and varieties.

Messrs. Heath & Son, Cheltenham, exhibited their *Masdevallia Heathii* ×, and the noble *Cypripedium Stonei* magnificent.

R. B. White, Esq., Arddarroch, Garelochhead, N.B., sent a grand form of *Odontoglossum crispum guttatum*, and one of his new forms of *Cattleya Mendelii*, with white flowers delicately tinged with lavender, and without the crimson on the labellum observed in the type.

Messrs. Hugh Low & Co., Clapton Nurseries, Lee Bridge, London, exhibited a very chaste, beautiful, and nearly white form of *Dendrobium Parishii* named *D. P. albens*. In the magnificent groups of *Baron Schroder* and *Sir Trevor Lawrence* were many new species and varieties, the only ones entered for the opinion of the committee, however, were *Cypripedium Fraseri* and the neat and pretty rose and white *Aërides Sauvageanum*, to which a First-class Certificate was awarded in each collection, as well as in that of Messrs. F. Sander & Co., the importers of this pretty and distinct species. Among the many brilliant *Masdevallias*, too, in the Burford collection, was a magnificent new scarlet variety, with a distinct yellow eye and perianth tube—*M. Hurryana luteo-oculata*.

Thos. Statter, Esq., Stand Hall, Whitefield, Manchester, exhibited a cut spike of *Lælia elegans Statteriana*, which appeared to be the finest light form of *L. elegans*; the sepals and petals are white, and the broad labellum, which is almost as large as that of *L. purpurata*, and is glowing crimson.

J. Ingram, Esq., Godalming, exhibited the very handsome and rare *Oncidium loxense*, which has a very extraordinary and large orange-coloured label-

lum. J. T. Pöe, Esq., Riverstown, Nenagh, sent a spray of his purple-spotted *Odontoglossum Pescatorei*, Pöe's variety, which had previously been awarded a First-class Certificate.

WREATHS, BOUQUETS, &c.

Mr. G. Phippen, of Reading, was the chief exhibitor of these. One, of white *Lilies*, *Narcissi*, *Stephanotis*, *Lilies of the Valley*, and other white flowers, formed a huge anchor, through which ran a chain of blue *Violas*. Another was in the form of a big wreath of similar flowers; whilst an odd and not very tasteful design in flowers enclosed a portrait of Princess Christian, surrounded by a ring of double scarlet *Pelargoniums*, then a circle of *Erica Cavendishii*, and a further outer one of white *Lilies*, all on a ground of Fern also some capital bouquets, sprays, and other combinations. Generally the designs were poor and lacking in novelty.

Mr. H. Carford, Floral Dépôt, Stoke Newington, showed a bouquet elevated on a stand, of white and pink *Roses*, pink *Bouvardias*, &c., but which had very early flagged; also a table decoration of flowers on a stand, and flanked by small *Palms* and *Ferns*.

Messrs. Cheal & Sons had some half-bouquets, and clusters of flowers set up in their wire supports.

Messrs. Rivers, of Sawbridgeworth, sent examples of their orchard-house trees, laden with tempting fruit, *Lord Napier Nectarines*, *The Czar Plum*, *May Duke Cherries*, also *Orange trees* in blossom, &c. Messrs. Cheal & Sons, Crawley, Sussex, sent well-grown and well-kept *Apples* and *Pears*, Wellington being the first amongst the *Apples*. Mr. George Monro, of Covent Garden Market, sent a good collection of fruit and of vegetables, representing the produce of the Channel Islands, and including baskets of well-coloured *Black Hamburgh Grapes*—some very good *Muscats*, large and handsome *Melons*; *Figs* of large size and well-ripened; remarkably good *Potatoes*, *Canadian Wonder Kidney Beans*, and *Peas* (*Duke of Albany*).

From the gardens of his Grace the Duke of Northumberland, Syon House (Mr. G. Wythes, gr.), were sent punnets of good *Strawberries* President, and well-grown *Figs*. Messrs. W. and E. Wells, Huttonburgh, Hounslow (gr., Mr. G. Thomson), sent a grand dish of fruits, and many plants well laden with *Sir Charles Napier Strawberries*. Messrs. T. Burton & Son, Builders, Bexley Heath, sent a box of *Peaches* from standard trees under glass. Mr. James McIndoe, The Gardens, Hutton Hall, Guisborough, sent three dishes of capital *Peaches* and *Nectarines*. From E. Pettit, Esq., Broadwater, Otlands Park, Weybridge (gr., Mr. J. W. Reed) were sent ten dishes of fruit, consisting of well-ripened *Black Hamburgh* and *Foster's Seedling Grapes*, *Melons*, *Figs*, *Apples*, &c.

Very fine black and white *Grapes* were exhibited by J. F. Campbell, Esq. (gr., Mr. J. Hollingworth), which were well finished, with perfect bloom. *Ruxley Lodge Favourite Melon* was sent from the gardens of the Right Hon. Lord Foley, *Ruxley Lodge*, Esher; it is a red-fleshed variety, with handsomely netted rind.

Messrs. Veitch & Sons sent a collection of about seventy dishes of the best long-keeping dessert and kitchen *Apples*, in capital condition, considering the lateness of the season.

HORTICULTURAL SUNDRIES.

It is gratifying for those living in or near London to know that there is considerable hope of successfully combating the fogs, by means of Toope's Patent Fog Annihilator, a model of which was exhibited by Messrs. Toope & Son, Stepney Square, Stepney. An experimental house on this system is to be erected for trial at Chiswick.

Messrs. Seymour, Sydney & Co., of 270, Duke Street, Glasgow, showed a capital kind of camp stool well worth notice; it is strong, light and very compact, and will doubtless soon become popular.

A fine collection of pots, vases, baskets, pans, &c., of every design, rustic and otherwise, were staged by W. S. Iles & Co., Warner Road, Camberwell Park, S.E.

Messrs. E. Newton & Co., Tilehouse Street, Hitchen, showed their patent reform system of glazing with rolled steel sash bars, doing away with the necessity of putty and paint.

The Stott Fertiliser and Insecticide Distributor Co., Ltd., Barton House, Deansgate, Manchester, showed a series of sprayers and syringes likely to be very useful instruments.

Messrs. W. Gaymer & Son, Attleborough, Norfolk, show sample bottles of cider of good flavour and body.

Samples of earthenware labels were shown by James Green & Nephew, 107, Queen Victoria Street, E.C., and which are weather proof, being glazed.

Samples of manures and peats were exhibited by Messrs. W. Wood & Son, Wood Green, London, N., who also had samples of soils.

Mr. J. George, Victoria Road, Putney, S.W., had a similar contribution.

Messrs. C. Clarke & Co., Windsor Chambers, Great St. Helens, E.C., showed the Vermorel Knapsack Pump for distributing insecticides, such as solutions of copper sulphate, Paris green, &c., on a large scale.

Messrs. Wallers & Co., of Leytonstone, showed an assortment of useful well-made Orchid baskets, &c., &c., which were highly commended by the judges for their make and finish.

Floral Committee.

First-Class Certificate.

To *Eremurus himalaicus*, John J. Smyth, Esq.
To *Dracæna australis*, Messrs. Laing & Son.
To *Cecis Pynarti*, Messrs. Sander.

Awards of Merit.

To *Clematis White Jackmani*, Messrs. R. Smith & Co.
To *Begonia Single*, Mrs. R. Dear, Messrs. J. Laing & Co.
To *Caladium B. S. Williams*, Messrs. J. Laing & Co.
To *Double Begonia Lady Addington*, Messrs. H. Cannell & Sons.
To *Single Begonia W. Marshall*, Messrs. H. Cannell & Sons.
To *Rose Crimson Queen*, Messrs. W. Paul & Son.
To *Rose Souvenir de Rosierist Gonod*, Messrs. W. Paul & Son.
To *Rose Spencer*, Messrs. W. Paul & Son.
To *Rhododendron Rosalie Seidel*, Messrs. Veitch & Sons.
To *Streptocarpus New Hybrids*, Messrs. Veitch & Sons.
To *Double Lilacs Madame Lemoine*, M. Lemoine, Nancy.
To *Double Lilac, Michel Buchner*, M. Lemoine, Nancy.
To *Rose Clothilde Goupert*, Soupert, Messrs. Paul & Sons.
To *Azalea odorata flore pleno*, Messrs. Paul & Sons.
To *Pæonia montan*, Mrs. W. Kelway, Messrs. Kelway.
To *Pelargonium Royal Ascot*, Mr. C. Turner.
To *Asplenium lanceolatum microdon*, Messrs. Birkenhead.
To *Athyrium F. F. Girdlestonei crestatum*, Messrs. Birkenhead.
To *Polystichum angulare pulcherrimum, divisilobum decorum*, Messrs. Birkenhead.

Orchid Committee.

First-class Certificates.

To *Cattleya Lanryana*, *Cattleya Hybrida Prince of Wales*, *Grammatophyllum Measuresianum*, *Masdevallia hybrida Mundgana*, from Sander & Co.
To *Aërides Savageanum*, from Sir T. Lawrence, Baron Schröder, and Sander & Co.
To *Oncidium loxense*, from J. Ingram.

AWARDS OF MERIT.

To Messrs. Sander & Co., for *Cypripedium barbatum*, superbien.
To Messrs. Sander, for *Cypripedium Lawrenceianum* × *C. superbien*.
To Messrs. Sander & Co., for *Odontoglossum excellens*.
To Messrs. Heath, for *C. Stonii magnificum*.
To Messrs. Low, for *Dendrobium Parishii alben*.
To J. Statter, Esq., for *Lælia elegans Statteriana*.
To Sir T. Lawrence, for *Masdevallia Harryana luteo-oculo*.

Medals.

To Rt. Hon. J. Chamberlain, Birmingham, for *Masdevallias*, Silver Banksian.
To J. Walker, Thame, for *Roses*, Silver Banksian.
To Messrs. de Rothschild, Gunnersbury Park, Acton, (gr. Mr. G. Reynolds), for group of Orchids, Silver Gilt Flora.
To Mr. W. Rumsey, The Nurseries, Waltham Cross, N., for group of *Roses*, Silver Gilt Flora.
To W. Paul & Son, for *Cut Roses*, Silver Banksian.
To Mr. T. S. Ware, Hale Farm Nurseries, Totten-

ham, for *Collections of Hardy Herbaceous Flowers*, *Irises*, &c., Silver Banksian.

To W. & E. Wells, Hattonhurst, Hounslow, and Mr. George Thompson, for *Strawberries in Pots*, One Dish strawberries, Bronze Medal.

To F. Wigan, Esq., Clare Lawn, East Sheen (grower to Mr. W. H. Young), for Group of Orchids, Silver Banksian.

To Sir C. Pigott, Bart., Wexham Park, Slough (gr. Mr. J. Ford), for Group of *Calceolarias*, Silver Gilt Flora.

To A. H. Smee, Esq., The Grange, Carshalton, Surrey (gr. Mr. G. W. Cummins), for Group of Orchids, Silver Flora.

To Mr. M. Snout, 4 Quarry Crescent, Hastings, for *Seaweed, Shell and Coral* for Table Decorations, Silver Banksian.

To T. Statter, Esq., Stand Hall, Whitefield, Manchester (gr. Mr. R. Johnson), for Orchids (*Cut Blooms*), Silver Banksian.

To Mr. C. Turner, Royal Nursery, Slough, for Groups of *Pelargoniums*, *Roses*, *Azaleas*, &c., Silver Flora.

J. Veitch & Son, Chelsea, *Streptocarpus* and *Gloxinias*, Silver-gilt Flora Medal.

J. Veitch & Son, Chelsea, collection of fruit, Silver Flora Medal.

Mrs. Arbutnot, Bridgen Place, Bexley (gr. Mr. J. Mitchell), group of Orchids, Silver Flora Medal.

Mr. Balchin, The Nurseries, Brighton, group of *Leschenaultia biloba*, Silver Banksian Medal.

Mr. D. Baldwin, Hillingdon Heath, Mr. J. Wiggins, Manager, twelve specimen *Pelargoniums*, Silver Banksian Medal.

Major General Berkeley, Spetchly House, Bitterne, Southampton, group of *Phalenopsis*, Bronze Flora Medal.

J. F. Campbell, Esq., Woodseat, Uttoxeter (gr. Mr. J. Hollingworth), Black Hamburg and Foster's Seedling Grapes, Bronze Medal.

Messrs. H. Cannell & Sons, Swanley, group of *Begonias* and *Gloxinias*, Silver Cup.

Mr. W. Chambers, Isleworth, Wreaths, Viola "Snowflake," Silver Banksian Medal.

Messrs. J. Cheal & Sons, Crawley, collections of Apples and Pears, &c., Bronze Banksian Medal.

Malcolm S. Cooke, Esq., Kingston Hill, Group of Orchids, Silver Banksian Medal.

Mr. J. Cypher, Cheltenham, Group of Orchids, Silver Gilt Flora Medal.

W. F. Darnell, Esq., Stamford Hill, N. (gr. Mr. Geo. Elliott), group of Orchids, Bronze Flora Medal.

Messrs. Dobbie & Co., Rothesay, N.B., collection of Pansies and Violas, Silver Banksian Medal.

Leopold de Rothschild, Esq. (gr. Mr. Jennings), Brighton Buzzard, group of Carnation Malmaison, Silver-gilt Flora Medal.

Messrs. Barr & Son, hardy cut flowers, Silver-gilt Flora Medal.

Mr. F. Hooper, Bath, collections of cut *Roses*, Pansies, and Tulips, Silver Banksian Medal.

Messrs. S. W. Iles & Co., Warner Road, Camberwell, plain and ornamental pottery, garden and flower-box tiles, Bronze Flora Medal.

Messrs. J. James & Son, Farnham Royal, group of *Calceolarias*, Silver Flora Medal.

Messrs. J. Laing & Sons, Forest Hill, group of *Caladiums*, Silver Flora Medal.

Group of *Begonias*, Silver Cup.

Sir T. Lawrence, Bart., Dorking (grower, Mr. W. White), group of Orchids, Silver Cup.

Messrs. H. Low & Co., Clapton, group of Orchids, Silver Banksian Medal.

Messrs. H. Low & Co., Clapton, group of *Ericas*, Silver-gilt Flora Medal.

The Duke of Marlborough, Woodstock (gr. Mr. T. Whillans, group of Orchids, Silver-gilt Flora.

Mr. G. Phippen, Reading, collection of Violas, Silver Banksian Medal.

Messrs. J. Reed & Sons, Norwood Road, S.E., collection of *Anthuriums*, Silver Banksian Medal.

Messrs. Paul & Son, Cheshunt, collection of hardy herbaceous plants, Silver-gilt Flora Medal.

Mr. W. Icton, Granard Gardens, Roehampton, S.W., group of foliage plants, Palms, &c., Silver Flora Medal.

Cups.

To Wm. Paul & Son, Waltham Cross, for *Roses* in pots, Silver Cup.

To Baron Schröder, The Dell, Staines (gr. Mr. H. Ballantine) for group of Orchids, Silver Cup.

J. Veitch & Son, Chelsea, hardy plants, &c., Silver Cup.

Messrs. Paul & Son, Cheshunt, *Roses*, Silver-gilt Cup.

Messrs. T. Rivers & Son, The Nurseries, Saw-

bridgeworth, for collection of fruit trees in pots, Silver Cup.

The judges were:—For Orchids and Foliage Plants: Messrs. O'Brien, L. Castle, and H. Veitch. For Plants and Cut Flowers: Messrs. T. Baines, J. Fraser, Lea Bridge; Fraser, Kew; and Herbst. For Fruits, Vegetables, and Implements: Messrs. Banyard, Hudson, H. Pearson, and J. Smith.

Owing to the impossibility of checking the lists supplied to us before we go to press, we give the following under reserve. Should errors have arisen they will be corrected next week.

Scientific Committee.

May 12.—Present: Dr. M. T. Masters, in the chair; Mr. McLachlan, Dr. Plowright, Mr. Blandford, Rev. W. Wilks, Mr. Pascoe, Rev. C. W. Dod, Sir J. Llewelyn, Bart., Mr. Morris, Rev. G. Henslow (Hon. Sec.), and Mr. A. Buchanan (visitor).

Growth in Darkness.—Dr. Masters received a communication from Gloucestershire, in which it was stated that wooden props in a coal mine, at a depth of 1000 feet, had sent out shoots with perfectly blanched leaves. They had grown vertically upwards, and proved to be Oak and Sweet Chestnut. He also exhibited a large mass of interlacing roots, apparently of a Lime tree (judging by their bitterness and mucilaginous character), which had grown underneath the floor of a house in Bayswater. No tree was known to be anywhere in the neighbourhood. It was suggested that the root had grown along some drain-pipe, and finally found an exit where it could develop into branches.

Acacia dealbata.—Dr. Masters showed flowering branches from a tree at Ryde which had been killed down to the ground ten years ago, but had sent up suckers. These proved to be harder than the original plant, as they were uninjured during the past winter, and were now in full bloom. As another instance of a late recovery, he mentioned an *Ailanthus glandulosus*, which sent up suckers fifteen years after it had been cut down.

Malformed Narcissi.—Rev. C. W. Dod exhibited specimens of different varieties of *Narcissus*, showing a constriction of the mouth of the trumpet or "corolla." It was suggested that it might be due to some check or enfeeblement, since it was always the later flowers which exhibited the peculiarity. An analogous constriction in corollas sometimes occurs in flowers reverting to self-fertilisation—as e.g., in *Gentiana Andreana*.

Everescence on Willows.—Mr. Blandford exhibited a branch with a tumour-like growth, 3 to 4 inches in diameter. They appear to be common on Willows by the river Meuse. It was suggested that a species of saw-fly might prove to be the cause. Mr. McLachlan undertook to report further upon it.

Oak Wood Destroyed.—Mr. Blandford also exhibited a piece of Oak, completely converted into powder by attacks of *Lyctus canaliculatus*. It is a beetle which causes great mischief to gun stocks in Birmingham. He also showed specimens of wood from barrels perforated by *Carpophilus hemipterus*. In a previous case, the staves were perforated on both sides; in the present instance, the attack by the insects was made after the barrels had been completed, as the perforations only occurred on the exterior.

Primrose Seedling.—Miss Woolward sent a new and remarkable form of a *Primrose*, which accidentally appeared in a cottage garden at Belton, near Grantham. Its peculiarities consist in the corolla lobes being red below and yellow above, as well as in possessing a sweeter and more powerful perfume than most varieties.

Heteroecial Fungi.—Dr. Plowright exhibited specimens of *Puccinia digraphidis*, Soppitt, on the leaves of *Phalaris arundinacea*, which were found by Dr. D. Franzschel, near Wiborg, in Finland, growing in the vicinity of *Æcidium convallariae*; also specimens of *Puccinia agrostidis*, Plow, on *Agrostis vulgaris*, collected by the same gentleman near Lewaschow, in Russia, growing in the vicinity of *Æcidium aquilegiae*. He further stated that he had this year produced the *Cæoma laricis* upon Larch by infecting this plant with the germinating teleutospores of *Melampsora betulinae*, the converse experiment of producing the *Melampsora* on Birch from the spores of *Cæoma laricis* having been made last year. This culture is the more interesting, as it shows that the Larch is the host plant for the acidiospores of two species of *Melampsora*. Hartig had previously demonstrated that a *Melampsora* on *Populus tremula* similarly affects the Larch foliage.

"Anti-blight," a Preparation for the Destruction of Mildew.—A visitor, Mr. A. Buchanan, of Glasgow, was invited to give an account of a preparation recommended by Mr. Tait, of Oporto. It was found to be beneficial to Vines in the north of Portugal, and as the Potato disease was due to another species of *Peronospora*, it was suggested as a remedy for it. He read a communication presented to the Highland Agricultural Society, in which the results from its use were described as beneficial to port wine growers, as well as being destructive to mould on trees, &c. He gave a description of the composition of anti-blight, which consisted of lime, flowers-of-sulphur, and sulphate of copper. The sulphate of copper disappears, and is replaced by a hydrated oxide of copper. The preparation is used in the dry state instead of being in solution, which, excepting the sulphur, is apparently the only appreciable difference between "anti-blight" and other well-known preparations. There appears to be a certain danger in its use, in that if the powder be not ground sufficiently fine, small particles of sulphate of copper may be left on the foliage, unaltered, which destroy it. These have, therefore, to be sifted out, the finer powder being alone used. The dispersion of the powder has to be effected by means of bellows and fans of peculiar construction.

It was observed by Dr. Plowright that the flowers-of-sulphur, though destructive to the oidium upon Vines, would have no effect upon the Potato disease. He also referred to the extended use of preparations of sulphate of copper on the continent, as—e.g., for Tomatos, the foliage and fruit of which are dressed with it. The practice is even adopted of painting the Vine poles, as this has been found to lessen the disease. Sulphate of copper is also largely used in America.

Mr. Dod described his experience with similar materials, only used wet, in the following proportions:—3 lb. of sulphate of copper, 10 gallons of water, and 2 lb. of quicklime. Having applied it to growing plants of tender foliage liable to mildew, it proved injurious because the sulphate of copper had not passed into the hydrated oxide. He added that flowers-of-sulphur, though an old remedy for foliage, proved injurious, to roots, paralysing root growth by the sulphur probably becoming oxidised and giving rise to sulphurous acid. He suggested that it should never be used as a top-dressing. Bulbs thus arrested had been exhibited at a previous meeting.

Having heard Mr. Buchanan's account, the committee expressed their willingness to give publicity to his statements; but they did not consider there was sufficient novelty in the preparation to justify them in recommending experiments to be carried out at the Society's gardens. Moreover, the question appeared to them to be rather more of a commercial than scientific nature. The committee, however, thought that if private cultivators would undertake to try it, its true value might be soon discovered by testing the powder in various ways on different plants, as well as by using the liquid preparations for comparison, to discover if it were really preferable to the latter or not.

EDINBURGH BOTANICAL.

The Society met on the 14th inst., in the Classroom, Royal Botanic Garden; Mr. Lindsay, President in the chair. The following exhibitions were made:—Rare British plants from Devonshire, including *Mathiola sinuata*, *Viola* sp., *Statice Limonium*, *Beta maritima*, *Juncus acutus*, by Professor Bayley Balfour.

Aucuba japonica and *Skimmia Formanni* × in fruit, also specimens of Japanese Maples, dwarf Almond, *Erica persoluta*, *Boronia heterophylla*, &c., by Mr. Dunn, Dalkeith Gardens.

Aucuba japonica salicifolia and *Rhododendron glaucum* × *R. ciliatum*, by Mr. Grieve, Pilrig Nursery. Mr. Sanderson, Talbot House, Ferry Road, exhibited cut blooms of *Cypripedium caudatum* (fine variety), *Masdevallia chimera*, *Miltonia vexillaria*, *Dendrobium superbum*, &c.

A number of plants from the garden were exhibited, including *Ranunculus cortusæfolius*, *Menziesia empetrifolia*, *Pinguicula caudata*, *Saxifraga cotedon*, *S. MacNabiana*, *Rhododendron Dalhousiae* × *R. Gibsonii*, *R. Nuttallii*, *Primula Reidii*, &c.

Dr. David Christison read a paper on "The Weekly Rate of Girth-increase in Trees, and its Relation to the Growth of the Leaves and Twigs." The results of continuous observations were clearly illustrated by a series of tables of curves. In the case of the Conifers, it was demonstrated that a marked retardation of growth takes place in mid-

summer. The trees studied were *Abies Lowiana*, *A. grandis*, *A. Douglasii*, *Pinus Pinaster*, *P. excelsa*, and *Horse Chestnut*, *Sycamore*, *Elm*, &c.

Mr. Lindsay read the following report on temperature, &c., at the Royal Botanic Garden:—The month of April was very cold and dry, with easterly wind predominating. Vegetation generally has been kept in check, and at the close of the month was in a very backward condition. The thermometer was at or below the freezing point on thirteen occasions; the total amount of frost registered was 56°, as against 54° for April, 1890. The lowest readings were on the mornings of the 1st, 20°, 14th, 26°; 15th, 27°; 19th, 23°; 21st, 25°; 27th, 26°. The lowest day temperature was 41°, on the 6th; and the highest, 64°, on the 30th. The collective amount of frost registered this season up to the end of April, is 611°, as against 364° for the same period last year. The following is the distribution for each month:—October, 19° of frost; November, 80°; December, 121°; January, 126°; February, 79°; March, 130°; April, 56°. The lowest point reached this season was 15° Fahr., or 17° of frost, which occurred on March 9.

On the rock garden, 119 species and varieties came into flower during the month, being thirty-one less than for last April. Among the more interesting were *Dentaria pentaphylla*, *Epigaea repens*, *Erythronium giganteum*, *Iberis petraea*, *Narcissus calathinus*, *N. Eystettensis*, *N. nivalis*, and varieties of *N. pseudo-Narcissus*, *Primula intermedia*, *P. pedemontana*, *Trollius acaulis*, *Trillium erectum*, *Xanthorrhiza apiifolia*. A good many plants have suffered severely from drought to an extent never before observed so early in the season. Large plants of *Menziesia*, *Bryanthus*, *Erica*, and *Genista*, have been completely destroyed, while small plants are uninjured. Among the plants injured by the severe frost in March, *Cupressus Lawsoniana erecta viridis* must be added. *Dacrydium Franklinii* has also suffered, but not to the same extent.

Of the forty spring flowering-plants whose dates of flowering are annually recorded the following, came into flower:—*Erythronium dens canis* on April 6, *Corydalis solida*, April 9; *Hyoscyamus Scopolia*, April 10; *Aubrietia grandiflora*, April 13; *Draba aizoides*, April 13; *Narcissus pseudo-Narcissus*, April 13; *Adonis vernalis*, April 18; *Omphalodes verna*, April 20; *Symphytum caucasicum*, April 20; *Fritillaria imperialis*, May 3. This completes the list for the fortieth year.

At the Glasgow Botanic Garden this period will long be remembered as a bitterly cold one, and also as an exceedingly dry month, and the mornings were few on which frost was not registered. The lowest temperature recorded here, was 28°, or 4° of frost, certainly not a low reading for the month, but the continuity of frosts and scathing north and north-east winds was remarkable, and from whatever point of the compass the wind came, it was cold. The sun's rays had little effect in forwarding vegetation, which is in a very backward state. We had occasional very light showers, but not sufficient to be of material benefit, until the 29th, when we had a light showery day. The lawns were not so green and fresh-looking as in February, and the hardy plants in bloom are those mostly recorded for the end of February, or early in March.

SCOTLAND.

EDINBURGH NURSERY EMPLOYEES AND THE SATURDAY HALF-HOLIDAY.

Referring to the announcement which you were good enough to find space for two months ago, to the effect that the nursery employees of Edinburgh had taken steps to respectfully solicit their employers for a half-holiday on Saturdays from May to September inclusive, I have now pleasure in stating that the movement has been partially successful. The result of interviews and correspondence of the employees' deputation with the leading nursery firms was, that two of the firms cordially agreed to the employees' request that work should cease at 2 P.M. on Saturday during the months indicated. The acceding firms are Messrs. Thomas Methven & Sons and Mr. John Downie, and it has to be stated that they have also kindly extended the same boon to their assistants in the seed department, although they took no part in the movement. The employees

of Messrs. Methven & Sons acknowledged the kindly liberality of their employers in the form of an address signed by the members of all departments of their establishment, which was presented to the firm on Saturday, the 23rd inst.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (—) the Mean for the week ending May 23.	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 4, 1891.	Below 42°, difference from Mean since Jan. 4, 1891.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Ins.					
1	5 —	33	18	+ 43	+ 76	1 —	91	17.8	41	30
2	5 —	37	18	— 37	+ 95	1 —	56	7.3	42	33
3	8 —	30	19	— 63	+ 95	0 aver	64	5.9	31	30
4	7 —	33	14	— 58	+ 129	9 +	66	6.3	24	32
5	8 —	36	19	— 43	+ 115	7 +	60	7.2	25	30
6	7 —	39	8	— 73	+ 149	9 +	57	8.0	33	33
7	6 —	40	18	+ 9	+ 47	4 —	68	11.8	44	33
8	7 —	34	13	— 5	+ 37	0 aver	55	7.0	33	29
9	7 —	37	13	— 33	+ 118	7 +	57	10.1	30	37
10	7 —	33	13	— 21	+ 28	1 —	72	8.5	34	32
11	8 —	38	13	+ 1	+ 32	6 +	65	8.8	39	35
12	4 —	44	0	— 30	+ 40	8 +	63	8.8	48	46

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 23, is furnished from the Meteorological Office:—

"The weather has been very cold and inclement throughout the period. Showers of sleet and snow were generally experienced during the earlier days of the week, and frequent falls of cold rain and hail subsequently. In Scotland, however, the showers were less heavy than elsewhere, and several fine bright intervals occurred. Thunderstorms were prevalent in many places, both on Wednesday and Saturday.

"The temperature has been extremely low for the time of year, the deficit having ranged from 4° in the 'Channel Islands,' and 5° in the north and east of Scotland, to 7° or 8° in nearly all other parts of the Kingdom. During the earlier days of the period the shade minima at all the more inland stations were below the freezing point, the lowest readings reported being 23° at Durham, and 24° at York and Newton Reigny. At other inland places they ranged from 25° to 29°, but in the 'Channel Islands,' the lowest reading was 40°. The highest of the maxima were recorded on the 23rd, when the thermometer rose to between 57° and 63°. On the 17th and 18th the maxima in many parts of the Kingdom did not exceed 45°.

"The rainfall has been much more than the mean in most of the English districts, as well as in 'Ireland, S.' and the 'Channel Islands,' but rather less over 'Scotland' and in 'Ireland, N.' The amount recorded over the English districts was from two to nearly three times the mean.

"The bright sunshine has exceeded the mean in Scotland, but has been below it over England and Ireland. The percentage of the possible duration varied from 24 to 33 over England, from 34 to 39 in Ireland, from 41 to 44 in Scotland, and was as high as 48 in the 'Channel Islands.'"

MARKETS.

COVENT GARDEN, May 28.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. Ed.]

Business brisker, with prices firm. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 8	Endive, per dozen ... 4 0-...
Asparagus, wholesale, Worcester, bundle ... 1 9-2 0	Herbs, per bunch ... 0 4-...
Cambridge, bundle ... 1 9-2 0	Lettuces, per dozen ... 3 0-...
Various, sml. bdle. ... 0 6-10	Mushrooms, punnet ... 2 0-...
Beans, French, lb. ... 1 6-2 0	Mustard and Cress, punnet ... 0 4-...
Beet, red, per dozen ... 2 0-3 0	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 0 9-1 6
Cauliflowers, each ... 0 6-...	Shallots, per lb. ... 0 6-...
Celery, per bundle ... 2 6-3 6	Spinach, per bushel ... 7 0-...
Cucumbers, each ... 0 6-1 0	Tomatoes, per lb. ... 1 6-2 6
	Turnips, per bun. new ... 1 6-...

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Anemones, 12 bun. ... 2 0-4 0	Narcissus Poeticus (Pheasant Eye), 12 bunches ... 1 6-2 6
Arum Lilies, 12 blms. ... 2 0-6 0	Pansies, 12 bunches ... 0 6-1 0
Azalea, 12 sprays ... 0 6-1 0	Pelargoniums, scarlet, 12 spr. ... 0 4-0 6
Bouvardia, per bun. ... 1 0-1 6	Polyanthus, 12 bun. ... 1 0-2 0
Camellia, white, 12 blooms ... 2 0-3 0	Primroses, double, p. 12 bunches ... 1 0-2 0
„ coldr., 12 blms. ... 0 9-1 0	„ per 12 bunches ... 0 4-0 6
Carnations, 12 blms. ... 1 0-2 0	Primulas, double, 12 sprays ... 0 6-1 0
Cineraria, 12 blms. ... 6 0-9 0	Ranunculus 12 bun. ... 1 0-2 0
Cyclamens, per doz. ... 3 0-6 0	Roses, Tea, per doz. ... 2 0-4 0
Eucharis, per dozen ... 3 0-6 0	„ coloured, dozen ... 2 0-4 0
Gardenia, per doz. ... 1 6-3 0	„ yellow (Mare-chais), per doz. ... 3 0-6 0
Heliotropes, 12 spr. ... 0 6-1 0	„ red, per dozen ... 3 0-6 0
Lilac, best, p. bunch ... 4 0-6 0	„ do., Frenchp. doz. ... 1 0-3 0
„ p. bunch ... 0 4-0 9	Spirea, per bunch ... 0 4-0 6
Lilium Harrisoni, doz. ... 3 0-4 0	Tuberose, 12 blms. ... 0 6-1 0
Lily of the Valley, 12 sprays ... 0 6-1 0	Tulips, various, per doz. bunches ... 3 0-6 0
Maiden Hair Fern, 12 bunches ... 4 0-9 0	Violets, 12 bun. ... 0 6-0 9
Marguerites, 12 bun. ... 3 0-6 0	„ dark, Fr. bun ... 1 0-1 6
Mignonette, Fr. bu. ... 0 4-0 6	Wallflower, 12 bun. ... 2 0-4 0
Myosotis, 12 bun. ... 2 0-4 0	
Narcissus (yellow), 12 bunches ... 2 0-4 0	
„ double white, 12 bunches ... 4 0-6 0	

ORCHID-BLOOM in variety.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. ... 6 0-18 0	Foliage plants, various, each ... 2 0-10 0
Aspidistra, doz. ... 18 0-42 0	Genista, per dozen ... 6 0-9 0
„ spec. plants, each ... 7 8-10 6	Heliotrope, per doz. ... 4 0-8 0
Azalea, per dozen ... 12 0-30 0	Hydrangea, per doz. ... 9 0-18 0
Bedding plants, variety, per doz. ... 1 0-2 0	„ paniculata, per plant ... 2 0-4 0
Bouvardia, p. doz. ... 9 0-18 0	Ivy Pelargoniums, per dozen ... 4 0-6 0
Calceolaria, p. doz. ... 6 0-10 0	Lilium, various, per dozen ... 18 0-30 0
Cineraria, per dozen ... 4 0-8 0	Lobelia, per dozen ... 4 0-6 0
Cyclamens, dozen ... 9 0-18 0	Marguerites, doz. ... 6 0-12 0
Cyperus, per dozen ... 4 0-12 0	Mignonette, per doz. ... 4 0-9 0
Dielytra, per dozen ... 8 0-12 0	Musk, per doz. ... 3 0-6 0
Dracena terminalis, per dozen ... 30 0-60 0	Myrtle, per doz. pots ... 6 0-12 0
„ viridis, per doz. 12 ... 0 24 0	Palms in variety, each ... 2 6-21 0
Euonymus, in var., per dozen ... 6 0-18 0	Pelargoniums, doz. 12 ... 0-18 0
Ericas, various, doz. ... 8 0-24 0	„ scarlet p. doz. ... 4 0-9 0
Evergreens, in var., per dozen ... 6 0-24 0	Roots for bedding, in boxes, each, from ... 1 0-2 0
Ferns, in variety, per dozen ... 4 0-18 0	Spirea, per dozen ... 6 0-9 0
Ficus elastica, each ... 1 6-7 0	

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 4-sieve ... 3 6-6 0	Lemons, per case ... 15 0 25 0
„ Nova Scotia, brl. 15 ... 0-25 0	Peaches, per dozen ... 6 0-18 0
„ Tasmanian, case 12 ... 0-14 0	Pine-apples, St. Michael, each ... 2 0-8 0
Cobs, Kent, 100 lb. ... 45 0-50 0	Strawberries, p. lb. ... 2 0-6 0
Grapes, new ... 2 6-4 0	

OLD POTATOS.—Market not so firm.

NEW POTATOS.—Arrivals very light. Prices firm. Jerseys and Cornish expected in larger lots during the coming week, which must affect future prices more or less. *J. B. Thomas.*

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending May 23, and for the corresponding period last year:—1891, Wheat, 39s. 6d.; Barley, 27s. 1d.; Oats, 20s. 11d. 1890, Wheat, 35s. 2d.; Barley, 30s. 5d.; Oats, 19s. 10d. Difference: Wheat, +4s. 4d.; Barley, -2s. 6d.; Oats, +1s. 1d.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 80s. to 102s. 6d.; inferior do., 40s. to 75s.; hay, best, 60s. to 87s.; inferior do., 20s. to 50s.; and straw, 20s. to 38s. per load.

FRUIT AND VEGETABLES.

STRATFORD: May 26.—There has been an excellent supply of all kinds of produce at this market during the past week, and a good trade was done at the undermentioned prices:—Cabbages, 4s. to 6s. per tally; Greens, 3s. to 5s. per sieve; do., 4s. to 5s. 6d. per dozen bunches; Cauliflowers, 2s. to 3s. per dozen; do., 10s. to 12s. 6d. per tally; Carrots, household, 140s. to 150s. per ton; Mangels, 23s. to 24s. 6d. do.; Swedes, 22s. to 30s. do.; Onions, English, 120s. to 140s. do.; Apples, English, 3s. 6d. to 7s. per bushel; Asparagus, 2s. 6d. per bundle; Radishes, 9d. to 1s. per dozen bunches; Cucumbers, 3s. to 5s. 6d. per dozen; Mint, 1s. per dozen bunches.

SEEDS.

LONDON: May 27.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that to-day's market, as might have been expected, was very thinly attended, with but little business doing. The spring consumptive demand for seeds is now at an end, and no speculative movement of importance has yet developed itself. Tares are in improved request. In bird seeds (excepting millet, which is dearer) there is no quotable alteration. Full prices are asked for Mustard and Rape seed. The demand for Peas and Haricots has slackened.

POTATOS.

BOROUGH AND SPITALFIELDS: May 26.—Quotations:—Old: Magnums, 90s. to 110s.; Imperators, 90s. to 110s.; Champions, 80s. to 95s. per ton. New: Jersey Kidneys, 22s. to 26s.; Lisbon rounds, 10s. 6d. to 11s. 6d.; Malta do., 10s. to 11s.; do. Kidneys, 14s. to 2s. per cwt.

SPITALFIELDS: May 27.—Quotations:—Imperators, 90s. to 110s.; Magnums, 90s. to 120s.; Champions, 80s. to 100s. per ton. New: foreign rounds, 10s. to 12s.; kidneys, 14s. to 24s. per cwt.

STRATFORD: May 28.—Quotations:—Magnums, 112s. to 130s.; Hebrons, 80s. to 100s.; Imperators, 100s. to 115s. Scotch Magnums, 120s. to 145s. per ton.

ENQUIRY.

“He that questioneth much shall learn much.”—BACON.

PALMS FROM SEED.—O. B. D. would be glad if any of our many readers will give him a few hints on growing Cocos and other Palms from seed.

NOTICES TO CORRESPONDENTS.

AMARYLLIS DISEASED: *Young Gardener*. The red streaks on your Amaryllis are due to the attacks of a fungus like the yeast fungus, first described in our columns, March 27, 1886, by Mr. W. B. Grove, of Birmingham. It occurs also on Eucharis, and other bulbous plants. Burn all the affected leaves, and grow on the plant as well as you can, so as to secure as sturdy growth as possible. Sulphide of potassium, in solution, has been recommended as a remedy, the bulbs being soaked in it. The old soil should be turned out, and fresh soil added. Your cultivation seems to be correct (figs. 132, 133)



FIG. 132.—FUNGUS ON LEAF STALK OF EUCHARIS: COLOUR, SCARLET.

CLIVEIA LEAVES DISEASED: *F. W. B.* See answer in this column to “AMARYLLIS DISEASED: *Young Gardener*.”

CORRECTION—BATH SHOW: *W. B.* Owing to a certain amount of confusion that occurred when taking his notes, and the short time that was allowed him in doing so, our reporter made some errors, which appeared in our last issue. Nine stove and greenhouse plants—read: 1st, Mr. W. Bennett, gr. to C. W. MacKillop, Esq., Bagucha; six Azaleas: 2nd, Mr. W. Bennett. If show authorities would but afford reporters lists of awards, these errors would not occur.

CUCUMBERS: *A. W.* “Fasciation,” arising from excessive growth; due to an overdose of manure, or too high feeding.—*A. T.* The gumming of the leaves is probably due to eel-worms at the roots. There is no known cure when the disease has advanced much; and clearing out the soil, and charring it, and burning the plants should be the course adopted.

EMIGRATION: *W. Foster*. For the latest and best information on those points about which you wrote to us, apply to the offices of the various Australian Colonies, most of which are situated in Victoria Street, Westminster, S.W.



FIG. 133.—FUNGUS ON EUCHARIS LEAF, MAGNIFIED.

FLORISTS' GUM: *Sandys*. Pound shellac very fine, and mix it with methylated spirits of wine, in a stone jar to a proper consistency, well shaking it for half-an-hour, and placing it by the side of the fire to keep the contents warm, and occasionally shaking for about one day. The gum when made should be kept in a cool place, and taken out as it is wanted. The camel-hair brush made use of should be left in the gum.

FUNGUS: *R. M. Redhead*.—*Peziza reticulata* (Cooke's Monographia, fig. 227).

FUNGUS ON MUSHROOM-BED: *T. N. R.* The Sclerotium of *Xylaria vaporaria*.

INSECTS INJURING ORCHIDS: *C. E. H.* The small beetle found on your *Laelia majalis* and *L. anceps*, and which appears to have gnawed off part of the surface of the leaf, is one of an immense number of small species of South American long-horned Coleoptera (*Saperda* affinis), which attack various kinds of plants. It is grey-coloured, with slender white lines on the thorax and elytra. *I. O. W.*

MINT: *A. E.* Your Mint is affected with a fungus called *Aecidium menthae*. Collect and burn the affected shoots.

NAMES OF FRUITS: *G. P.* Brownlee's Russet, probably; specimens terribly rubbed and withered.

NAMES OF PLANTS: *O. C.* *Tecoma jasminoides*.—*G. N.* *Prunus padus*, the Bird Cherry.—*C. M. B.* No numbers; tree is *Prunus padus*; blue flower is *Centaurea montana*; Fern is *Osmunda regalis*.—*J. B.* 1, small scrap looks like the Silver Fir, *Abies pectinata*; 2, small scrap looks like *Abies brachyphylla*; why send such miserable scraps? 3, *Sequoia sempervirens*, the Red Wood, native of California. Your Peaches are mildewed, and the leaves are eaten by small slugs, numbers of which we found on the leaves.—*Weir*. 1, *Carex acuta*; 2, *Caltha palustris*, double-flowered var.; 3, *Ligustrum coriaceum*; 4, *Phlox subulata*; 5, missing; 6, *Elagnus argentea*.—*F. R.*—1, *Lonicera tartarica*; 2, *Linaria cymbalaria*; 3, *Andromeda axillaris*; 4, *Sibthorpia europaea*; 5, *Rubus spectabilis*; 6, *Serapias lingua*. *Reginald*. *Abutilon Sellowianum*.—*X. F.* 1, *Lychnis*, not recognised; 2, *Capsella bursa-pastoris*; 3, *Phlox subulata*; 4, *Sedum Rhodiola*; 5, *Callistemon lanceolatus*; 6, *Anemone narcissiflora*.—*J. B. S.* 1, *Epidendrum alatum*; 2, *Dendrobium pulchellum*, of gardens.

NOTICE TO LEAVE EMPLOYMENT: *Justice*. Whether you can claim any sum of money from your previous employer will in a great measure depend on the nature of your agreement and what is customary in the trade; as a regular employer's work,

partial or full, should have been found for you during the bad weather.

PEONIA ALBIFLORA: *Adolescens*. Thank you for your drawing; the change of petaloid stamens to carpels is not uncommon in such flowers.

PELARGONIUMS: *Young Gardener*. We cannot undertake to name these flowers; send them to a florist or specialist in those plants.

ROSE: *Austrian Briar*. Orange rust; burn the shoots. See our Supplement for July 7, 1877.

ROSES FOR POT CULTURE, TWELVE H.P.'S AND SIX TEAS: *A Young Beginner*. H.P.'s: A. K. Williams, André Leroy, Antoine Mouton, Baron Bonstettin, Baroness Rothschild, Beauty of Waltham, Benoit Comte, Captain Christy, Comtesse de Serenye, Countess of Rosebery, Duchess of Bedford, and Duchesse de Vallombrosa. Teas: Amazon, Belle Lyonnaise, Bougère, Catherine Mermet, Devonians, and Innocente Pirola.

TOMATOS: *E. J.* Your plant is attacked with the fungus which destroys the Potato. It may be checked by the use of sulphate of copper in the way repeatedly mentioned.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY: *J. M.* This Society is a Sick Benefit Society, such as you suggest, and is worked on most economical grounds, the members receiving interest on deposits, &c. The Secretary, Mr. Collins, 9, Martindale Road, Balham, will send you full particulars.

VIOLA SEEDLING: *G. H.* A very pretty shade of purple, and a plant worth perpetuating.

VINE BORDER: *S. L.* If the border be made $2\frac{1}{2}$ feet deep, $6\frac{1}{2}$ cubic yards, say 7 tons, will be required, if it be made at first but 3 feet wide. You might get the whole quantity carted in at once, for the 6 feet in width that the border will have. This would save the bad appearance of having a long trench left open in the Vinery for two or three years; and by taking the larger quantity, the cartage price might be lessened. The 3 feet space to which the Vines are to be confined for a time, could be fenced off by a sunken partition of corrugated iron. Sample No. 1 would answer very well if mixed with about $\frac{1}{10}$ of crushed bones, a small quantity of lime rubble, and stable manure half decayed. It is a poor soil, and the Vines will have to be nourished with surface-dressings, for which it will form for years to come a good kind of medium, not getting into a pasty condition, or becoming too retentive of moisture, as rich, clayey loams often do in course of time.

VINE LEAVES TURNING RED, AND FALLING OFF: *G. B.* Due, probably, to loss of roots from some cause. Examine them, and send some roots, also soil of the border, and a few shoots and leaves to this office for examination. We should then be better enabled to answer your question.

VINES: *R. R. H.* The leaves have no fungus—the appearances are due to faulty management in some way, such as deficient ventilation. The Tomato leaf has the Potato fungus on it; try sulphate of copper, as recommended in many former issues. The appearances on the Fig, Begonia, and other leaves, point to burning or scalding, due to insufficient ventilation as the cause, probably during a burst of strong sunshine—very common in the spring months. There is nothing more exacting at that time of the year than the care of the ventilation of forcing-houses and stoves.—*A. T.* The leaves show bad signs of burning or scalding from want of proper ventilation. The white substance seen on them is flowers-of-sulphur.

CATALOGUES RECEIVED.

J. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea—Stove and Greenhouse Plants, including Novelties for 1891.

THOS. S. WARE, Hale Farm Nurseries, Tottenham—Hardy Perennials, Alpine Plants, &c.

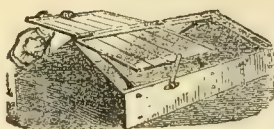
W. BULL, 536, King's Road, Chelsea—New Rare Plants and Orchids.

WOOD & INGRAM, The Nurseries, Huntingdon—Bedding Plants, &c.

COMMUNICATIONS RECEIVED.—H. Grillage.—W. Miller.—C. de B.—C. R.—J. S.—J. C.—J. Lowrie.—F. Ross.—H. H. D'Ombraim.—R. D.—J. B.—J. Cirlor & Co.—W. D.—E. M.—G. B. C.—J. O'B.—J. R. W.—J. Burchell.—Dr. Cooke.—J. Fraude.—W. H. D.—W. Watson.—J. H. G.—Dresden.—J. G. Lemmon, Oakland, California.—J. W. R. & Co.

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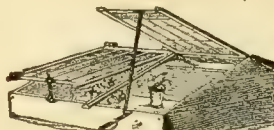
6 ft. by 3 ft. ... £2 0 0	6 ft. by 4 ft. ... £2 5 0
12 ft. by 3 ft. ... 3 2 0	12 ft. by 4 ft. ... 3 15 0

No. 73.

NEW SPAN-ROOF GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 14 0
8 ft. by 6 ft. ... 4 4 0	16 ft. by 6 ft. ... 7 4 0



No. 74.

THREE-QUARTER SPAN GARDEN FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 17 0
8 ft. by 6 ft. ... 4 5 6	16 ft. by 6 ft. ... 7 8 6

No. 75.

MELON AND CUCUMBER FRAME.

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 0 0	12 ft. by 6 ft. ... £4 3 0
8 ft. by 6 ft. ... 3 0 0	16 ft. by 6 ft. ... 5 6 0

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UNGLAZED LIGHTS ... 5s. 6d. each.
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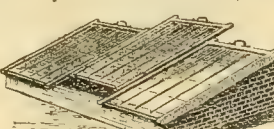
12 ft. by 5 ft. ... £5 0 0	12 ft. by 6 ft. ... £6 0 0
24 ft. by 5 ft. ... £9 0 0	24 ft. by 6 ft. ... £11 0 0

No. 72.

THREE-QUARTER SPAN-ROOF FORCING FRAME.

CASH PRICES. CARRIAGE PAID.

10 ft. by 6 ft. ... £5 0 0	10 ft. by 7 ft. ... £3 0 0
20 ft. by 6 ft. ... £8 10 0	20 ft. by 7 ft. ... £10 0 0



No. 76.

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CASH PRICES. CARRIAGE PAID.

12 ft. by 6 ft. ... £3 11 0	12 ft. by 7 ft. 6 in. ... £4 4 0
20 ft. by 6 ft. ... £5 13 0	20 ft. by 7 ft. 6 in. ... £6 12 0

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15, VICTORIA STREET, WESTMINSTER, S.W.; and BACHELOR'S WALK, DUBLIN.—Discount for Cash.

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BROWN FIBROUS PEAT FOR AZALEAS, RHODODENDRONS, &c., 4s. per sack; 5 for 18s.

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THE FORESTER, Joyden Wood, near Bexley, KENT

ORCHID PEAT, best quality; **BROWN FIBROUS PEAT** for Stove and Greenhouse use. **RHODODENDRON** and **AZALEA PEAT**. Samples and Prices to

WALKER AND CO., Farnborough, Hants.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and **LEAF-MOULD**, 1s. per bushel.

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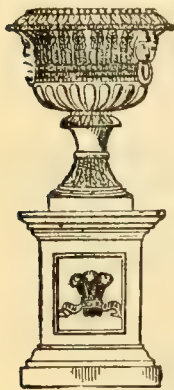
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The GARDENERS' CHRONICLE

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"The Gardeners' Chronicle" in America. The Subscription to America, including Postage, is \$4.30 for 12 months. Agent for America, E. H. LIBBY, Manager, The Rural Publishing Co., Times Building, New York, to whom American orders may be sent.

NOTICE.—The AMERICAN PLANTS at KNAP HILL are NOW IN BLOOM, and may be seen daily, Sundays excepted. The RHODODENDRONS and AZALEAS in Rotten Row are from—ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

ORCHIDS.—Clean healthy plants at low prices. Inspection invited. Kindly send for CATALOGUE. JAMES CYPHER, Exotic Nurseries, Cheltenham.

VIOLAS (TUFTED PANSIES), resemble "a spray of Western Pine," in having a beauty and a fragrance all their own. Sample dozen of fine plants, in 12 splendid varieties, post free, 2s. 6d. DOBBIE AND CO., Seed Growers and Florists, Rothsay, Scotland.

PRIMULAS—PRIMULAS—PRIMULAS.—Twenty-first year of distribution. Williams' Superb Strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, same price; also double white PRIMULAS, 6d. each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

THE BEST PRIMULA.—CARTERS' HOLBORN PRIZE MIXED—vide Awards. New Seed. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post free. 237 and 238, High Holborn, London, W.C.

THE BEST CINERARIA.—CARTERS' BRILLIANT PRIZE MIXED—vide Awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post free. 237 and 238, High Holborn, London, W.C.

THE BEST CALCEOLARIA.—CARTERS' VICTORIA PRIZE MIXED—vide Awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post free. 237 and 238, High Holborn, London, W.C.

Trade Offer of Large Kentias and Cocos.

W. ICETON begs to offer some extra fine W. BELMORIANA, FOSTERIANA, MOOREANA, and RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 15 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on Application. Inspection invited. Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

PINES, PINES.—FOR IMMEDIATE DISPOSAL, owing to the owner's decease, a choice collection of plants in the various stages of cultivation. Best kinds. All clean and healthy. The whole or part cheap. Also splendid large pots of healthy EUCHARIS AMAZONICA, that have never had the mite.—Apply to HEAD GARDENER, Madresfield Court, Malvern.

CHOICE FRUIT—CHOICE FRUIT. Highest Market Prices guaranteed. Prompt cash. Address—HENRY RIDES, Centre Avenue, late 38, Hart Street, Covent Garden, W.C.

The Best Present for a Gardener.

VINES AND VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published. New Edition. Price 5s., post-free 5s. 6d. A. F. BARRON, Royal Horticultural Society, Chiswick.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.

BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.

BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting.

DESCRIPTIVE CATALOGUE free on application. BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

B. S. WILLIAMS AND SON have POSTED their NEW PLANT CATALOGUE for 1891 to all their customers. A copy will be forwarded gratis and post free on application to any who may not have received one. Victoria and Paradise Nurseries, Upper Holloway, London, N.

1,000,000 PLANTS to offer:—Veitch's Autumn Giant, Early London Cauliflower, Dalkeith Brussels, &c., &c. Cheap. Send for LIST. W. HORNE, Perry Hill, Cliffe, near Rochester, Kent.

50,000 Lobelia, Emperor William, warranted true from Cuttings.

JOHN SOLOMON offers the above in thorough good stuff, at 2s. 6d. per 100; 20s. per 1000; for Cash with order, package included. Queen's Road Nursery, Walthamstow, E.

J. W. BARNHAM Receives on Commission, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found. Long Market, Covent Garden, W.C.

WANTED.—NARCISSUS, DOUBLE VAN SION (Telemonius plenius), strong flowering bulbs; and 2nd size, for planting in large quantity. WILLIAM DENMAN, 7, Catherine Street, Covent Garden, London, W.C.

Sow in June.

SUTTON'S PRIZE GLOXINIA. A superb strain, producing flowers with unusual freedom; brilliant, varied, and rich in colour. Mr. R. Hubbard, Gardener to James Innes, Esq., says:—"The Gloxinias grown from your seed have been magnificent, the flowers measuring 3½ and 4 inches across, and 30 to 40 blooms on a plant. Your strain is unsurpassed." Price of seed, mixed colours, 5s. and 2s. 6d. per packet, post free. SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, the Queen's Seedsmen, READING.

Exhibition Lawn Grass.

DICKSON AND ROBINSON offer their Superb Mixture of

DWARF EVERGREEN LAWN GRASS SEED,

Of the same quality as that supplied by them for the Grounds of the Royal Jubilee Exhibition, Manchester.

Per lb., 1s., post-free, 1s. 3d.; per cwt., 100s. Carriage Paid.

Seed Warehouse, 12, Old Millgate, Manchester.

Nurserymen by Appointment to the London School BOARD.

JOHN PEED AND SONS offer CUPRESSUS LAWSONII, in cane baskets, from 5 to 8 feet high; grand plants, suitable for furnishing. ARAUCARIA EXCELSA, from 3 to 6 feet high, furnished to pot.

Roupeil Park Nurseries, Norwood Road, S.E.; also at Mitcham Road, Streatham, S.W.

Verbenas—Verbenas—Lobelias.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Pink VERBENAS, well-rooted cuttings, hardened off fit for potting, 6s. per 100, 50s. per 1000. LOBELIAS, Brighton Bluestone, Emperor William, and Snowball, all true from cuttings, 3s. per 100, 21s. per 1000. Packing included. Terms cash. Cemetery Nursery, Gravesend.

Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to give Special quotations for their fine selected Stocks of Home-grown TURNIP and MANGEL WURZEL SEEDS of 1890 growth, and raised on their own farms from picked Bulbs. The quality is fine, and the prices will be found exceptionally low. Seed Growing Establishment, Wisbech.

TROPEOLUM SPECIOSUM, the well-known hardy Scarlet Climber; strong plants, 9s. per doz., 5s. per half-doz., 1s. each, free by post. HOWDEN AND CO., Inverness.

GRAPE VINES for present planting, healthy young stuff, 5s. p. doz., 35s. p. 100. Sorts on application. WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

OUR CATALOGUE of GERANIUMS, DAHLIAS, CANNAS, &c., is Now Ready, and will be sent free on application. REID AND BORNEMANN, The Nurseries, Trewsbury Road, Sydenham, London, S.E.

Special Offer to the Trade Only.

MARGUERITES, CALCEOLARIAS, and RHODANTHES.—Very fine stuff, specially grown for Window-Boxing and Furnishing. The Plants are very strong and healthy, and price is low. Inspection invited. H. TITE, Florist, Hampton, Middlesex; and at Flower Market, Covent Garden, W.C.

LAINGS' DAHLIAS are extra fine this season. Very large stock. Descriptive CATALOGUE post-free. JOHN LAING AND SONS, Nurserymen, Seedsmen, and Florists, Forest Hill, S.E.

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the manufacturers.—CHADBORN AND COLDWELL, M.F.G. Co., 233, Upper Thames Street, London, E.C.

See large Advertisement for April 25, page 544.

SALES BY AUCTION.

Thursday, June 18.

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE OF ORCHIDS in FLOWER and BUD, will take place, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 18, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of ENTERING LOTS for THIS SALE will please send LISTS NOT LATER than THURSDAY NEXT.

Tuesday Next.
CATTLEYA MOSSIE.
CATTLEYA MENDELII.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Hugh Low & Co., of Upper Clapton, to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, June 9, at half-past 12 o'clock, a fine importation of CATTLEYA MOSSIE, just received in best possible condition. The plants offered are well furnished with fresh green leaves, and, judging from the distinct appearance of many of the bulbs, good things may reasonably be expected of this importation. At the same time will be offered, ANGRECUM SESQUIPEDALE, CATTLEYA MENDELII, newly imported plants; CYPRIPEDIUM VOLONTARIUM, DENDROBIUM WARDIANUM LOWII, ONCIDIUM CRISPUM and MARSHALLIANUM, VANDA CERULEA, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday Next.

IMPORTATIONS RECEIVED DIRECT.

100 CATTLEYA SANDERIANA.
100 DENDROBIUM SEMIFLORUM, NOBILE, and FIMBRIATUM OCULATUM.
200 DENDROBIUM MACARTHIE, and 100 D. CRUMINATUM; also
150 Established Plants of LÆLIA PURPURATA.

The whole for Sale without the least reserve.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, on TUESDAY NEXT, June 9.

On view morning of Sale, and Catalogues had.

Friday Next.

Stifford, near Grays. Two miles from Grays Station. Clearance Sale of GREENHOUSE, STOVE, and BEDDING PLANTS, by order of Mrs. M. Wagstaff, in consequence of the Lease of the Premises expiring at Michelmas next.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Copped Hall, Stifford, near Grays, Essex, on FRIDAY NEXT, June 12, at 12 o'clock precisely, the whole of the well-grown STOVE and GREENHOUSE PLANTS, in great variety; 200 CHRYSANTHEMUMS, AZALEAS, and CAMELLIAS, 2 to 4 feet; 6000 BEDDING PLANTS, including a fine lot of Geraniums, Ferns, Foliage and Decorative Plants, &c.

May be viewed two days prior to the Sale. Catalogues had on the Premises; at the Essex Times Office, Romford; and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone.

Friday Next.

CATTLEYA AUREA.
ODONTOGLOSSUM RAMOSISSIMUM.
KEFERSTEMIA GRAMMIFOLIA.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Charlesworth, Shuttleworth & Co., Heaton Bradford, and 213, Park Road, Clapham, London, S.W., to OFFER by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 12, at half-past 12 o'clock, a large and varied assortment of newly imported ORCHIDS, suit to hand, in splendid condition, and consisting of the rare ODONTOGLOSSUM RAMOSISSIMUM. These are a very fine lot, and can be recommended with every confidence.

CATTLEYA AUREA, a small but healthy consignment; the plants were collected from the same locality whence came the beautiful Cattleya Mossiana, Hardyana, Marmorata, and others. Every plant offered is well leaved, and furnished with dormant eyes.

CATTLEYA SCHOFIELDIANA, a very beautiful-coloured Cattleya. All the plants offered are in specially fine condition, and perfectly dormant.

(KEFERSTEMIA) ZYGOPETALUM GRAMMIFOLIUM, a very pretty dwarf species, growing on stem of Lomaria. Flowers deep green, chestnut-coloured, and white. Figured in Botanical Magazine, t. 5048, under the name of Keferstemia grammifolia. The plants are in good condition, the Lomaria Fern just beginning to grow.

ONCIDIUM MARSHALLIANUM.

CATTLEYA SCHILLERIANA.

ONCIDIUM SARCODES, suit to hand in excellent condition, well-leaved, and perfectly dormant. These are a very fine lot, and the best ever offered by Auction.

C. HARRISONI, a grand importation, amongst which are some very fine pieces.

LÆLIA DAYANA.

The Sale will also include some extra large and fine exhibition plants of ONCIDIUM CRISPUM, recently imported; RENANTHERA COCCINEA, in fine condition; ONCIDIUM PULVINATUM, CATTLEYA LOBATA, LÆLIA HARPOPHYLLA, the new and beautiful L. GRANDIS, IONOPSIS PANICULATA, CATTLEYA WARNERI, MILTONIA CANDIDA GRANDIFLORA, ODONTOGLOSSUM VEXILLARIUM, large and dark flowering type, &c.

On view morning of Sale, and Catalogues had.

Preliminary Notice.

Mr. J. D. Osmer has just arrived from the Dutch West Indies with a splendid collection of VANDAS, CYPRIPEDIUMS, and CYMBIDIUMS, probably new varieties, collected in an entirely new district. Also a fine lot of CYOAS CIRCINALIS, in splendid condition. Nepenthes species.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above at an EARLY DATE, which will be announced in next week's paper.

Blackheath Park.

CLEARANCE SALE.

Highly important Sale of the celebrated Gordon House Collection of Exhibition STOVE and GREENHOUSE PLANTS and ORCHIDS, for Unreserved Sale, by order of T. W. Prior, Esq., who is giving up his residence.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Gordon House, Blackheath Park, close to Blackheath Railway Station, on WEDNESDAY and THURSDAY, June 10 and 11, at 1 o'clock precisely each day, without Reserve, the celebrated Collection of Exhibition STOVE and GREENHOUSE PLANTS, comprising magnificent Specimen Anthuriums, splendid examples of Crotons, beautifully coloured; a fine collection of Cape Heaths and Nepenthes, grand specimen Ferns, large Rhododendrons, Cycas revoluta and undulata, Ixoras, Dracenas, Palms, Eucharis, Camellias, and Azaleas; four large Lappagerias, including the Nash Court variety; 550 well-grown ORCHIDS, amongst them 200 Odontoglossum Alexandræ, Cattleya Mendelii, Mossie, and Percivaliana; Cypripediums, Dendrobium Wardianum, Lælia purpurata; 1,000 Bedding Geraniums, 2000 Lob-las, and other plants.

May be viewed two days prior to the Sale. Catalogues may be had of the Head Gardener, on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—The Auctioneers desire to call special attention to this important Sale. The Collection is well known at the principal Metropolitan and Provincial Shows, where the plants have been awarded numerous prizes, and only at the Aquarium Show a few days since two First-class prizes were obtained.

Bath.

IMPORTANT UNRESERVED SALE of the choice and exceedingly well-grown collection of ESTABLISHED ORCHIDS, STOVE and GREENHOUSE PLANTS, and GLASS ERECTIONS, by order of Mrs. Studd, who is compelled to give up their cultivation, in consequence of relinquishing the gardens.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at the Assembly Rooms, Bennett Street, Bath (where the Orchids will be removed for convenience of Sale), on TUESDAY and WEDNESDAY, June 16 and 17, at half-past 12 o'clock each day, the choice collection of ESTABLISHED ORCHIDS, including, amongst many others, the following:—

Odontoglossum Alexandræ in variety	Lycaste Skinneri alba
" triumphans, specially fine variety	Cymbidium Lowianum
" Pescatorei, fine variety	Masdevallia Veitchi grandiflora
" Uro Skinneri	" varieties
" Roezli	Cattleya Mossie varieties
Sobralia macranthe rosea	" Warocqueana
Dendrobium nobile Cooksoni	" Dowiana
" Leechianum	" Schilleriana Regnelli
" nobile Cypheri	" Wagneri
" album	" Trianae superba
" Statterianum	" Percivaliana
" MacFarlanei (rare)	Cypripedium Dayanum
" Ainsworthi	" Roezli
" splendissimum grandiflorum	" grande
" atro violaceum (rare)	" Rothschildianum
Lælia anceps Stella	" Lecanum
" Weddelliana	" Veitchianum
" alba	" insignis Maulei
" purpurata giganteum	" Lathamianum
" elegans	Phaius tuberosus
	Aërides Lawrenceana
	Spathoglottis Kimballiana

Also a quantity of

STOVE and GREENHOUSE PLANTS in variety.

Six fine KENTIAS and other PALMS.

The erections of THREE GREENHOUSES.

4-inch HOT-WATER PIPING, GALVANISED TANKS, &c. The Plants will be on view at the Assembly Rooms on the morning of each day's Sale, and the Greenhouses, by permission, three days prior to the Auction. Catalogues may be obtained at the Assembly Rooms, Bath, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Freehold Building Sites, either for Horticultural purposes, or for the erection of Villa residences, at Twickenham.

MR. J. N. GOATLY is favoured with instructions to SELL by AUCTION, at the "King's Head" Hotel, Twickenham, on MONDAY, June 8, at 6 for 7 o'clock in the evening, a very valuable enclosure of FREEHOLD BUILDING LAND, situate in the Hampton Road, Twickenham, between Arundel Villas and Box Cottage, and having a frontage to the said road of about 70 feet, and a depth of 230 feet, and being the only freehold site on the main road that is now available for building purposes. Also an enclosure of COPYHOLD LAND, immediately in the rear and adjoining the above, having a frontage to the Third Cross Road of 56 feet, and a depth of about 180 feet. The property is only 5 minutes' walk from Strawberry Hill Railway Station; which has become a most popular and attractive neighbourhood.

May be viewed, and particulars and conditions of Sale obtained at the place of Sale, and of the Auctioneer, Twickenham, Middlesex.

WANTED TO RENT, Small NURSERY; or 1 or 2 Acres of LAND suitable; if Cottage and Greenhouses on preferred. No stock.

J. R., 13, Montrose Terrace, Hornsey Park Road, N.

TO BE SOLD, a NURSERY, with extensive Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, easy of access per rail; with commodious Dwelling-house. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

Hampton-on-Thames.

TO FLORISTS, NURSERYMEN, and OTHERS.

FOR SALE, with Possession, 3 Acres of FREEHOLD ORCHARD LAND; also a large quantity of LAND, suitable for Glass, from £200 per acre, according to position and quantity.

For terms and order to view, apply to Mr. J. GUMBLETON, Suffolk House, Hampton Hill, Middlesex.

FREEHOLD NURSERY, Sudbury, near

Willesden.—Newly erected brick and glass house, about 100 feet long, well heated; potting-house, and numerous pits and lights. The whole, in good condition, TO BE SOLD CHEAP, owing to the sudden death of the proprietor—Price £325; part of the Purchase Money can be paid by instalments if required.—Apply W. PRICE, 157, Brecknock Road, N.

FOR SALE, a NURSERY, SEED and FLORIST BUSINESS, 4 miles from the City of Birmingham. Stock and Greenhouse at valuation. Ill-health cause of giving up.

J. BICK, Bickenhill Park Nursery, Acock's Green.

Dick Radcliffe, Limited, of High Holborn, W.C.

IN LIQUIDATION.

THE LIQUIDATOR is prepared to TREAT for the SALE of the above Old-established BUSINESS as a Going Concern. Capital opportunity is now offered for any one wishing to extend their business in this particular branch, as the name is well known for Decorations, Horticultural Buildings, Ferneries, &c.

Further particulars can be obtained of Messrs. PERCY MASON AND CO., Chartered Accountants, 29 and 30, King Street, Cheapside, London, E.C.

June 1, 191.

Rivers' Fruit Trees in Pots, &c.

FOR SALE, by PRIVATE CONTRACT, at Spencer House, Cobham, Surrey, a Choice Collection of these Trees. Also an ORCHARD HOUSE, built on Rivers' instructions. Sold because of expiry of Lease. A very low price will be taken for the lot.

Apply to THE GARDENER, upon the Premises.

TO LET or SELL.—The old-established NURSERY GARDEN, known as Leam Nursery, Leam Terrace, East Leamington; comprising large Glasshouses, with excellent Vines, &c., and a good collection of Fruit trees in full bearing. The Nursery has been in present hands 40 years. Apply, M. M., Ashlands, Leamington.

To Florists, Gardeners, and Others.

TO BE LET.—A piece of GROUND, nearly 1 acre in extent, with Pits, Greenhouse, Vinery, &c., on a main thoroughfare, in a North-west suburb of London, close to two railway stations, and almost adjoining a newly-opened Public Park, together with slip of LAND on other side of road, on which Show-House could be erected if desired.

Address, VACANT, Messrs. Brown, Gould & Co., 54, New Oxford Street, W.C.

NORTH LANCASHIRE.—To Let, on Lease, Immediate Possession; practically new; old-fashioned, substantial, commodious HOUSE: three Sitting-Rooms, seven Bed-rooms, Stable, Coach-house, Loft, Cottage, good Garden, small Glass-houses, Vinery in full bearing, and Field; near Church, Station, and Post; Country, healthy and beautiful. Might suit any person retiring from the trade. Opportunity to Let Rooms.—Address, Homestead, Melling, Carnforth.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

GARDEN.

For whatever is wanted, mentioned or not in these columns, please to write immediately to H. CANNELL AND SONS, whose Seed and Nursery Stock is very complete and extensive, and where nearly everything for the Garden is grown and supplied in large quantities, in the finest possible condition, at the lowest prices, consistent with correctness and superior character. Send for CATALOGUES.

SWANLEY, KENT.

250,000 LOBELIA—LOBELIA. In all the leading varieties, 2s. 6d. per 100; 21s. per 1000.

HARRISON'S MUSK, 1s. per doz.; 7s. per 100.

VIOLAS, in good varieties, or separate colours, 1s. 6d. per doz.; 10s. per 100; 80s. per 1000.

ANTENNARIA TOMENTOSA, 1s. 3d. per doz.; 8s. per 100; 70s. per 1000.

TOMATOS, in leading variety, 1s. 3d. per doz.; 8s. per 100. ANEMONES, Hon. Joubert Japonica Alba, 2s. per doz.; 12s. per 100.

The above are all good well-rooted plants, and will be sent free to destination for Cash with Order only, by—

FLETCHER, SON, AND CO., Florists, &c., Chesterfield.

Please mention Gardeners' Chronicle.

Caladiums a Specialty.

LAINGS' COLLECTION is quite unrivalled. Inspection cordially invited. Descriptive CATALOGUE post-free on application. Catford Bridge Railway Station.

JOHN LAING AND SONS, Caladium Growers, &c., Forest Hill, London, S.E.

ORCHIDS A SPECIALTY.—ODONTOGLOSSUM VEXILLARIUM, very fine plants, all with flower-spikes, 5s., 7s. 6d., and 10s. 6d. Please write for New PRICE LIST.

W. L. LEWIS AND CO., F.R.H.S., Chase Side, Southgate, London, N. Nursery, Orchard Road.

EXHIBITIONS.

ROYAL BOTANIC SOCIETY,
Gardens, Regent's Park, N.W.
SECOND SUMMER EXHIBITION OF PLANTS, FLOWERS,
and FRUIT, WEDNESDAY, June 17. Gates open at 2 o'clock.
Two Military Bands will play from 2 to 7 o'clock.
Tickets to be obtained at the Gardens only, by vouchers
from Fellows of the Society, price 8s. each; or, on the day of
exhibition, 7s. 6d. each.

RICHMOND HORTICULTURAL SOCIETY.
The SUMMER SHOW will be held in the Old Deer Park,
Richmond, Surrey, on WEDNESDAY, June 24, 1891.
THREE HUNDRED POUNDS offered in PRIZES.
For Schedules, and all particulars, apply to
22, George Street, Richmond. J. H. FORD, Hon. Sec.,

SHROPSHIRE HORTICULTURAL SOCIETY
1891.

CASH PRIZES OFFERED, OPEN TO ALL
£ 6 4 0.

Schedules may be obtained from the Hon. Secs.,
Messrs. ADNITT & NAUNTON,
The Square, Shrewsbury.

SCHEDULES OF SHOWS not yet to hand,
will be esteemed.
M. SMOUT, 4, Quarry Crescent, Hastings.

THE
"GAIR" COLLECTION
OF
ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.
(JOHN COWAN), Limited,

HAVE JUST PURCHASED
The Large and Fine Collection of
ORCHIDS,
Formed by the late JOHN GAIR, Esq., of
THE KILNS, FALKIRK, N.B.

And the Company have arranged for the removal of the Col-
lection to their Nurseries at Garston by Special Train.
The entire Collection will Shortly be offered for Sale.
Descriptive and priced Catalogues will be prepared, and
sent post-free on application to the Co.,

THE VINEYARD & NURSERIES,
GARSTON, near LIVERPOOL.

Trade Offer.
W. ICETON begs to offer the following
PALMS:—

Strong ARECA LUTESCENS, in 60's, at 60s. per 100;
" COCOS WEDDELLIANA, in thumbs, at 32s. and 50s.;
" SEAFORTHIA ELEGANS, in thumbs, 20s. and 30s.;
" KENTIAS, BELMOREANA and FOSTERIANA, in
thumbs, 40s. and 75s.
" SEEDLINGS in Stores, at 30s. per 100.
ASPARAGUS, P. NANA, strong, in thumbs, at 60s. per 100.
Extra fine PANDANUS VEITCHII, in all Sizes.
Putney Park Lane, S.W.

WHITE ROMAN HYACINTHS.
BENJAMIN RIMBAUD,
BULB GROWER,

Quartier du Temple, Toulon (Var), France
(The largest Bulb Grower in the South of France).

Offers—
EARLY WHITE ROMAN HYACINTHS.
PAPER-WHITE NARCISSUS GRANDIFLORA and other
NARCISSUS.
LILIAM CANDIDUM. FREESIA REFRACTA ALBA.
And all other Specialties of South of France.

Seeds and Plants of
CARNATIONS MARGARITÆ and other CARNATIONS.
PRICE LIST on application to the
LONDON AGENTS:—

Messrs. R. SILBERRAD & SON,
25, Savage Gardens, Crutched Friars, London, E.C.

TRADE OFFERS OF PALMS. — Areca
lutescens, in 39's, 4s. and 5s. each; in 48's, 2s. 6d. and 3s.
each; large, 60's, 9s. per doz., 70s. per 100. Latania borbonica,
in 24's, 8s. 6d. each; 32's, 4s., 5s., and 6s. each; 48's, 2s. 6d.
each. Seaforthia elegans, 32's, 3s. each. Ficus elastica, in
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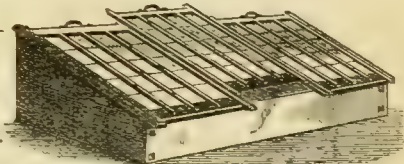
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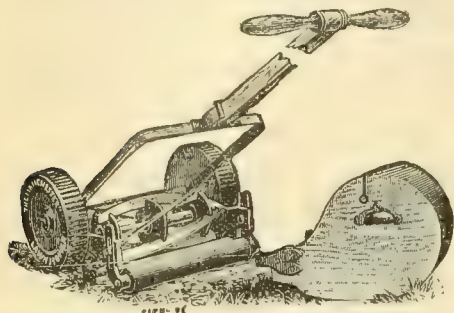
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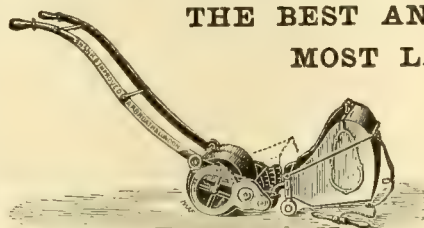
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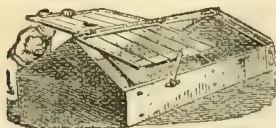
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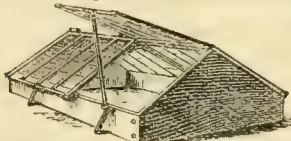
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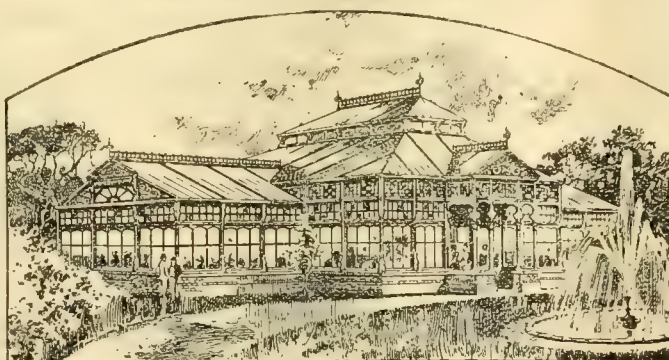
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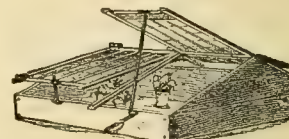
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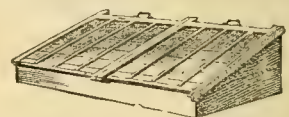
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 6, 1891.

KEW, AND ITS WORK.

WHEN, in 1841, Sir William Hooker undertook the direction of the Royal Gardens, Kew, that foreseeing botanist laid down a triple course of action. Kew was to be the botanical centre of the empire in a threefold capacity, as a great scientific institution, the head-quarters of economic botany, and as a pleasure-ground for the public; each department was to be made as perfect in itself as possible, each was to co-operate with the others for the common benefit. How successfully the idea has been carried out by successive directors is known to all our readers. Kew as a scientific institution is absolutely indispensable, and is the acknowledged head of all similar bodies at home or abroad. In the "gardens," where "collection" was once the dominant aim, selection now prevails. The best and the most suitable plants for particular purposes are grown in masses, so that their qualifications can be better be estimated, while each individual is so cultivated as to display to the fullest advantage its botanical and ornamental characters. Of course, whilst demonstrations (we use the word in its educational sense) of this character are given for the benefit of the gardener and the delectation of the public, the equally—or, so far as Kew is concerned—the much more important functions of experimental cultivation, are not neglected. This may not be very attractive to the casual visitor, but it is of the utmost importance to botany and horticulture, and, of course, it furnishes the basis for those more decorative "demonstrations" of which mention has been made. While a certain amount of mere decorative gardening, according to conventional pattern, cannot be dispensed with in a great pleasure resort like Kew, competition with ordinary gardens and parks in these respects is hardly to be desired. We look to Kew to set the fashion, not to follow it. We depend on it to furnish us with new materials, new illustrations, new developments, new combinations. The educational and instructional element should, without being offensively obtrusive, permeate the whole garden, so that the visitor, delighted with what he sees before him, may, at the same time, and it may be imperceptibly, receive impressions which will serve to expand and refine his taste, and augment his intelligence in the future.

But in addition to the purely scientific and æsthetic functions which this great garden performs, Kew is the centre of economic botany. The phraseology is somewhat pedantic, but we do not know how to mend it, for the term "applied botany" is hardly more familiar. A

visit to either of the Kew museums (there are three), shows, however, at a glance, what is meant, and is calculated to conciliate any grumblers who might be disposed to grumble at the expenditure of public moneys for purposes they do not appreciate. These museums furnish the best available concrete reply to the question, which even in these days of scientific progress and its resultant advantage, some people still put "*Cui bono?*" "What is the use?" From the very first the energies of directors and curators have been turned strongly in this direction, museums have been formed, libraries accumulated, and floras written at Kew expressly with this object. The residents in the colonies have been furnished not only with information as to the plants to be grown with the greatest advantage commercially, but with the plants themselves. We need not do more than incidentally mention the great part that Kew has taken in the diffusion of such plants as Cinchona, Coffee, Caoutchouc, and many others. Who can estimate the value of the labours which have been so quietly carried on in those quiet-looking propagating houses at Kew for the last half century?

The recent visit of the Assistant-Director, Mr. Morris, to the West Indies, affords another illustration of the great advances that Kew is making in the matter of economic botany. In order to develop agriculture, and foster economic botany in the colonies, especially in those which have fallen upon evil times from fiscal and other causes, or in those where everything has to be done from the beginning, botanic stations have been founded to develop the resources of the country and introduce new ones. These establishments are under the direction of botanists and gardeners, and in direct relation to Kew.

The objects of Mr. Morris's recent visit to the West Indies are given in full in the number of the *Kew Bulletin*, just issued. Mr. Morris therein tells how he took out with him a number of Gambier plants, and incidentally mentions the advantages that accrued to the plants in the Wardean cases from exposure to the electric light, thus illustrating a point on which we have long laid stress, viz., the application of the electric light to horticulture. Mr. Morris's visit and lectures have been fully successful, having, as we have reasons to know from our own correspondence, gained the approbation of the Governors of the several colonies visited and of the persons most concerned.

Briefly, the objects of Mr. Morris's visit were to visit and report upon the botanical stations established, or about to be established, in the Windward and Leeward Islands; to give suggestions and information in regard to the development of cultural industries; to visit the collectors engaged by the West Indies (Natural History) Exploration Committee, and advance the work of investigating the flora and fauna of the Lesser Antilles.

Since his return, Mr. Morris has, as we have already recorded, given an address before the Royal Colonial Institute, comprising a general account of the physical features and productions of the island, and illustrated with a remarkable series of views. At the last meeting of the Horticultural Club, Mr. Morris also favoured the members with an account of his proceedings, and such was the interest felt, that the club room was all too small for the purpose, and an adjournment had to be made to the library of the Royal Horticultural Society. From this lecture we extract the following particulars, giving also an illustration, taken from one of

Mr. Morris's photographs, of the charming little Palm, discovered by him on the island of Anguilla, and which, we believe, Mr. Wendland proposes to describe as a new species of *Thrinax*, under the denomination *Thrinax Morrisii*, see fig. 134. Flowers of this newly-discovered fan Palm, with fuller material for botanic analysis, will soon be forthcoming, as well as seeds, which will render this plant available for horticultural purposes. When fully developed, it is only 3 feet in height.

The West Indian Islands resemble "stepping stones for giants scattered over the Caribbean Sea." They are for the most part the tops of submerged mountains heaped up by fire. In point of scenery and displays of tropical vegetation, they are among the most beautiful portions of the British Empire. Discovered by Columbus just 400 years ago, they have cost this country many a hard fought battle by sea and land, and at one time they produced nearly all the sugar required for the world's consumption. When slavery was abolished their prosperity declined, and latterly they have been much depressed. Their inherent fertility and their advantageous geographical



FIG. 134.—*THRINAX MORRISII*.

position are, however, bringing them renewed prosperity, and before long they will probably be as noted for their fruit, spices, and other products as formerly they were renowned for their sugar. From a purely botanical point of view, the volcanic islands with elevated lands covered with virgin forests are the most interesting. The littoral or seashore plants would be the first met with. They consisted of the poisonous Manchioneel, the Seaside Grape (*Coccoloba*), the Coco Plum, and the naturalised Cocoa Nut. Trailing on the ground may be found the Goat's-foot *Convolvulus* (*Ipomoea*) and the Seaside Bean (*Dilochos Lablab*). In swampy places are the Mangrove trees, sometimes with oysters on their stems; the majestic Swamp Fern, *Acrostichum aureum*, and numerous sedges and grasses. Where rocky cliffs overhang the sea, may be seen species of *Clusia* and *Plumieria*, the ubiquitous *Kerato* or native *Agave*, several *Tillandsias*, *Pitcairneas*, and numerous Cacti. In some places there are twining stems of *Cereus triangularis*, and in others the globular or truncate masses of the Turk's-head Cactus (*Melocactus communis*). In less rocky, but equally dry places, several species of *Acacias*, *Logwood*, *Tamarind*, *Calabash*, *Euphorbiads*, and weedy-looking *Crotons* occur. Going inland, and especially in following one of the many

valleys or ravines reaching into the heart of the coast ranges, the vegetation becomes richer, greener, and more varied. There are tall trees, with numerous Ferns, *Begoniads*, climbing shrubs, and *Aroids*. In the rich lowlands, nearly everywhere, the indigenous vegetation has been cleared to give place for sugar plantations. Where these have been abandoned, the vegetation often consists of introduced weeds, and assumes a scrubby character. The true luxuriance of tropical vegetation is now seen to the best advantage in the mountains of Jamaica and Dominica, in the high woods of Trinidad, or the deep and rugged gorges of St. Lucia. Here are majestic trees with huge slab-like buttresses, their branches literally clothed with climbing *Aroids*, wild Pines, Orchids, and festooned with bright flowered creepers. On the highest slopes Tree Ferns spread their feathery fronds, and the banks are softly clothed with masses of *Filices* of all shades of green. The broad-leaved *Heliconias*, or wild Bananas, cover moist slopes, or fringe the banks of pools and streams.

Where there are so many conditions favourable to the growth of plants, the task of the cultivator is to repress rather than urge. He has to fight against tropical weeds with a persistency which his northern brother could scarcely realise. Gardening in the tropics is stove cultivation in the open air. Heavy downpours of rain and the fierce rays of the sun have to be equally borne, and hence shrubs and trees were more in favour than herbaceous plants. Indeed delicate plants required the shelter of trees and rocks, and they seldom flourished anywhere unless they were beyond the reach of the fierce play of the elements.

The chief horticultural work in the West Indies at present is associated with the Government Botanical Gardens. There are few, if any, horticultural establishments in private hands. In the neighbourhood of all the large towns every house, however, has a garden. Palms, Tree Ferns, very showy *Crotons*, Orchids, bright-flowering trees and shrubs, are grown according to the fancy of the owner. In the verandahs are numerous Ferns in pots, variegated-leaved *Alocasias*, small Palms, and numerous creepers. Every European seeks to grow Roses, with more or less success. The two best Roses for the tropics are *Maréchal Niel* and *La France*. These delight in hot situations, and are in flower nearly all the year round. At Barbados the *Crotons* are not merely bushes, they develop into trees with the most gorgeous colours. Orchids are mounted on blocks, and hung under the branches of Fig or Mango trees, or attached to the trees themselves. Some private collections of Orchids at Jamaica and Trinidad are of considerable interest and value. During the last twelve years the Botanical Gardens in the West Indies have been greatly extended. Every important island now possesses a garden which is the centre of horticultural work, and performing the functions of a school of practical horticulture. Flower shows are regularly held, and the taste for gardening is extending to all classes of the community.

We have said enough to show how well the superstructure at Kew is being raised on the foundation so truly laid fifty years ago by Sir William Hooker.

We are glad to be able to add the following official note of approval of Mr. Morris' labours:—

"Colonial Office, Downing Street,

"May 26, 1891.

"Sir,—Referring to the letter from this department of the 23rd ultimo, I am directed by Lord Knutsford to inform you that he has read with much interest Mr. Morris' report on his recent mission to the West Indies. Mr. Morris has carried out his mission with great energy and thoroughness, and if the Colonial authorities, to whom the report has now been transmitted, will carry out his suggestions, there is every prospect that the Botanical Stations in the Windward and Leeward Islands, will prove of the greatest possible use in promoting the development and prosperity of colonial industries.

"Lord Knutsford desires me to express his sense of the valuable services which Mr. Morris has rendered to the colonies, and to say that his lordship has observed with satisfaction, that these services have been appreciated both by the Colonial Governments and by the colonists generally.

"I am, Sir, your most obedient servant,
"EDWARD WINGFIELD."

NEW OR NOTEWORTHY PLANTS.

TRICHOCENTRUM TRIQUETRUM, Rolfe, n. sp.*

THE genus *Trichocentrum* naturally falls into two sections, one with flat and horizontal, the other with equitant and vertical leaves. The latter comprises two closely allied species, *T. iridifolia*, Lindl., and *T. plectrophora*, Rehb. f., natives of Guiana, which may be forms of one and the same, as Lindley, and also Focke, considered them, though Reichenbach took a different view. Another very distinct species has now appeared, having been introduced from Peru by Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, and of Clapham. It is larger altogether, both in leaf and flower, and has very different petals and lip. It has somewhat the habit of an Iris, or of *Maxillaria iridifolia*, and is about 6 inches high, the flowers being straw-coloured, and the lip variegated with dull orange. The triquetrous ovary strongly recalls *Angræcum Leonis*, though the broad petals and lip give the rest of the flower a very different appearance. The spur, which is composed of a basal extension of the lip, together with the adnate bases of the lateral sepals, is $1\frac{1}{2}$ inch long. It is a very interesting little species. *R. A. Rolfe.*

EULOPHIA NUDA, Lindl.

This is a rather common Indian Orchid, though very rarely seen in cultivation. The first evidence I have of its flowering in this country is a raceme sent to Kew by Mr. White, gardener to Sir Trevor Lawrence, Bart., M.P., for determination. The raceme is erect, and the flowers are medium-sized, and of two or three shades of rosy-lilac and paler colours, the lip being covered with numbers of verrucose keels. Judging by the series of Indian drawings, the range of colour is very great—from light green to deep rose. The racemes appear in advance of the leaves, and the coloured varieties are decidedly pretty, and probably easily cultivated. *R. A. R.*

ONCIDIUM UROPHYLLUM, Lindl.

This species seems to have been lost sight of for many years, but has now reappeared in the Kew collection. Lindley called it a charming species, with quite a peculiar habit, the leaves being shaped like a penknife, with the edge on the convex side, and with a drooping panicle, 4 feet long, of clear yellow flowers, with a few brown markings. It flowered in 1841 with Messrs. Loddiges, and was said to have been imported from Brazil. The country, I believe, is a mistake. The Kew plants were sent from Antigua, by Mr. A. Tillson, Superintendent of the Botanic Station there; and in the herbarium is a specimen collected in the same island by Dr. Bradford. This was referred to *O. Lemoinianum*, Lindl., by Grisebach, and both confused with *O. tetrapetalum*, Willd., which is decidedly different and has white and rosy-purple flowers. From *O. Lemoinianum*, which also grows in Antigua, the present species may be readily distinguished by its

* *Trichocentrum triquetrum*, n. sp.—Leaves vertical, equitant, 6 inches long, $\frac{1}{2}$ inch wide at base, gradually tapering to an acute apex. Peduncles axillary, about an inch long, with several conduplicate lanceolate-linear acute bracts, about $\frac{1}{2}$ inch long. Pedicel and ovary $1\frac{1}{2}$ inch long, triquetrous. Sepals ovate-lanceolate, acute, 9 lines long by $\frac{1}{2}$ wide, pale straw-coloured, the lateral ones prolonged behind and adnate to the spur of the lip. Petals suborbicular, 7 lines long by 8 broad, pale straw-coloured. Lip reniformly orbicular, 9 lines long by 14 wide, straw-coloured, irregularly variegated and almost suffused on the disc with dull orange, base with two converging keels about $2\frac{1}{2}$ lines long and the same distance apart, spur slender, $1\frac{1}{2}$ inch long, tapering to the acute apex; column stout, wing small and rounded. Native of Peru. *R. A. R.*

apiculate petals, as originally pointed out by Lindley. He might also have added the strongly triquetrous leaves, which are much more like those of *O. triquetrum*. I suspect Lindley's plant, which is figured in the *Botanical Register*, 1841, t. 54, really came from Antigua. *R. A. Rolfe.*

CRINUM ROOZENIANUM, n. sp.*

Specimens of a beautiful *Crinum* from Jamaica are included in the collection of Messrs. Ant. Roozen & Son, Overveen, Haarlem, Holland, and the same species has flowered with Sir Chas. W. Strickland, Bart., at Hildenley, Malton, Yorks, who is perhaps the best authority on garden *Crinums*, and with whom I have had the pleasure of conferring on these beautiful bulbs, which interested us in common for many years. From what I saw of my plant, and from material supplied, I came to the conclusion that it was, at least, as distinct a species as many others, to which specific rank is accorded, and I propose to name it as above. With regard to its distinctness, I cannot do better than quote from letters from Sir Chas. Strickland, who says: "It is nearer to *C. americanum* than to *C. erubescens*, but I think it is distinct enough to be considered a separate species. The growth is something like that of *C. erubescens*, it is true, but in the longer, more slender perianth tube, which is curved at the top, it more nearly resembles *C. purpurascens* than any other species that I know." The plant is certainly one of the most beautiful of the genus, and whether the difference comes in by evolution in an introduced species, as may be the case with *C. longiflorum*, also a Jamaica plant, or whether by the natural intercrossing of species, I cannot attempt to say. Even when not in flower, its fine arched foliage constitutes it a striking object. I note too, a difference from any form of like habit, which I have seen in the open cellular structure of all its parts, bulb, stem and leaf. *James O'Brien.*

ODONTOGLOSSUM ANDERSONIANUM, LE DOUX VAR., n. var.

Recent importations are giving us varieties of the plant generally known in gardens as *O. Andersonianum*, which depart from the narrow-petalled old type, and more nearly approach those of the spotted forms of *O. crispum*, and give flowers of far greater beauty. Such plant has just flowered with G. R. le Doux, Esq., at Langton House, East Molesey. Its petals and sepals are equal in width (over half an inch), and arranged flatly. The sepals are white, tinged with rose at the back, and heavily spotted with bright reddish-brown. The petals are white, with three red lines at the base, and a few small reddish spots; the lip is white, yellow at the base, and with a broad reddish patch in the centre. *J. O'B.*

PATSHULL, WOLVERHAMPTON.

THIS is well known in the midland counties as the Staffordshire home of the Earl of Dartmouth, and is easily reached by the Great Western Railway to Albrighton station; and from thence it was a pleasant drive through a purely agricultural district and cottagers' homes, thousands of Damsons and other trees being in full bloom just as the arctic Whitsuntide came, a period which will long be remembered for several hours of snow-storms, driving hail-storms, and intense cold. To the arboriculturist, Patshull is singularly rich in objects of interest, and in a well-thought-out plan of planting out the rarer kinds of Conifers and deciduous trees and shrubs, each plant being a specimen, and seen in its natural beauty. The pleasure-grounds are extensive, with broad,

* *Crinum Roozenianum*, n. sp.—Bulb 3 to 5 inches in diameter, furnished with a neck, from which proceed arching dark green, thick, cellular leaves, 2 to 3 feet in length and 3 to 4 inches in width, slightly notched at the edge. Peduncle 2 feet long. Flowers 4 to 12 in an umbel; pedicels very short. Perianth tube 6 to 8 inches, curved at the top, more slender than that of *C. erubescens*, red. Segments arching, white or bluish on the face, and rose red at the back and tip, 3 to 4 inches long, $\frac{1}{2}$ to $\frac{3}{4}$ inch wide. Filaments red, 3 inches long. *Hab.*, Jamaica. *J. O'B.*

well-kept walks, the grass kept short, and just sufficient pruning done to keep the trees and shrubs as they should be; and the present Earl takes pride in his trees and shrubs, and personally superintends the removal of any when deemed requisite. I shall not give a list of the rarer sorts, because that is not necessary; and any lover of our finer sorts of trees and shrubs will be readily granted an inspection, and a full collection of *Cratægus*, *Mespilus*, including *Pyrus*, *Betula*, *Fagus*, and anything of any note, can soon be found. I shall make only a passing allusion to the grand old forest trees which abound, and finer auld-lang-syne Scotch Firs, with their very large, long, massive boles.

The great feature of the pleasure-ground planting at Patshull, is to be found in the enormous quantities of specimen and bush Evergreens. Hollies abound everywhere, and all of the best varieties. *Araucarias* are very numerous, and very handsomely furnished trees are constantly met with; *Deodars*, of all heights, and beautifully furnished; *Abies nobilis*, and others in great beauty, *Abies Douglasii*, from 60 to 70 feet in height, *Abies cephalonica*, *Thuopsis borealis*, &c. It is impossible to enumerate them, for there seemed to be all the best species planted, and so well cared for after planting. I can only repeat that the pleasure grounds at Patshull would afford many a delightful hour to the student in search of our finest deciduous trees and shrubs.

It must, however, not be thought that the glories of Patshull end here. There is a very fine old walled-in kitchen garden, of 8 acres, a grand old garden, and "one of the olden times." The walls have a fine lot of trees upon them, many of them of considerable age; and a large number of veteran Apple, Pear, and other trees, planted out in the kitchen garden a great number of years since, are kept well in hand by summer pruning. They are in excellent condition, and were showing well for bloom.

There is a fair lot of glass here, and it is made the most of. A Peach-house, 300 feet long and 10 feet wide, contains a very heavy crop of fruit at present, and a Muscat-house is giving a good crop of well-thinned branches. What is to be an early house of Grapes was planted a twelvemonth since last March, and they are in the best of health. In other vineries, Black Hamburgs are all that can be wished, and Mr. Farr may be honestly congratulated on the marked improvements visible at Patshull made by him during the brief period he has been there. The Pines are in first-rate condition, and in the pineries on the back walls are a quantity of Melons which will soon begin colouring. A long shelf of La Grosse Sucrée Strawberry in one of the houses were loaded with fine well-coloured fruit, Mr. Farr considering this variety to be best for the second crop, and Vicomtesse for the first, and for the later crops, James Veitch and President.

On the back wall of one of the vineries is an old Fig tree, which the gardener found to be terribly infested with mealy-bug, and he decided upon a very strong remedy which should kill or cure. The tree was thoroughly scoured with paraffin oil direct from the barrel, and no water mixed with it, and he waited to see if the tree would die or live. The tree went ahead and bore some fruit last year, but no bug appeared. This winter the tree has had another moderate dressing to make sure, and it is now showing an excellent crop of fruit, is in vigorous health, and could not be doing better if it had received far more gentle treatment.

In the large Orangery is a fine specimen *Chamaerops excelsa*, with a stem from 8 to 9 feet high, with a circumference of 3 feet at the base. It is now in full bloom, having four very large clusters of bright yellow inflorescence, and is a striking object. A quantity of plants are grown purposely for indoor decorative work, and for the supply of cut flowers. Border Carnations will have a large and generous trial here this summer, a bed of each sort being planted out; and I noticed a fine lot of strong, healthy *Souvenir de la Malmaison* plants in one of the cold houses.

Since the foregoing was penned, I learn that on the morning of May 19, 7° of frost was registered here. In reply to my inquiries as to the damage done by recent frosts, the gardener writes me, May 22:—"I give you my views now of the prospect of the fruit crops here and in the immediate neighbourhood, after an examination made to-day. Outside crops, viz., Peaches and Nectarines not grown largely out-of-doors, but what we have promise a fair crop; Apricots are a good crop; Plums, both on standards and wall trees, an average crop; Pears on walls good, and standard Apples and Pears, and Morello Cherries and Damsons promise abundantly. Gooseberries and Currants are an average crop, and Strawberries promise well, and there is a fair show of Raspberries. Filberts, I fear, suffered greatly through the late severe weather." *Visitor.*

THE FERTILISATION OF THE PANSY.

To the grower of any of our florists' flowers, the raising of seedlings is always the most fascinating department of the work. To succeed requires forethought, patience, and the most painstaking applica-

below the small round opening at the exposed end of the stigma. This lip is so constructed that it receives quite a lot of pollen from any insect which attempts to reach the nectar deposited at the base of the tube-like formation formed by the lower petal. The lip so acts that it moves upward and refuses to receive pollen, as the bee or other insect withdraws its proboscis covered with the pollen of the flower from which it has been extracting the honey.

Artificial cross fertilisation can be quite easily accomplished, by pollen being removed on a fine camel or sable-hair brush from one flower and deposited on the stigma of another; but the experimenter will find his greatest difficulty in keeping insects off his crossed flowers. They getting on, of course, upset all calculations.

I believe the best results are to be obtained by the isolation of a few of the sorts which the grower desires to cross, and then, if his work is supplemented by insects it is not so likely to be spoiled.

The raiser must have some object in view in his attempts. He must aim at improving form, colour, or habit, and in trying to illustrate this, I will speak of that section popularly, though erroneously, known as *Violas*, still more erroneously

garden. I have already flowered many of these intermediate forms, and have a large number in various stages of growth. This work affords great interest both in the production of new forms and in the verification of the parentage of those which have been bequeathed to us by older workers in the same field. What may be called the general framework or outline of the possibilities to be looked for in crossing the *Narcissi*, has already been filled in for us by Herbert, Leeds, Backhouse, and others. But we now possess both new elements of hybridisation which were not used by them—*e.g.*, *N. triandrus* and *N. cyclamineus*, and distinctly finer varieties of the same elements which they largely employed, namely, larger and more shapely kinds of both trumpet-Daffodil and *Narcissus poeticus*. From the point of view, therefore, both of the botanist and of the florist, this already large family of plants is capable of further development through a considerable stretch of years.

Fig. 135 shows what I believe to be the first flower raised between our finer garden forms of *N. pseudo-Narcissus* and *N. triandrus*. It is the result of fertilising the well-known "Emperor" Daffodil with pollen of *N. triandrus*. The plant is in all respects precisely intermediate between the two



FIG. 135.—*NARCISSUS PSEUDO-NARCISSUS*,
VAR. *EMPEROR* × *N. TRIANDRUS*.



FIG. 136.—*NARCISSUS PSEUDO*, NEW VAR.
BICOLOR × *N. POETICUS*, VAR. *ORNATUS*.

tion. By success, I mean raising some variety or varieties decidedly better than the best of their respective classes already in existence. Anyone can raise seedlings *ad infinitum*, but it is only given to the few to succeed in doing that which I have just stated to be the true criterion of success.

In the Pansy the grower finds a subject most amenable to experiment, and for that very reason most liable to eccentric and quite unaccountable variation from seed. The reproductive organs, but more particularly the stigma of all our large-flowered Pansies, indicate that they are not intended for self-fertilisation. Bearing on this point, Professor Herman Müller writes:—"I have observed that the lip which ensures cross-fertilisation is only developed in the large-flowered, variegated variety of *Viola tricolor*, while in the small whitish-yellow variety, *Viola arvensis*, the orifice of the stigma is devoid of a lip, and is curved inwards. In this form the flower fertilises itself spontaneously very soon after opening."

The truth of these remarks can be proved quite easily by anyone who cares to take up a bloom of any of our garden Pansies, and carefully remove all the petals. Without the aid of a microscope, the little lip referred to by Professor Müller can be seen just

known as tufted Pansies. It is wrong to call a species (by some considered a sub-species) by the name of the genus, and it cannot be right to speak of a class of Pansies as "tufted," when only a very few of the varieties in the section are tufted in habit. If the word "tufted" is to be applied, then nearly all our popular varieties must be excluded at once from it, to wit, Archie Grant, Columbine, Mrs. Bellamy, Countess of Kintore, and dozens more. The popular, though as I have said erroneous, name of *Viola* is likely to stick to the section. The true tufted habit is only to be seen in Ardwell Gem, Goldfinch, and Duchess of Fife, and I frankly admit it is a most desirable habit, and our raisers would do well to keep it in view, with the object of trying to extend its present limited range of colours.

In a subsequent note, I will treat of another aspect of the subject. [Kindly do so. Ed.]. *Wm. Cuthbertson, of Dobbie, co. Rothesay.*

HYBRID NARCISSI.

THE accompanying figures represent four out of a small representative collection of about a dozen hybrids shown by myself at the Royal Horticultural Society's meeting of May 12 last, and raised in my

parents; the flower is of solid texture, slightly drooping, and of a uniform creamy ivory-buff colour. I am glad to find that it inherits from its mother a constitution which has enabled it to come through the past winter uninjured in the open ground. I have flowered several other hybrids between *N. triandrus* and trumpet Daffodils, both ways of the cross. Where *N. triandrus* is the seed-parent, the plant is always slighter and more delicate. The various wild forms found in Spain and Portugal, and known as *N. Johnstoni*, are certainly referable to this cross.

The flower (fig. 136) resulted from *N. pseudo-N.* var. *bicolor* by pollen of *N. poeticus* var. *ornatus*, and may be called a good garden form of the *N. Bernardi*, which has been found in some abundance in the Pyrenean district. The section *N. incomparabilis* practically includes this and a multitude of varying forms, of which *N. pseudo-N.* and *N. poeticus* are the parents. In raising plants from this parentage, I have several times found that the result is the same whichever of the parents is made the seed-bearer.

The (flower fig. 137) is a seedling from a yellow Ajax, fertilised by the single Jonquil. It is Jonquil-scented, with a deep yellow cup and lighter yellow

perianth. In breadth of leaf and sturdiness of growth, it follows the mother. Were the cross effected the other way, I do not doubt, and hope to prove, that we should obtain *N. odoratus*, which has been attributed by botanists to this parentage; indeed, Herbert states that both he and a friend produced *N. odoratus* thus. I think that *N. tridymus*, of which the flower here figured may be considered an example, and *N. odoratus* must be reckoned as standing very near to one another botanically, although *N. tridymus* is usually considered to denote the offspring of *N. pseudo-N. × N. tazetta*.

Fig. 138 came from *N. poeticus recurvus* by pollen of an Ajax. The perianth is sulphur-white, the crown primrose margined with ochre. An interesting feature of this plant is the two-flowered character of the scape, which appears to be fixed, and which is probably an instance of atavism, or recurrence to an ancestral trait. All who grow *Narcissi* in large breadths have observed that not only the poeticus class, but even the trumpet Daffodils (though the latter much more rarely), occasionally bear two or even more flowers on a stem; thereby, I think, showing a tendency to revert to the many-flowered, Rush-leaved form which, as plant-embryology would seem to indicate, was the primitive form

with its wealth of charming villas and semi-suburban retreats, its place in history arises from the fact that in the immediate neighbourhood is situated the royal chateau of Loo, which, severely plain as it is from an architectural point of view, literally teems with points of interest almost as great to Englishmen as to Dutchmen. It was not only the favourite hunting retreat of William III., of England, but it was also the one place to which the Dutch King looked with yearning when exiled in England, where he was neither understood nor altogether appreciated.

For a very long period the Palace of Loo had no gardens worthy of the name, and their institution is due entirely to the initiative taken by the late King. In this work the King had the benefit of the wide experience and knowledge of Mr. J. M. Kraaijenbrink, who for the past twenty-nine years has had the sole management of the royal parks and gardens, and who was good enough to conduct the present writer through the entire grounds by which the Palace is surrounded. The gardens may be said to date from the year 1862; and the wonders which have been achieved since then, would surprise those unacquainted with Dutch foresight and resources. There is naturally a newness about the place which time alone can overcome. Seeds of nearly all

one might enter if space permitted. The houses contain many things of note, but utility is evidently a paramount feature. Plants with what one may call decorative qualities are abundant, and in the way of Palms and Tree Ferns, there are specimens scarcely inferior in size to those at Kew. Two fine specimens of *Cyathea medullaris* have trunks considerably over 20 feet in height. Among the *Dicksonias* also there are several notable plants. Orange trees, and hard-wooded plants of all sorts, and *Amaryllis*, are grown here in great abundance.

Not the least interesting feature of a visit to the Royal Gardens is a peep at the little Queen's garden, for her Majesty has not only a fairly large greenhouse—in entering which, by the way, we leave the never-absent cigar outside—quite an ideal structure, full of pretty plants of various kinds, but she has also her outdoor garden and summer-house, dairy, aviary, and so forth, where, in fine weather, Holland's future ruler, *de facto*, spends much of her time.

It should be mentioned, in concluding this very brief account of a very interesting place, that I am much indebted to Mr. W. H. Wind, nurseryman, of Apeldoorn, who was good enough to act as inter-



FIG. 137.—NARCISSUS PSEUDO VAR. \times N. JONQUILLA.
(SEE P. 702.)



FIG. 138.—NARCISSUS POETICUS RECURVUS \times N. PSEUDO, NEW VAR.

of *Narcissus*. But it is curious that this tendency, which is but occasional and fleeting in one of the parents, and very rare in the other, should become permanent in the resulting hybrid. *G. H. Engleheart, Appleshaw, Andover.*

HET LOO, APELDOORN.

QUITE out of the beaten track of Mr. Cook's excursionists, but as full of historic interest and natural beauty as any village in Europe, is that of Apeldoorn. It is a veritable paradise in the midst of a howling wilderness, for whether we travel to it from Amsterdam, or from Rotterdam, it is approached for many miles through a sandy desert. The Dutchman's extraordinary ingenuity and indomitable perseverance have, within the past century or two, accomplished so many improvements, and overcome so many obstacles, which almost any other nation in the world would have abandoned probably before making the attempt, that in the course of time the unique character and position of Apeldoorn may be destroyed by the waste parts approaching Apeldoorn being transformed into fertile fields or wooded pastures.

Rich and picturesquely situated as is Apeldoorn,

the shrubs were in the first instance sown by Mr. Kraaijenbrink, under whose care they have developed into magnificent specimen plants. The Conifers grow at Apeldoorn much better than in England, in spite of the fact that the geographical conditions are not greatly different. The moderately light porous soil appears to be exceedingly well adapted to their requirements, as indeed, the abundance of fine plants testify. The past winter has been the coldest experienced in Holland for many years, and consequently the severest test for all sorts of hardy exotic plants. The general result was not the wholesale destruction to be seen in so many parts of England. At Apeldoorn the Sequoias and Cedars appear to be the greatest sufferers, but even among them the fatality is not great. Several fine trees are badly damaged; but on the other hand, shrubs which might have been expected to sustain considerable injuries have, in many cases, escaped entirely unhurt. Among what may be termed specimen plants are several *Retinosporas*, and notably a *Sciadopitys verticillata*, which is over 10 feet in height, and perfect in every respect.

The parks and gardens at Apeldoorn comprise over 20 hectares, or 40 English acres, and there are very many points of horticultural interest into which

preter, and who, it may be stated, was for some years with the late Mr. B. S. Williams, of Upper Holloway. *W. Roberts.*

STREPTOCARPUS.

A CONSIDERABLE collection of flowering plants of a hybrid character, raised from seeds of this genus in Messrs. Veitch's nursery at Chelsea, form there, a very attractive feature at the present time. The plants, which are not so well known in cultivation as they ought to be, will grow in the greenhouse, and they are all the more valuable because of the facility with which they can be grown from seed. The plants, now in flower at Chelsea are seedlings, and coming originally from a hybrid stock, their colours are of a very varied character, some varieties having pure white flowers, others white with violet streaks in the throat; some are pale blush, more or less streaked with purple; others reddish-purple, slaty-blue and purple-blue, with maroon streaks.

The history of these thrifty specimens is very interesting, and it will be well to give it. The seeds were sown on January 28, 1890, and the plants raised began to flower on July 2 of the same year, and continued in flower until the beginning of November.

During their resting period, they were kept in a place where the frost penetrated, but they did not suffer in the least; and again they are very freely flowering, the first flowers having opened on April 1. Mr. Heal told me, that *S. Dunnii* was the parent stock; and probably this is correct, as far as the reddish and rose-tinted forms are concerned; but the beautiful blush and white forms, streaked purple, do not belong to *S. Dunnii*, but to *S. Rexii*, named, not in honour of George Rex, the King of England at the time, but in compliment to Mr. George Rex, a South African gentleman, on whose land the plant was discovered by Mr. Bowie. The species was at the first evidently of a sportive character, as Dr. Lindley's figure of it (*Bot. Reg.*, t. 1173), is much more heavily streaked than the one in *Bot. Mag.*, t. 3005, taken two years later. Dr. Lindley remarked that the plant "flowers every month in the year with the greatest profusion. It rivals in this respect the *Gloxinia speciosa*, while it surpasses it in the elegance of its figure and the delicacy of its colouring." It was treated as a stove plant, hence its continuous flowering character. Mr. Heal says it does well as a strictly greenhouse plant. *S. Saundersii* is a species with very large deep green leaves of a rich purple-rose colour beneath, and it produces flowers of a greyish-blue colour, with two dark purple blotches in the throat. It is a very striking species, which is well figured in *Bot. Mag.*, t. 5251. The late Mr. Green, of Reigate, well known as an able gardener, produced a batch of seedlings by crossing *S. Rexii* with *S. Saundersii*, the produce of this cross being named *S. Greenii*. There is a full-page illustration of this interesting hybrid at p. 303, *Gard. Chron.*, n.s., vol. xvii. The flowers were a pale lilac-blue, and this colour is also present amongst the Chelsea hybrids. Mr. Green grew his plants in a cool greenhouse.

S. Dunnii is quite distinct from any of the above, in having beautiful rose-coloured flowers, and this is moreover a quite recent introduction from the Transvaal gold fields, sent from Cape Town by a Mr. Dunn in 1884. I well remember this species flowering at Kew a year or two later, where it was planted as a margin to the beds in the Succulent-house. It is stated in *Bot. Mag.*, t. 6903, where it is figured, that the leaves attain the extraordinary length of 3 feet, with a breadth of 16 inches, and the editor adds, they are still growing. I believe Mr. Watson has raised hybrids from *S. Dunnii* at Kew, and the result is to be found in the distinct rose and purple-tinted forms in Messrs. Veitch's nursery. The variations will be greater, year by year, as the seedlings become further removed from the first cross; and, being so easily raised from seeds, it will not be absolutely necessary to purchase plants to obtain a collection of beautiful forms. There may be a great future for the *Streptocarpus*, for as a garden plant its possibilities for improvement are greater than those of the *Gloxinia*. It has more elegance, and the colours of the flowers are already very varied. The plants can also be grown freely in a lower temperature than the *Gloxinia*. To do the last-named plant anything like justice, the temperature of a hot-house is needed, and many amateurs do not possess one. It is a great advantage, also, to have a plant that can be readily raised from seeds, and which is also easily increased by division, requiring no more skill to obtain good results than is required for the cultivation of a *Pelargonium* or a *Fuchsia*. The seeds are small, and should be treated in much the same manner as those of the *Calceolaria*, sowing them during January in loam and leaf-mould, and silver-sand, the surface of which should consist of finely-sifted soil. Make the surface level, and cover the seeds with a sprinkling of fine soil. Sowings made as early in the year as January would require a little extra heat to promote vegetation. I have an amateur friend, the owner of a greenhouse and a small pit, whose hot-water boiler is fixed under one end of the greenhouse, and over the brickwork setting there is room for a certain depth of sand or cocoa-fibre, and over this a one-light frame is placed. This frame is as good as a hot-house for certain purposes, and if the seed-pots are plunged in such a

place, germination is rapid. After the plants are pricked out, they may be placed on a shelf in the greenhouse, and be potted on singly as they increase in size. *J. Douglas.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

MELONS.—The few days on which we have had warm sunshine of late did these plants and the fruits approaching ripeness much good, the high flavour without which the best varieties of Melons are insipid being brought out. Less water and fuller ventilation should now be given plants with ripening fruits, and the moisture in the air greatly reduced; but a brisk warmth should be maintained till the fruit is cut; and given sun-heat, the heating apparatus will only be required at night and in cloudy weather, the pipes retaining sufficient warmth after the fires are banked down to keep the temperature at a safe point. Ripe fruits should be cut and placed in a cool and dry room, and when all are removed, clear out, clean, and replant the house for later crops. Such plants as are in pots should be liberally supplied with clear water and stimulants, when their fruits are swelling, or these will be small. It is a good plan to top-dress the soil with pieces of turfy loam and dried cow manure, doing this when the fruit fairly commences to increase in size. These and other Melon plants must be looked over at frequent intervals, the useless lateral shoots cut out, and the fruit, when it is found necessary, supported by strips of matting or a bit of board. Let a brisk temperature be kept up, closing the house early, with plenty of moisture thrown about, and if the warmth then reaches 100°, no harm will be done, and red-spider will be kept in check; and if the airing of the house be carefully done, green-fly will not be troublesome. Pits and frames that have been made use of for other purposes will about this time be available for Melons. The plants may be grown in a variety of ways, either allowed to run on the ground with slates put under the fruits, or on an improvised trellis. Melon seed should now be sown at intervals of three weeks for succession, and the seedlings will be more robust than the earlier plants, if they are not hurried on by heat. Sow three seeds in a 60-pot, leave only the strongest, and keep the plants whilst in pots close to the glass. Melons in dung-bed frames need to be covered at night, and to have the linings renewed from time to time as they get cool.

STRAWBERRIES IN POTS AND FRAMES.—See that none of the plants suffer from drought at the root, looking very carefully over such as stand on dry shelves, &c. Plants in cold frames, or those that have had frames placed over them, must have their fruit-stalks supported and brought up to the light. Mildew is sometimes troublesome, but it may be checked by dusting the undersides of the leaves with flowers-of-sulphur and admitting air freely in bright weather, and leaving some small amount of ventilation at night, which will disperse much of the moisture in the frames. The best varieties for cold frames are Sir C. Napier and Waterloo, which suffer less from mildew than others, and afford a large percentage of fine fruits. Owing to the cold weather recently, fruit in cold frames will come in useful in some districts, the early kinds out-of-doors having been much injured. The blooms should be kept pinched off those plants which are required to fruit next season, and this will induce the formation of early and strong runners, which cannot be obtained from plants bearing heavily. *G. Wythes, Syon House, Brentford.*

THE KITCHEN GARDEN.

PEAS.—Where a good supply of green Peas has to be found till late in the autumn, two more large sowings ought to be made during this month, and Duke of Albany, Sharp's Autumn Giant, and British Queen may be selected for sowing first; and Ne Plus Ultra, Autocrat, Reading Giant, Sturdy, and Sutton's Latest of All are excellent varieties of Peas for sowing again about the 15th. Late Peas should be grown in shallow trenches with rich decayed manure put at the bottom, sufficient space being left in each trench to retain water, of which copious supplies are required in warm, dry weather; and plenty of space between the rows afforded the tall growers. Avoid sowing the seed thickly, the plants resisting mildew much better when they are not crowded. The early crop, which is now well in flower, will be hastened in

podding if the tops are cut off, and manure-water afforded if the soil be dry, which it is very likely to be on south borders. Stake succession plants before they fall over and get greatly injured; and if the ground be light, a good mulch of half-rotten manure laid down 15 inches wide along both sides of the rows will be of great benefit to the plants.

JERUSALEM ARTICHOKEs, ETC.—These plants will be above the ground, and should be hoed in dry weather; and if they are in rows, mould them up in the same way as Potatoes. Globe Artichokes now growing rapidly should have a mulch of short dung, and if the soil be rich, they will soon produce a supply of fine tender heads. Those planted out this season should be mulched, and not allowed to suffer from drought.

CAULIFLOWERS, CABBAGES, ETC.—Autumn-sown Cauliflowers generally will be growing freely, and those which have begun to fold-in and form heads, will be all the better if manure-water be afforded them abundantly during showery weather, when it is usually of great benefit. Spring Cabbages, when cut, should have the bottom leaves removed from the stumps, and a mulch of any kind of manure applied between the rows, that is, if the crop is not to be cleared as soon as cut, but the stumps left for a supply of Coleworts.

CELERY.—The plants earliest raised may be planted out in heavily manured trenches, and any which have been forwarded in pots should be watered before they are turned out of the pots, and the side shoots removed. In planting out be careful to make the holes large enough to receive the ball of roots and earth without much disturbing it. Those taken from frames should be carefully lifted, as much of the soil as possible being kept about the roots. If Standard Bearer or Wright's Giant White are grown, the plants should be 15 inches apart. Give all the plants a thorough watering after planting them, and on bright days afford them some slight amount of shading, till they are well-established. Closely attend to the watering all through the summer, and vary it with an occasional manure watering. To blanch Celery for very early use, stout brown paper may be wrapped round the stems and tied top and bottom with matting, but not so tightly as to interfere with growth. This should be put on about four weeks before the Celery is wanted for table; no banking-up with earth is required when paper is made use of.

TOMATOS.—Plants may now be hardened off in readiness for planting out against warm walls, fences, &c., and if the soil is fairly good, no manure need be used when planting them, as this would cause a too luxuriant growth. Leaf-mould, or spent Mushroom-manure, with burnt refuse, may be incorporated with the staple if it be heavy. Water the plants, and allow them to drain before removing the corks, and do not break the ball, or disturb the roots; make the soil very firm about their roots. Fasten a sufficient number of shoots to the wall to fill the allotted space; the others being pinched off at the first joint from the stem. In cold districts good results may be obtained by putting the plants into 10-inch pots, and growing them for two or three weeks longer under glass, afterwards plunging them to the rim at the foot of a south wall, or in some other very warm place. The shoots may be trained like those that are planted out, and the plants liberally supplied with water, and occasionally with manure-water when bearing fruit. In cool, wet summers, these potted plants have an advantage over the latter, seeing that they may be loosened from the wall, tied to stakes, and removed to a light warm house to ripen their fruits. *C. J. Waite, Glenhurst Gardens, Esher.*

THE ORCHID HOUSES.

EAST INDIA HOUSE.—This structure is gay with species and hybrids of *Cypripediums*. Among the former I think *C. Rothschildianum* has no rival for singular beauty and boldness of form, the beautiful *C. Stonei* not excepted. I must confess that when I saw *C. Rothschildianum* for the first time, I was not favourably impressed, but that impression has been changed on better acquaintance with the plant. *C. selligerum majus*, in large specimens, and each spike furnished with two flowers, is a grand Orchid. I had on one occasion three on a spike, but these were smaller in every way than others with the normal number. *C. Schroderae*, when grown strongly, possesses flowers of great size and splendid colour, eclipsing all other *Cypripeds* of the section. I find that all these plants grow well when potted in a mixture of equal parts of sphagnum moss and fibrous peat, the latter of the

best quality, as any stagnant water about the roots soon brings about sickly conditions. Insects rarely infest *Cypripediums*, and those which do so are thrips; those species on which they are found are *C. barbatum* and *C. Lawrenceanum*, and hybrids from these; but if the plants are watered daily overhead, thrips will give but little trouble. Too many growers of *Orchids* are afraid to properly water their plants, from a mistaken notion that damping of the young growth will ensue; but if air be properly afforded the plants, the loss of young growths by damp will rarely happen. I have applied liquid manure to *Cypripediums* with great benefit, and used largely 1-inch bones amongst the drainage of the pots. *Cypripediums* may be repotted at any season of the year, care being taken to keep the plants somewhat dry at the roots for three weeks or a month afterwards, which will allow the injured roots time to heal over, and the young roots to get a hold of the new soil. *Cattleya Sanderiana* and *C. gigas*, now coming into flower, should be removed without delay, to the drier air of the *Cattleya-house* proper, and others which are just starting into growth put in their place, there being no doubt whatever that these species of *Cattleya* do best in strong heat, the growths and flower-spikes being larger and stronger when so grown. The same will apply to *Cattleyas* of the *C. aurea* and *C. Dowiana* type, when making growth, and resting them in a cooler house, with less water afforded at the root. Warmer weather having come at last, the temperatures of the different houses may now range at night as follows:—East India-house, 70° to 75°; *Cattleya-house*, 68°; Intermediate-house, 60°; *Odontoglossum-house*, 50° to 55°; air never being shut out by the bottom ventilators, and only at the top when the air outside is very chilly. *A. G. Catt, Park-field, Hallow, Worcester.*

PLANTS UNDER GLASS.

THE STOVE.—Cuttings of *Poinsettias*, sufficiently rooted, and starting into growth, may be put into pots two sizes larger than those in which they were struck, and in a compost consisting of good loam, a little rotten manure, and silver-sand in sufficient quantity to keep it porous. Place the newly-potted plants in a moderate stove-heat, keeping them close to the glass, either in a house or pit, and where they will remain during the summer. Always afford them a moderate amount of air in the day-time, when the weather is favourable to airing, so that growth may be compact and sturdy; and do not crowd them, or there will be a great loss of the lower leaves. A second batch of cuttings may be put in to form a succession to the earliest lot.

EUPHORBIA JACQUINÆFLORA.—Cuttings of this useful plant for winter work which may be well rooted, should be shifted into 6-inch pots; and, supposing that three or four cuttings have been struck together in small pots, which is a good way of showing off the blooms, they should be repotted without separating them, or disturbing the roots much, into pots a little larger than would be required for single plants. Keep the plants near the glass roof, in a brisk warmth during the summer, and shade lightly in the middle of the day when it is bright weather. This plant makes a good covering for a wall in the stove, if planted in a narrow border, boxes, or pots. Frequent applications of weak manure-water will greatly assist the plants when once they have become established, and do not stop the shoots more than once, or bend them downwards, the plants doing much better when allowed to grow unchecked and unrestrained.

Old plants, which, after furnishing the necessary stock of cuttings were partially shaken out and repotted in the same pots, will now require shifting into 8 or 9-inch pots, providing they receive manurial aid when the pots are filled with roots.

TREE FERNS.—Well-rooted tree Ferns, which may now be in full growth, will be benefited if weak liquid manure be occasionally afforded them, which will darken the green of their fronds and give them the desirable look of robust health; and the plants will go on for a number of years without additional root space. Use a thin shade over them in bright weather, and give more light and air, with a moderate amount of water in the atmosphere and less overhead syringing, and also less heat than is sometimes the practice with gardeners. It is a great point to have these plants in a presentable condition.

FERNS FOR CUTTING FROM.—Where a great demand for cut Fern fronds exists, the plants should not have more heat than is necessary to get them into good growth, or be stinted of air, which should

be freely admitted into the house, or of light; and therefore, no thicker shading should be made use of than is requisite to keep the growth from being injured by bright sunshine. Grown this way, the fronds endure much longer when cut than those would do treated in a more tender fashion. Before making use of the fronds, immerse them in water for a few hours.

THE GREENHOUSES.—The early-flowering varieties of *Pelargoniums* should now be propagated as soon as possible, but previous to taking the cuttings, it will be advisable to place the plants in the open, and keep them moderately dry for a period of three weeks, which ripens the wood. Select shoots which are short-jointed, as these always make the best plants, and insert each cutting singly in a small pot, or put three or four round the side of a 48, making use of a light sandy compost, and placing the pots on the shelf. Keep the cuttings dry until they are well calloused, and use a light shade over them in bright weather; pot them off as soon as they are sufficiently rooted, keeping them close for a few days, until the roots have run through the new soil, when more air may be admitted.

CHRYSANTHEMUMS.—The time has now arrived to move the general stock of *Chrysanthemum* plants into the pots in which they will bloom. For a compost use three parts good fibrous loam, one-sixth each of leaf soil and stable manure, the latter being prepared as if for a Mushroom bed, and a small quantity of charcoal and soot; and should the loam be retentive, add a sufficient quantity of coarse silver-sand, mixing the whole thoroughly together. Prepare the required number of perfectly clean pots, making the drainage perfect, a very essential point in *Chrysanthemum* culture. Make the soil quite firm about the roots at this potting by ramming it into the pots with a blunt stick. This will aid in the formation of short-jointed, firm stems and shoots. Allow a depth of 1½ to 2 inches at the top of the pots for water. The best position for the plants is one that is open and sunny, but protected from the north and east winds. Stand the pots on a thick layer of coal-ashes, or, better still, on boards, a method which keeps the roots from going through into the soil. Syringe the plants overhead in the evening when the weather is bright, and never allow the plants to suffer from want of water at the roots, or the foliage will turn yellow, and fall off. Attend to the tying and staking of the shoots as they grow, to prevent any getting broken; and when a plant is furnished with enough shoots, do no more stopping, but until that point is reached, pinch out the points. It is a mistake to carry on the stopping so late in the season, as is sometimes practised. *R. Milner, Penrice Castle, Swansea.*

THE FLOWER GARDEN.

BEDDING-OUT.—Warm weather having set in generally, all available strength should be concentrated on the work of planting the summer occupants of the flower garden. The late rains will have made the soil of beds and borders in a very suitable condition for the reception of the plants; but where it is still too moist to be trodden on without becoming pasty, there must be a little patience exercised.

Assuming that the hardier kinds of bedding plants have been already put out into the beds, the next hardier ones may be planted, including all the various sections of the *Pelargonium*, following these with *Heliotropes*, *Petunias*, and *Lantanas*. Tender sub-tropicals for bedding alone, or as solitary plants in beds of flowering plants, and the tender things that carpet bedding requires to make it bright and showy, should come last of all. When all the various patterns in the beds, either flowering or foliage, have been filled in, the soil should be made level and fairly smooth, and this is best performed with the 3-tined handfork or short-handled hoe, and those plants which trail should be kept within their proper lines by being fastened down with metal pins or neat wooden hooks. Tall plants intended for the centres of beds, &c., should be neatly secured to green-painted sticks, leaving space in the ties for the natural growth of the plant. Tuberous-rooted *Begonias* may be planted at about 1 foot to 1½ foot apart, according to strength of tuber and variety, the handsome pendulous-flowered varieties needing even more space. Plant *Begonias* in the warmest part of the garden, the plants enjoying heat, and blooming more freely in warm places than half-shady or cool ones. Unless the plants have been greatly forward in heat and become drawn, they will not require support from sticks, &c. See that nothing suffers for want of water before planting or afterwards.

The turf around beds just planted should be carefully raked, swept, and rolled, to make sure that nothing is left behind that would injure the mowing-machine. When next the grass is cut, the edges of the beds should be neatly cut with the shears.

Where *Violas* form the edging to beds, see that no seed-pods are allowed to remain, and all edgings consisting of *Sedums*, *Saxifragas*, *Gentians*, &c., kept within proper bounds, trim, and neat.

BORDERS.—In forward localities, the flower-stems of *Picotees*, *Carnations*, and *Pinks* will soon stand in need of support, it being always advisable to pay timely attention to this matter, thus avoiding breakage, and the consequent loss of blooms. Where *Dahlias* are coming up with too many stems, the weaker ones should be wrenched off below ground. *Pentstemons* may also have weak shoots taken off at the base, and any of these plants which have recently been put out—seedlings, or cutting-raised plants—should be tied up, or otherwise secured. *Salvias* patens, large old *Fuchsias*, *Humea elegans*, *Perilla*, tall plants of *Ivy-leaved Pelargoniums*, and others, may be planted out in these borders, but avoid utilising many of the plants which may be left over from the planting of the flower-garden proper, or an unpleasant monotony will prevail in perhaps widely-separated parts of the garden. Thin the patches of annuals so that the plants have space for development, and plant out half-hardy ones before they get stunted or confined at the root; especially must this be observed with *Phlox Drummondii*, *Asters*, and *Zinnias*.

MISCELLANEOUS.—*Polyanthuses*, *Auriculas*, *Daisies*, *Sedums*, *Saxifragas*, and other plants used in winter and spring bedding may be divided and planted in lines or beds in the reserve garden. Pay close attention to the *Roses*, keeping the foliage strictly clean and cutting out all weak and flowerless growths, especially those that are found on the inside of the bush or head. On light soils it is not too early to put a rich mulch over the roots of *Rose* bushes.

THE HARDY FRUIT GARDEN.

Now that the weather is warm, the young growth on wall fruit trees must be afforded regular attention, or it will be injured and broken. All shoots which must be reserved should be tied in with matting or secured with shreds, taking care that no injury is done by tight ligatures, but leave space for future growth. It is a good plan to give one tie to a shoot when it is not more than 3 inches in length, fastening it, if necessary, to the older shoots, and by this means prevent an awkward bend in the young shoot, difficult to alter when it is once set.

Peach and Nectarine trees should have more of the useless shoots cut off—with the knife this time, not pinching them or it may tear the bark. If spurs be required, cut or pinch back to the fourth bud, doing this at intervals of a few days. Leaf blister or curl should be allowed no quarter, but be picked off carefully, and burnt. Sometimes a leading shoot is affected with curl, and when this is the case, the next best-placed healthy shoot should be trained in, to take its place. The fungus causing curl and blister seems favoured with cold ungenial weather, or at any rate, these conditions are opposed to the freedom of growth needed for a tree to outgrow its ailments. With fine warm days and nights, curl, &c., soon disappear, if care be taken to destroy affected leaves. Watch carefully the growth made by young trees, pinching and laying in those shoots required to form the framework of the future tree. Sometimes it is only the regulation of the shoots that is needed; but pinching back shoots must in all cases be done where a well-placed shoot is growing excessively strong, to the detriment of the others.

MULCHING.—Now is the best time to put mulchings of manure over the roots of weak trees carrying good crops of fruit. Wall trees generally are about the first to suffer from drought where the soil is light, and mulching should always be done at an early period of the season; but when a tree is lightly cropped and making strong growth, the mulching need not be put on until later, or possibly it will not be required at all.

ORCHARDS.—Young trees should be watched, and those newly planted, if found to be hanging in the ties, owing to the sinking of the soil, should be re-fastened. The caterpillar has not put in an appearance in orchards in this part of the county, and the crops of fruit of all kinds are, barring accidents, certain to be very heavy. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, and sent as early in the week as possible.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

PLANTS, &c., TO BE NAMED.—Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

ILLUSTRATIONS.—Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are solicited.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JUNE 9. Royal Horticultural Society: Committees, and Lecture on Alpine Plants.

SATURDAY, JUNE 13. Royal Botanic Society: General Meeting.

SHOW.

THURSDAY, JUNE 11.—Chelmsford and Essex.

SALES.

TUESDAY, JUNE 9. Sale of Established and Imported Orchids, at Protheroe & Morris Rooms.

WEDNESDAY, JUNE 10. Important Sale of Exhibition, Stove and Greenhouse Plants, at Garden House, Blackheath Park, by Protheroe & Morris (two days).

FRIDAY, JUNE 12. Sale of Imported Orchids, at Protheroe & Morris Rooms. Stove, Greenhouse, and Bedding Plants, at Copped Hall, Stifford, near Grays, Essex, by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—60°.

We are now in a position to give some further details concerning the scheme which, it is hoped, may be carried out by the joint action of the Royal Horticultural Society and the rejuvenated Worshipful Company of Gardeners. We need hardly say in these pages that, so far as general principles are concerned, our sympathies are entirely with the scheme. We have always felt it as a great injustice to our young gardeners that, speaking broadly, they had no means of obtaining that practical training in combination with instruction in the principles of their art which the French, the Germans, the Belgians, and the Americans have at their command.

As it is very desirable that the opinions of all classes of persons interested in gardening should be duly considered before the matters are finally arranged, we shall defer any comment of our own on the details of the scheme till the views of our correspondents have been set forth. The discussion of this question will be the more valuable, as it will enable the Committee to formulate a scheme in harmony with the general requirements. We have only to add that the Committee will consist of five members nominated by the Royal Horticultural Society and five by the Company, and that in the selection of that Committee every pains has been taken to secure an adequate representation of all interests involved. The following draft scheme

has, we believe, been substantially adopted as a basis for discussion, and the Committee above mentioned will shortly enter upon its work

"Having been asked to suggest some useful and appropriate sphere of work for this Livery Company to undertake, some little consideration has been given to the natural sphere of usefulness at the present day of Livery Companies in general, and it appears that in cases where the craft of the Companies is technical, no more useful or appropriate work can be entertained by them than:—

"I. To make provision for the due and proper teaching of the technique of their craft; and

"II. The examination of and issue of certificates of efficiency to the craftsmen.

"Having these points in view, and applying them to the Worshipful Company of Gardeners (whose craft is above most others technical), it is suggested:—

"I. That the Company establish a Technical School or Institute, where young men desiring to study gardening, may be efficiently taught, and duly learn their craft. Ultimately, this might eventuate in the establishment of experimental gardens, and a small fruit farm belonging to the Company, together with the necessary buildings for the lodgment of students; but it is suggested that the Company might make a good beginning by securing the co-operation of the Royal Horticultural Society of Great Britain, and opening a house for students in the immediate neighbourhood of the Society's existing experimental and fruit gardens at Chiswick, the Society providing the gardens, &c., and the Company the student's-house and a separate superintendent to direct, instruct, and look after the general well-being of the students.

"It is suggested that the general working of this technical school should not be eleemosynary, but that fees for board and instruction should be charged sufficient to cover all working expenses; but that scholarships in the form of reduction of fees for the second year's training, &c., should be given to a certain number of deserving students, annually.

"It is further suggested, that:—

"II. Periodical examinations should be held not only for the students (as above), but for any who like to present themselves, and that certificates of competence and efficiency be granted to successful candidates, together with further scholarships for the most deserving, to enable them to pursue their studies for a longer period at some of the great horticultural establishments of this country or of the continent.

"In order to successfully carry out this scheme, it is suggested that the Company do co-operate with The Royal Horticultural Society, the Society making provision for the examinations, and the Company finding the necessary funds, the certificates being issued in the joint names of The Worshipful Company of Gardeners and the Royal Horticultural Society of Great Britain, and a register kept for public reference of all those holding such certificates.

"Thus far the work suggested relates primarily to the encouragement and improvement of the technique of our art, and the benefit of the craftsmen and their families, although it would also, in a secondary, but very real way, be of general public utility. If, however, it is desired to embark in any work primarily benefiting the public, it is suggested that:—

"I. Prizes should be offered for essays on gardening subjects, the essays being printed and published by the Company; and

"II. That lectures on gardening subjects should be organised in different centres.

"Another matter deserving consideration is the encouragement of the cultivation in England of other vegetables than those usually grown. Many other varieties are in general use on the continent, and if their growth were encouraged in this country, they would add materially to the supply of vegetable food, besides adding variety to the stereotyped sameness of English dinner vegetables.

"In the matter of fruit, vegetable, and flower shows and exhibitions, it is suggested that the fortnightly meetings already held by the Royal Horticultural Society, together with the show they hold every year in the Temple Gardens, and the occasional exhibitions of the Royal Botanic Society, fully cover the ground from a technical and educational point of view, and any increase of such exhibitions would be more for the pleasure of the sightseers than for the benefit of the members of our ancient craft.

(Signed) "TREVOR LAWRENCE, Bart., M.P.,
Upper Warden,
President of the R. H. S.
"W. WILKS, Renter Warden,
Secretary, R. H. S.
"NATHANIEL SHERWOOD.
"PHILIP CROWLEY, F.L.S."

BENTHAMIA FRAGIFERA.—It is curious to observe the odd resemblances that occur in Nature between objects that have little or nothing in common. The peculiar grey colour of the leaves of the shrub of which we give an illustration (fig. 139), always reminds us of that of the Olive, whilst its pulpy fruit is so similar to a Strawberry in superficial appearance as to have suggested the name "fragifera." The shrub is one which invariably attracts attention, even of those little interested in trees and shrubs. Unfortunately it is a little tender, and near London, at any rate, does not ripen its fruit. From the south-western counties, however, we receive specimens every year, and our present illustration shows a large bush in the gardens of J. RASHLEIGH, Esq., of Menabilly, Cornwall, executed from a photograph taken for Mr. SHERRING, who is now on a botanical excursion in Granada. *Benthamia* is a Nepalese tree of the Cornel family, with its flowers in heads, surrounded by an involucre of four or five conspicuous petal-like bracts (see fig. 140). The fruit is composed of a number of small succulent berries, run together in one mass, so that its structure is quite different from that of the Strawberry.

LINNEAN SOCIETY.—On the occasion of the anniversary meeting on May 24, Professor STEWART, President, in the chair, Messrs. W. D. Crotch, C. Wilson, and Professor R. Wallace, were admitted Fellows of the Society. The Treasurer presented his annual report, duly audited, and the Secretary having announced the elections and deaths during the past twelve months, the usual ballot took place for new members of the Council, when the following were elected: Messrs. C. R. Clarke, G. B. Homes, Arthur Lister, St. G. Mivart, and F. W. Oliver. The President and officers were re-elected. The usual formal business having been transacted, the President proceeded to deliver his annual address, taking for his subject, "The Secondary Sexual Characters of Animals and Plants," of which he gave several interesting examples, illustrating his remarks with graphic sketches in coloured chalks. On the motion of Mr. H. Druce, seconded by Mr. C. Tyler, a vote of thanks was accorded to the President for his able address, with a request that he would allow it to be printed.—The Gold Medal of the Linnean Society has this year been awarded to Dr. EDOUARD BORNET, of Paris, for distinguished researches in botany, and on his behalf was presented to M. RAYMOND LECOMTE, Secretary to the French Embassy. His earliest publications related to the structure and life-history of fungi and lichens; but his name is best known for the important researches in which, with his friend

M. THURET, he has been for some years engaged, on the life-histories of Algæ, and for his valuable contributions on this subject in the *Études Phycologiques* and the *Notes Algologiques*, with their fine illustrations.

ROYAL BOTANIC SOCIETY OF LONDON.—Professor STEWART, President of the Linnean

origin. Notably has this been the case with a plant belonging to the Madder order, growing in Borneo. Upon its stem it produces hollow nest-like swellings, and these form the homes of three different kinds of ants, which live amicably together, but turn out and attack in crowds any living thing touching the plant; and as these ants can both bite and sting,

—Miss E. B. DAMPIER, Mr. H. FRANKLYN, Mrs. J. E. PARRY, Mr. HENRY PHIPPS, jun., Mr. CHRISTIE FINLAYSON, and Mrs. QUINCEY REW. The record of sunshine in the gardens for the first quarter of this year was read, showing but little difference from that of the corresponding quarter of last year, the totals for the months of January, February, and



FIG. 139.—*BENTHAMIA FRAGIFERA*, IN THE GARDENS OF J. BASHLEIGH, ESQ., MENABILLY, CORNWALL. (SEE P. 706.)

Society, delivered at the Gardens, on the 29th ult., the first of two lectures upon the "Relationship between certain Plants and Animals," dealing more particularly with the association for mutual assistance occurring between plants and insects, and in which the advantages to be derived from it are so equally divided that it is difficult to find out its

the plant flourishes without fear of molestation from man or beast.—At a meeting of this Society, held on May 23, Lord WILLOUGHBY DE ERESBY in the chair, H.S.H. Prince EDWARD OF SAXE-WEIMAR, G.C.B., was proposed as a candidate for Fellowship; and the following, whose names had been read at the last meeting, were elected:

March being respectively 12.8, 10.6, and 20.0 per cent. of that possible.

COUNTY COUNCILS AND BEE-KEEPING.—A meeting of the British Bee-Keepers' Association was held on May 6 last, to discuss the question of County Bee-Keepers' Associations affiliated to

the parent Society, taking concerted action in making applications to their respective County Councils for subsidies to aid in the teaching the theory and practice of bee-keeping from the funds placed at the disposal of these bodies, either for the specified purposes of technical education or for relieving the rates, and to consider the best means of arriving at a system of instruction should grants be made to carry out the former idea. Mr. MEGGEX, the Honorary Secretary of the Essex Bee-Keepers' Association, who took the initiatory step in this matter, and who sent in an application to the County Council in January last, stated that in the county of Essex he did not doubt but that a grant would be made for this purpose, and it had been decided to devote the whole of the £17,000 available to technical education, in preference to using any portion for the relief of the rates. After suggestions had been made by those present at the meeting, it was ultimately decided to appoint a sub-committee to put them into shape. This met the next day, and drew up a general form of application suitable for adoption by other county associations, in which the following points are set forth in favour of the scheme. "Agriculture has long been admitted among continental nations as a subject of technical education. It is recognised by our own Education Department as a subject for teaching and examination in elementary schools. The leading agricultural societies in Britain give bee-keeping a definite place in technical education in agriculture. As one of the minor rural economies, bee-keeping may and should assume, an importance equal at least to poultry raising. In view of a probable large increase in fruit growing, the extension of apiculture has a most valuable practical bearing, whilst its relation to successful seed growing (*e.g.*, Mustard, Turnip, Rape, and White Clover) is equally certain and important." The mode of instruction suggested is, that competent travelling lecturers shall be appointed to work systematically throughout each county, and to give practical demonstrations at different apiaries, the use of which could probably be readily obtained for the purpose in many districts, as an addition to the illustrative diagrams and apparatus they would be provided with.

MIDLAND COUNTIES PANSY SOCIETY.—We learn from Mr. W. DEAN, Dolphin Road, Sparkhill, Birmingham, that the committee of the above have found it necessary to postpone their exhibition from June 10 to Wednesday, June 24, in consequence of numerous intending exhibitors stating that, owing to the lateness of the season, their plants will not be in bloom by June 10. Intending exhibitors and visitors should note the change made in the date of the show, and that the exhibition will be held in the Central Hall, Corporation Street, close to the Railway Stations. Schedules may be obtained from Mr. DEAN.

HORTICULTURAL EXHIBITION AT GHENT.—A general horticultural exhibition will be held at Ghent from the 23rd to the 30th of August, under the auspices of the Cercle Horticole Van Houtte. The exhibits are divided into 163 classes, and include hot-house, greenhouse, and open air plants; growing, cut, and packed for transport.

MILDEW.—Our American cousins find the practical advantage of spraying their trees for mildew and various insects. Mr. B. T. GALLOWAY, of the United States Department of Agriculture, in a circular issued by the Department, says that experiments have proved conclusively that powdery mildew of the Apple, Pear, &c., can readily be controlled at comparatively little expense. Ten millions of young fruit will be treated this year. The Bordeaux mixture, or the ammonia solution (carbonate of copper, 5 oz., to 3 pints of strong liquid ammonia), dissolve, and mix with 45 gallons of water. A suitable spray-pump should be used, such as the knapsack-pump, figured at p. 681, or a barrel-pump, drawn by a horse. In no case should the treatment be delayed beyond the period when the leaves are half grown.

Early treatment, vigilance, and repetition of the spray every twelve days, are the most important points to be kept in mind.

CHINA GRASS.—This well-known fibre, the produce of a Nettle-like plant, *Boehmeria nivea*, has been re-introduced of late with the idea of supplanting silk, cotton, and worsted in the cheaper class of goods to be used in upholstery wherever strength and durability are required. From the samples before us, it is evident that the fibre is capable of being dyed in a good range of colours. In appearance, it is between fine wool and flax-thread, being less glossy than the latter, and scarcely so rough as the former. At present, the cost of producing the fibre is a bar to its utility, but it is hoped that this objection will shortly be removed, and that it will then take a prominent place amongst materials for weaving, as the plant from which it is produced can be readily grown in many of our colonies. The fabric known as grass-cloth is manufactured from the same fibre. It is a pity the name "grass" should be attached to it, as it has as little to do with grass as it has with Cucumbers; but for persistence of error, there is nothing to beat a popular name.

"WEBSTER'S INTERNATIONAL DICTIONARY."—A garden library should possess a good dictionary—that goes without saying. The book mentioned above is remarkably full, copiously illustrated, and rich, not only in ordinary words, but in those extraordinary technicalities in which both gardeners and scientific men are prone to indulge. Before a line was printed, we are told that £60,000 was expended in collecting and editing the material. Cost of production in itself is no guarantee of excellence, but those who examine this book will not wonder at the cost, and those who use it will appreciate its value. The work is published by Messrs. GEORGE BELL & SONS.

CLIVENCHARIS PULCRA ×.—In conformity with the rules adopted by the Orchid Nomenclature Committee, M. E. RODIGAS has given the above name to a hybrid raised in Mr. VAN HOUTTE's nursery out of *Clivia* by the pollen of *Eucharis amazonica*. The hybrid is stated to be quite intermediate between its parents, but M. RODIGAS delays publishing a full description till he has had the opportunity of seeing another flower. The provisional name is given in the *Illustration Horticole*, for May 15. We await the appearance of the new bigener with great interest.

THE CARDIFF FLOWER SHOW.—The show is to be held at the Sophia Gardens on August 12 and 13, and we learn from the *Cardiff News* of May 26, that "an especially interesting and important feature will be a conference on fruit culture for profit, to be held in connection with the British Association of Fruit Growers, the President of which is Lord BROOKE, M.P. On the first evening there will be a promenade concert, and while the gardens will be illuminated, it is hoped that the whole of the marquees will be lighted by electricity, and thus enable visitors to fully appreciate the beauties of flowers and plants by night. It may be added, that the British Fruit Growers' Association—which comprises the leading authorities and cultivators in the kingdom, and several of whom have promised to contribute papers—intends awarding certificates for exhibits of Grapes and dessert fruit, and that the *Gardeners' Magazine* offers a silver medal to amateurs or gentlemen's gardeners for the collection which shows the highest cultural skill."

THE ALPINE FLORA.—In connection with this subject (says Mr. J. LOVEL, in *Nature*, vol. xliii., p. 581), it may be well to draw the attention of botanists to the fact that a young vigorous Strawberry plant, in an exposed garden, will, during the winter season, place all its leaves in a perfectly horizontal position, some even close to and resting on the ground, in striking contrast to its summer habit of erect growth, whereby it is often damaged by strong winds. Whether direct climatal conditions be the sole cause of this

peculiarity, or whether inherited, I cannot determine; presumably, in its natural surroundings, the continual crowding and consequent struggle would not necessitate the adoption of dwarfing as a means of survival.

THE DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.—At a meeting of the above, held at Amsterdam on May 9, 1891, the floral committee awarded first-class Certificates to the following plants new to commerce. To Messrs. DE GRAAFF BROTHERS, Leiden, for *Narcissus major* *Cecilia de Graaff*, N. m. *Madame de Graaff*, N. m. *Madame Plemp*, N. m. Mr. Walter Ware, N. m. *Fred Moore*, N. *Shakespeare*, N. *incomparabilis Gloria mundi*, N. *lorifolius* *Glory of Leiden*, N. *tridymus* S. A. de Graaff, *Fritillaria meleagris fl.-pl.*, F. *acmopetala*, *Iris Bloudovii*, *Tulipa Batalini*, T. *linifolia* Rgl., and *Trillium sessile* var. *californicum*. To Messrs. E. H. KRELAGE & SON, for *Narcissus lorifolius* *Glory of Leiden*, N. *tridymus* S. A. de Graaff, N. *bicolor* J. B. M. Camm, *Backhouse*; N. *moschatus* Dr. Hogg, N. m. *Rebecca Syme*, *Backhouse*; N. *incomparabilis sulphureus* *Beauty*, *Backhouse*; N. i. *pallidus semipartitus plenus*, Krelage; N. i. *Princess Mary*, N. Nelsoni Mrs. C. J. *Backhouse*, N. *Barrii albidus* *Flora Wilson*, N. B. *albidus* *General Murray*, *Backhouse*; N. *Backhousei* *William Wilks* (syn. *Henry Collins*), N. *Burbidgei* *Pearl*, *Tulipa linifolia*, Rgl.; T. *suaveolens*, Roth.; T. *Maximowiczii*, Rgl.; *Tellima affinis* (insufficiently-known plant). To Mr. G. C. VAN MEEUWEN, Haarlem, for *Muscari botryoides pallidus grandiflorus*, *Fritillaria meleagris* var. *Willem III.*, F. m. v. *Koningin Wilhelmina*, F. m. v. *Ida*, F. m. v. *Little Gem*, F. m. v. *Prince of Wales*. To Mr. C. G. VAN TUBERGEN, jun., Haarlem, for *Anemone fulgens* J. Gay var. *Aldborohensis*, *Narcissus poeticus* var. *grandiflorus*, *Erythronium Dens-canis* var. *sibiricum*, Rgl., (rare plant), *Muscari paradoxum* (insufficiently-known plant), *Trillium sessile* var. *atratum* (new plant), *Elisena longipetala*, Herb. (insufficiently-known plant). To Messrs. ANT. ROOZEN & SON, Overveen, for *Elisena longipetala*, Herb. Botanical Certificates to Messrs. DE GRAAFF BROTHERS, Leiden, for *Fritillaria contorta* (insufficiently-known plant), and F. *Thunbergii* (insufficiently-known plant). To Messrs. E. H. KRELAGE & SON, Haarlem, for *Tulipa Ostrowskiana*, Rgl. (insufficiently-known plant). To Mr. C. G. VAN TUBERGEN, jun., Haarlem, for *Fritillaria hispanica*, Boiss et Reut (insufficiently-known plant).

GOOSEBERRY MILDEW: HOW PREVENTED.—This fungus has for the past three years been successfully combated. At the New York Agricultural Experiment Station, Geneva, fine crops of this fruit have been grown entirely free from mildew. The success has been so marked as to attract the attention of a number of leading fruit-growers. The practice at this station is to begin spraying so soon as the young leaves unfold, and continue the sprayings at intervals of from eighteen to twenty days. In case of frequent heavy rains, it will be necessary to spray more often. The fungicide used is potassium sulphide, liver of sulphur, formula, $\frac{1}{2}$ oz. dissolved in 1 gallon of water. If hot water be used, the sulphide will dissolve more readily. As commercial liver of sulphur costs but little, from 15 to 20 cents per pound, and 1 gallon will spray ten or twelve large bushes, if applied with a force-pump and spraying-nozzle, it will be seen that the largest cost will be that of labour. If spraying is done with a syringe on a small number of plants, the amount of liquid necessary will be increased, of course; but, however lavish one is with the solution, the beneficial results will more than compensate for the outlay.

FOSSIL PLANTS.—It is stated in the *Globe* of May 22, that at Hailes, some 3 miles south-west of Edinburgh, in a thin seam of silt resting on the boulder clay, Mr. J. BENNIE, of the Geological Survey of Scotland, has lately found numerous remains of Arctic and sub-Arctic plants. In general they indicate a climate 15° to 20° colder than that of the Scottish Lowlands to-day. The Willows are all of

the dwarf species; two of them (*Salix herbacea* and *S. reticulata*) still survive on the highest of the Highland mountains, but a third (*Salix polaris* is now extinct in Britain. The only tree found was a species of Alder.

ADOLF VETTER.—This clever and well-known Austrian gardener, who for many years held the important post of head gardener at the Imperial Gardens, Schönbrunn, Vienna, died on March 28, aged seventy-six years. The deceased, who had been in receipt of a pension for some years, was for a considerable period on the executive committee of the Royal and Imperial Horticultural Society of Vienna, and aided greatly in furthering the endeavours of this Society to elevate the horticulture of the Dual Empire.

THE "DICTIONNAIRE DE BOTANIQUE," edited by M. BAILLON, has now reached its 28th fascicle, bringing the book far into the letter P. The work continues to merit all that has been said in its favour; but as there are spots on the sun, so there are oversights in this book, e.g., at p. 597 an engraving of the

breadths during the last week of that month seemed to make little or no progress whatever. Of course the recent warmth has been productive of freer blooming, but still a week lost cannot be regained. Thus, it would appear that consumers will have to wait pretty well to the end of the month before they will find any quantity of fresh green Peas in the London market.

L'ORCHIDEENE.—The twenty-ninth meeting of the Brussels *Orchideene* on May 19, was coincident with a special exhibition of the same Society which was visited by the King and Queen. Mr. G. GORDON, of the *Gardeners' Magazine*, was presented to His Majesty. There were many exhibits, but we have only space to mention a few. New species or variety of *Cattleya* or *Lælia*: 1st prize to M. G. WAROCQUÉ, for a fine specimen of *C. Mossia* Madame Arthur Warocqué. Good variety of *Cattleya* or *Lælia*: 1st prize (unanimously awarded) to M. MARTIN-CAHUZAC, for a fine variety of *C. Schilleriana*. New *Odontoglossum*: 1st prize (unanimously awarded), to M. G. WAROCQUÉ, for an excellent and new variety with orange-coloured blooms — *O. aurantiacum*.

300,000 last year recorded their preference—the Golden Rod and the Rose leading, each having a fourth of the total. This year the choice is between the two, and it is said the Rose will win; but the *Ledger* says:—"Relatively few city children know anything about the Golden Rod or its surpassing beauty in great masses, and great numbers of the country children are too familiar with it, and regard it as a weed. It would be a difficult matter for a congress of learned people, with artistic taste and scientific knowledge, to make choice of a State flower, and the school children can hardly be expected to make a sound and proper choice."

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual outing of the members of this Society will this season take the form of a visit to Ascott Park, Leighton Buzzard, the residence of LEOPOLD DE ROTHSCHILD, Esq., one of the Vice-Presidents of the Society, and who has kindly given his permission for the same. The outing is generally held during the last week of July.

THE ROSE AND THE GARDENER.—We have pleasure in quoting the following charming poem, by Mr. AUSTIN DOBSON, from Mr. A. H. MILES' well-edited *Poets and Poetry of the Century*, recently published by HUTCHINSON & Co.:—

"A FANCY FROM FONTENELLE.

" 'De *Mémoires des Roses* on n'a point vu mourir le Jardinier.'"

"The Rose in the garden slipped her bud,
And she laughed in the pride of her youthful blood,
As she thought of the gardener standing by—
'He is old,—so old! And he soon must die!'

"The full Rose waxed in the warm June air,
And she spread and spread till her heart lay bare;
And she laughed once more as she heard his tread—
'He is older now! He will soon be dead!'

"But the breeze of the morning blew, and found
That the leaves of the blown Rose strewed the
ground;

And he came at noon, that gardener old,
And he raked them softly under the mould.

"And I wove the thing to a random rhyme,
For the Rose is Beauty, the gardener Time."

NEW SOFT FRUIT BASKETS AND TRAYS —

Strawberry growers and dealers will be pleased to note the improved punnets or baskets offered by the Clydesdale Box Company, Glasgow, and shown in figs. 141 to 144. They are elegant in design, light, strong, and cheap; well adapted for showing fruit in windows, and for the use of travellers, &c. They are made of stiff cardboard secured by metal clasps, and will enable fruit to be carried without loss.

M. TRANSON.—We are glad to find the name of this distinguished horticulturist of Orleans among those created Chevalier of the Legion of Honour by M. CARNOT in his recent visit to the City on the Loire.

CAMBRIDGE BOTANIC GARDEN.—The university authorities have granted £2700 for the completion of the new range of glass in these gardens.

NEW POTATOS.—The London and South Western Company's steamer "St. Malo," says the *Hampshire Advertiser*, arrived in the Docks, on Tuesday, May 26, from Jersey, with a cargo of new Potatos. This is the first special steamer of the season, but two more will be engaged for the purpose of carrying on the Potato trade, which has thus commenced in earnest.

PUBLICATIONS RECEIVED.—*Treatment of Nursery Stock for Leaf Blight and Powdery Mildew.* By B. T. GALLOWAY. U.S. Department of Agriculture. — *The Connecticut Agricultural Experiment Station, New Haven, Conn. Bulletin*, No. 108. Ash Analysis of White Globe Onion. Examination of the Seed of Orchard-grass. On the Determination of the Fat in Cream, BABCOCK'S Method. — *The Journal of Mycology.* U.S. Department of Agriculture. — *La Mosai-culture.* Par S. MOTTEL. (Paris: OCTAVIE DOIN, 8, Place de l'Odéon.) — *Catalogue des Plantes Vasculaires du Sud-Ouest de la France*, by Dr. BLANCHET, (Imprimerie Lasserre, Rue Gambetta, 20, Bayonne.)



FIG. 140.—FLOWER OF BENTHAMIA FRAGIFERA: WHITE. (SEE P. 706)

false cone or gall caused by *Chermes abietis* is once more made to do duty for the female inflorescence, or young cone. Again "Picotee" is not a "*nom Anglais des Eillets à pétales fimbriés*," but of those which are, as the French themselves would say, "*picotés*."

M. F. CRÉPIN.—In December next, M. F. CRÉPIN, the Director of the Botanic Garden of Brussels and the managing secretary for the last twenty-five years of the Royal Botanical Society of Belgium, will receive at the hands of his colleagues and friends a tribute of their appreciation of his manifold services to botany and to the society in particular.

GREEN PEAS.—Owing to the continuance of dull cold weather, early filled Peas, which generally look remarkably well, are making very slow blooming progress. But very recently it was prognosticated that gatherings in the metropolitan district would commence about the 18th inst. Now growers put the date at about the 25th, a very late time, but necessitated by the fact that, whilst ordinarily at the end of May, early Peas are in full bloom, the

Three new species or varieties of *Odontoglossum*: 1st prize (unanimously awarded) to M. WAROCQUÉ, for three valuable new varieties, *O. Wilckeanum aureum*, *O. luteo-purpureum album*, and a charming example of the Ruckeri type. The finest collection of twelve *Odontoglossum crispum*: 1st prize to M. G. MILTEAU, perhaps the most beautiful of all the exhibits at the meeting. First and Second-class Diplomas, Certificates of Merit, and Certificate for Good Cultivation were awarded for various plants from MM. LINDEN, VERVAET, WAROCQUÉ, DRAPSDOM, and le Comte de BOUSIES. The proceedings terminated with a banquet in the evening.

BOTANICAL DIAGRAMS.—The Society for Promoting Christian Knowledge publishes botanical diagrams, which should be most useful to both teachers and scholars. Those that we have seen are enlarged representations of British and well-known flowering plants, such as the Elder, Tobacco plant, Hop, Deadly Nightshade, &c.

A STATE FLOWER.—The Philadelphia *Ledger* tells of the choice of a State flower for New York. The school children were invited to vote, and

PLANT PORTRAITS.

AZALEA INDICA, SOUVENIR DU RECTEUR KICKX — Large double crimson flowers.

CALADIUM MEDIO-RADIATUM, *Illustration Horticole*, t. 128.—Leaves hastate, lanceolate, with two white bands at the base, converging into a single white midrib, the ground colour a rich green.

CATLEYA TRIANÆ.—Three varieties. *Orchidophile*, March, 1891.

CRINUM GIGANTEUM, *Garden and Forest*, May 13

CYPRIPEDIUM DESBOISIANUM X, out of venustum by Boxallii atratum, *Lindenia*, t. 277.

CYPRIPEDIUM BRAGAIANUM X, out of C. hirsutissimum by C. Boxalli atratum, *Lindenia*, t. 277.

CYPRIPEDIUM NIOBE, *Garden*, May 23.

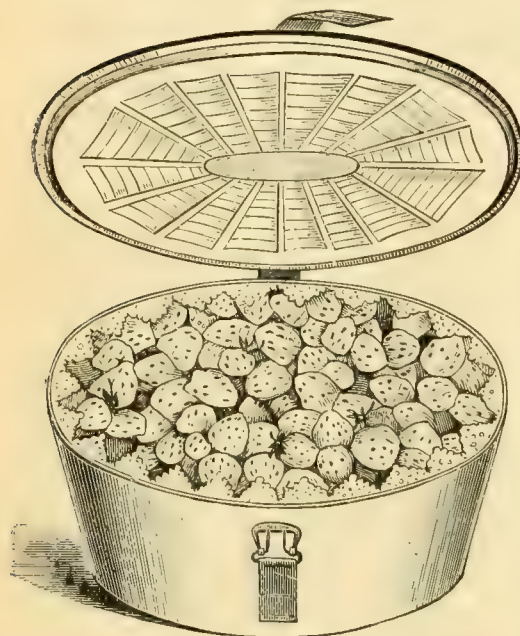


FIG. 141.—STRAWBERRY PUNNET OPEN. SEE P. 709.

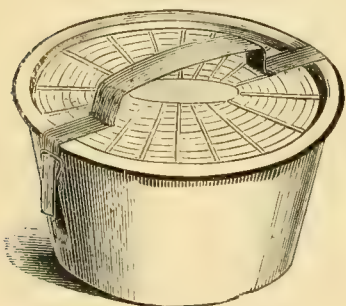


FIG. 142.—PUNNET CLOSED.

DENDROBIUM PHALENOPSIS. (See *Gardeners' Chronicle*, 1880, vol. ii., p. 38) *Lindenia*, t. 278.

FUCHSIA DEPENDENS, *Garden*, May 16.

ILEX LÆVIGATA, *Garden and Forest*, May 13.

MUTISIA VICHIFOLIA, *Revue Horticole*, May 16.—A composite climbing plant, with pinnate leaves, terminating in a tendril; flower-heads long, oval, with overlapping green bracts, and spreading ray florets of a rich orange.

ODONTOGLOSSUM BELLULUM, *Illustration Horticole*, t. 127.

ONCIDIUM LAMELLIGERUM, *Lindenia*, t. 278. (See *Gardeners' Chronicle*, 1876, vol. ii., p. 803; 1878, pars. 2, p. 684.)

ONCIDIUM SPLENDIDUM.—*Revue de l'Horticulture*, *Belge*, May.

PHAIUS HUMBLIOTI.—*Revue Horticole*, May 1.

PHYLLOCACTUS CRENATUS, Salm., *Gartenflora*, May 15, t. 1347.

RHAZA ORIENTALIS, A. DE C.—An Apocynaceae under shrub, with ovate lanceolate glabrous leaves, and terminal trusses of pale blue jasmine-like flowers. It is the *Amsonia orientalis* of Boissier's *Flora Orientalis*. *Garten Flora*, May.

SAMBUCUS PENDULA NOVA.—*Revue Horticole*, May 1. A form with very long branches, which hang down, and even trail on the ground.

ORCHID NOTES AND GLEANINGS.

CATTLEYAS AND DENDROBES AT LLANDUDNO.

In the gardens of Joseph Broome, Esq., Sunny-hill, there is a splendid show of Cattleyas, and especially on plants of magnificent varieties of Cattleya Mossiæ, which were imported some years ago. Probably the air of Llandudno has something to do with the bright colour of the flowers, but the strain must be an exceptionally good one, or such fine results would not be obtained. The dozens of good specimens were all well furnished with bloom, many of the flowers measuring from 8 to 9 inches across, and in one instance the flower is 9½ inches in width, and the petals 2½ inches wide. This specimen also has a very richly-tinted, purplish-crimson lip, and dark orange colour in the throat. Another magnificent variety has very bright rosy-lilac sepals and petals—the latter 3½ inches broad—and rich bluish-crimson lip, with a pale lilac, crimped border. Grown as the plants are in this garden, such varieties of C. Mossiæ cannot be placed second to any other Cattleyas in point of beauty and showiness. Three of the most distinct, all of great size and beauty, are C. Mossiæ Broomei, sepals and petals rosy-lilac; petals 2½ inches wide and over 4 inches in length, gracefully curved towards the lip; lip orange in the throat, the middle marbled with mauve-purple, and with a half-inch frilled border of blush-white. C. M. Ariadne, sepals and petals broad, blush-white lip, orange in the throat, veined with crimson at the base; front of the lip white, marbled with purple, and edged white—a grand flower. C. M. Golden Prince, sepals and petals bright rosy-lilac; the lip is almost entirely bright orange, the orange colour showing even on the outside of the lip, and extending over the side lobes; there is a freckling of purple on the lip, mingled with yellow, and the edge of the front lobe is white. The main feature which attracts the eye in this fine flower is the rich orange of the middle and side lobes of the labellum. Among other showy specimens observed were some grand Dendrobium Devonianum, the largest specimen having seventeen flowering growths, averaging seventy-six flowers, or in all about 1300 flowers—a gorgeous sight, on a single specimen—and that not made up. A Dendrobium Falconeri was also finely in flower, and also some specimens of Miltonia vexillaria, one very pretty form of which, with white-edged petals, had forty-five flowers. Outdoors the rigours of the winter have not been much felt, Wallflowers, coloured Primroses, Anemones, and other spring flowers, being very plentiful and bright. J. O'B.

ORCHIDS AT SILVERDALE, SYDENHAM.

The collection of Walter Cobb, Esq., for which a well-planned block of six neat span houses, and a large house for Cattleyas and Lælias, and another for the larger Odontoglossums was built some years ago, supplies one of the most noteworthy examples of well-grown Orchids about London. One reason for the general good condition of the plants is, that they are grown under what is called the cool system. That is to say, that relatively cool quarters are given to the plants according to the part of the world in which they are found in a wild state, and the plants placed under warmer conditions when the growing time arrives, each at its proper season, and affording them a good rest when growth is fully made up. At Silverdale there are many fine Cypripediums, and among

those in bloom recently were the richly-coloured C. calurum Rougierii X, some very large C. Curtisii, C. Hookerianum, C. Lawrenceianum, C. grande X, C. niveum, C. bellatulum, &c., and with these some Miltonia Roezlii which have thriven admirably, and plants of Dendrobium Dearei that had made grand growth.

In an adjoining warm house the Phalaenopsis were flourishing, and near them two flowering plants of Vanda Lowii and V. Batemanii of unusually small size, the latter sending up spikes.

In another house were observed many good specimens of Miltonia vexillaria, Odontoglossum citrosimum, and Vanda cœrulea, and other Vandas; then came a division set apart for Cologynes, among which was a large pan of C. cristata alba; then Masdevallias, with many in flower; and in the Cattleya and Odontoglossum-houses a fair display on plants of fine quality. Among the Cattleyas, the forms of C. gigas and C. Dowiana are worked into a very manageable condition, and Mr. F. Cooper, the Orchid-grower here, says that even the smallest plants show flower, and his experience is quite different with C. gigas to that of many other growers whose large plants often go for years without flowering.

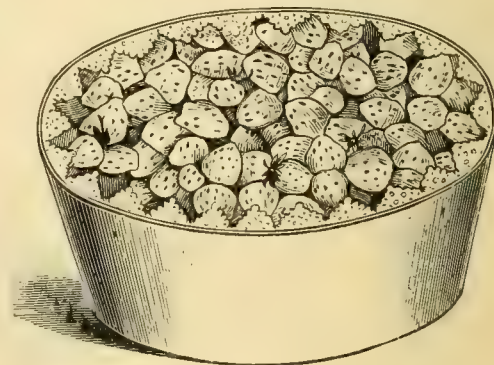


FIG. 143.—OPEN PUNNET.

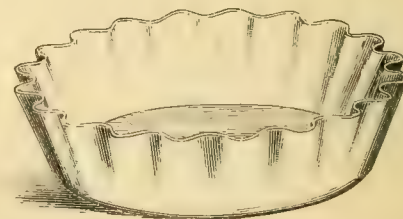


FIG. 144.—OPEN TRAY.

The good results obtained at Silverdale are probably due to their being afforded less water at the roots than is generally the case with this species, and admitting more light and air into the house than is the general practice. In the large Cattleya-house were some superb forms of Lælia purpurata, one especially, with crimson-tinted sepals and petals, having the lip larger and more trumpet-shaped than usual, and with a most brilliant dark-purplish crimson hue.

ORCHIDS AT SUMMERFIELD, SYDENHAM.

In the collection of moderate-sized, well-grown specimens of A. Sillem, Esq., at Lawrie Park, under the care of Mr. J. Baker, were recently many interesting species in bloom. Among the Dendrobies, the plants of the pretty white and rose-coloured D. mesochlorum were covered with flowers, having the peculiar greenish-yellow spot in the centre, and representing the plant in a better aspect than we have seen it before. The specimens of D. transparens were of equal showiness; D. Parishii, D. Falconeri, D. calceolus, D. crystallinum, and various other Dendrobies, were well furnished with flowers; and, in the same house, were Vanda

teres, some *Thunias*, and profusely-flowered plants of *Utricularia montana*. In another house were some good examples of *Miltonia vexillaria* and *Cymbidium Lowianum*; and, in the *Cattleya* house, various *Cattleya Mossia*, *C. Acklandia*, *C. Walkeriana*, the true *Lælia grandis*, and some very fine forms of *Odontoglossum citrosum*.

The warm house contained neat plants of *Crotons*, *Dracænas*, *Asparagus plumosus*, &c. The *Phalænopsis* are in fine condition, and *Cypripedium Stonei* and others are in bloom. At the end of the house were very pretty specimens of *Davallia parvula* grown on cork or tree-fern stems, and equally good plants of *D. alpina*. *Phaius tuberculatus* first established its reputation as a manageable plant in this house, and it still thrives therein. In the compact range of cool houses is a good show of all the *Odontoglossums* of the present season, and specially fine forms of *Masdevallia chimara* and other *Masdevallias*, as well as *Oncidium macranthum*, *O. maculatum*, *Dendrobium Jamesianum*, and some very distinct forms of *Odontoglossum Cervantesii*, one of them having the sepals and petals dotted all over with crimson.

The large case of filmy Ferns, near the cool houses, display their usual beauty, in spite of the long and dreary winter.

PLANT NOTES.

TACCARUM WARMINGIANUM.

THIS plant belongs to the natural order Aroideæ, and was recently in flower in the stove of the Cambridge Botanical Gardens. It was figured in the *Gardeners' Chronicle* (vol. xvi., fig. 134, n.s.), and described by Mr. N. E. Brown, from which figure and description a good idea may be gained of the character of the same, although I cannot endorse the writer's remarks as to its being horticulturally a very fine plant; in fact, I doubt if it will ever become a popular garden plant. The tuber was obtained for the Cambridge Botanic Garden, from Glasnevin. The same treatment may be applied to *Taccarum* as is found to suit *Amorphophallus*. *W. Harrow.*

LOBELIA CORONOPHOLIA.

A decumbent straggling herb, with sessile linear slightly hirsute leaves, about 45 mill. (1½ inch) long, remotely, and deeply dividing at the margin into curved narrow lobes, like those of the Buckhorn plantain. The flower stalk (1 foot long) is very slender and wiry, bearing at its upper part a raceme of 4 or 5 widely separated blue flowers, each on its own pedicel of about 20 mill. (about 1 inch long). Flowers with a small 5-leaved calyx at the base of the corolla, which has a linear tube split along the upper side, and dividing into a two-lobed limb, the upper lobe of two small reflexed petals, the lower of three relatively broad lobes, of a deep blue colour; the central lobe marked off from the side ones by a raised ridge on each side, which serves no doubt to direct the wandering insect in the way he should go to get at the honey at the back of the flower, and do a good turn for the flower at the same time. *F. W. Burbidge, Trinity College Botanic Garden, Dublin.*

A SEMI-DOUBLE FLOWERED EUPHARIS AMAZONICA.

We have at present a plant of the above bearing a semi-double flower, which I consider is a notable rarity. We divided and repotted our general batch of these plants in March, with the result that all the matured bulbs threw up splendid flower-stalks bearing from five to seven flowers each, and one spike produced a semi-double flower, there being five other flowers on the same spike of the single form; the latter have only six petals apiece, whilst the former has twelve, the apex of the outer ones being slightly hooded, and the corolla twice as wide, with twelve filaments, a treble pistil, and dark green venation. I should like to know if such a flower has ever been noticed before? *R. McHardy, Botanic Gardens, Southport.*

SOBOLEWSKIA CLAVATA, Boissier.

This is a very free-flowering, hardy, herbaceous perennial from North Koordistan. It forms a bush of 2 feet in breadth and height, and produces its snow-white Iberis-like flowers in the greatest abundance, and in continuous showiness from the middle of the month of April to the middle of June. *Max Leichtlin, Baden-Baden.*

CULTURAL NOTES.

SELF-COLOURED POLYANTHUS.

RECENTLY, self-coloured yellow and white kinds of Polyanthus made a good display in the beds. By annually raising a stock of plants from seed, and carefully selecting them afterwards into their various colours, instead of mixing them together, a better effect in the beds may be obtained. Another advantage of growing Polyanthuses from seed is, that the plants are more robust than often-divided roots, and less readily denuded of their leaves by frost, and flower more abundantly.

Three years seems to be long enough to retain these plants; and after that period their vigour wanes. The present is a good time for seed sowing for next year's display, and a cold frame on the north side of a wall or hedge is the best place to make the sowing. When the seedlings are large enough to be handled, they should be pricked out into another frame in a compost containing a large proportion of leaf-mould. When the seedlings are established, the frame should be removed. *A.*

VIOLA CLIVEDEN PURPLE.

In the note on *Violas*, p. 642, no mention is made of the above sort, possibly because it is old and considered common; but those who have not given this variety a trial, and who are desirous of having masses of a rich purple colour in the garden during the months of April and May, may do worse than give this once-valued variety a fair trial. Many fail with *Violas* for spring flowering by delaying the propagation of the plants too long, in consequence of which they do not become well established before the autumn frosts and heavy rains check further growth. Before June is out, the cuttings ought to be taken and inserted in sandy leaf-soil in a cold frame, which, if placed on the north side of a wall, will dispense with the troublesome daily shadings, which are absolutely necessary in sunny positions for success with the cuttings. In taking the cuttings, some care must be exercised in their selection. Some take the shoots which have borne flowers, because they are large and strong, and these cuttings rarely do any good; the best are those which are thin and wiry, springing up sucker-like from the old roots. Directly the cuttings have made 2 inches of growth, the leading point should be nipped off, to induce lateral shoots to spring from the buds lower down the stem. The consequence of doing this is nice bushy plants, which ought to be transplanted into a rough frame made up of sods or boards. The soil in which *Violas* thrive well in a young state is composed mainly of leaf-mould, out of which they come early in October furnished with abundance of roots, and in this manner do not feel the check of removal. *E.*

HOME CORRESPONDENCE.

CALVILLE ROUGE.—I am sending for your inspection (May 19) fine fruits of the above-named variety. I do not think it is very generally known or planted, for though, as you will see, it has a beautiful crimson skin and of fair flavour for this date, still it requires a very warm position and good culture to bring it to perfection; but, where a very late dessert Apple is required, nothing that I am acquainted with can compare with it for appearance, quality, and last, but not least, for keeping sound. *G. Woodward, Barham Court, Maidstone.* [Nice fruits

2½ inches wide, and 3 inches high. The right name is Calville Rouge d'Hiver. In colour it resembles greatly Calville Malingre, but not in shape, that one being flattened, globose, with an open eye set in a rather broad basin, whilst C. R. d'Hiver has a small, almost closed eye, set in a narrow, deep basin, surrounded with several prominent knobs, and it is a better flavoured fruit, and the tree hardier, and a better cropper. Our correspondent speaks very highly of it. *Ed.*]

HYBRID SWEET BRIAR.—When it is safe to travel in Turkey and Asia Minor, these single flowered Briars will be found in all shades growing wild. Last year I was delighted with the variety of the colours I found in some of the gardens near Constantinople, and on expressing my surprise, I was informed that Briars with blooms over 3 inches in diameter are often met with. The riches in fruits and flowers on some of the land within 50 miles of Constantinople were exposed to some of the merchants who visited the estates with the view of purchase. The price was low, and thousands of acres were secured, but up to the present time they cannot get possession, although every formality has been complied with. One gentleman told me at present he could only view his purchase from a yacht, but he hoped it would come right some day. *Thos. Christy, F.L.S.*

THE RECENT WEATHER IN HAMPSHIRE, ETC.—On May 12 and 13, a thermometer on a north wall registered 78°; and on the morning of May 17, the thermometer fell to 25°, or 7° of frost. Fortunately, at that time Apples were not in bloom, but they are now, and look very promising. Pears, Plums, and Peaches were full of bloom, and I fear these are much injured, for I notice that many are dropping off; but as there was such an abundance of bloom, I hope there will be plenty of fruit left for a crop. French Beans and Scarlet Runner Beans were killed, and Potatoes cut to the ground, but the latter are now growing again. We are situated on a hill 660 feet above sea-level, and about eight days later than most places in this neighbourhood. Many of the shoots of the Spanish Chestnuts and Beeches were much cut by frost. *Wm. Smythe, Basing Park Gardens, Alton.*

—The late frosts seem to have been felt all over the country—news has reached me from Warwickshire, Yorkshire, Somerset, and Devon, to the effect that Potatoes, Beans, Strawberries, and all tender vegetables, perennial and bedding plants, have been destroyed or terribly injured. Fortunately our garden plants and crops escaped injury, which I attribute to the fact of our having taken the precaution to place a few branches over and against all the tenderer plants every evening. Ashleaf Potatoes were 1 foot, the main crop in the open 9 inches in height; Strawberries and Peas smothered in bloom; French and other Beans very forward; Tomatoes in flower on a south border, two-thirds of the bedding plants out in the open, and a large number of seedling Cactus Dahlias planted for cut flowers in the kitchen garden. It seems remarkable that a few tree branches, almost destitute of leaves should ward off 7° of frost, and it was with gloomy forebodings that I went that morning to inspect my seedlings. It was, however, a pleasant surprise to find them uninjured. *W. H. A., Guildford.*

STRAWBERRY FORCING AT HURST SIDE, WEST MOLESEY.—At the best this has not been a good season for forcing Strawberries, having in view the fogs and absence of light experienced. At Hurst Side, nevertheless, fairly good results have been obtained under the management of Mr. A. G. Hookings, gardener to S. W. Graystone, Esq. La Grosse Sucrée is found to be the best for early forcing purposes here, and it is withal a free cropper, and its glossy, good-sized, dark red fruits possess excellent flavour. About the middle of April between 1600 and 1700 fruits of this variety were gathered, the smallest fruits averaging from 1½ oz. to 2 oz. in weight, and at the end of May some very respectable fruits were in evidence. The large and handsome bright deep crimson, highly flavoured President is also much esteemed here. Noble has also been tried this year, and whilst admiration is excited by its fine-sized round fruits, deep red colour, vigorous constitution, and great cropping qualities, the flavour of the fruit is poor. Still, we cannot expect all the virtues in any particular variety! *B.*

THE FRUIT CROP IN WEST MIDDLESEX.—It is very interesting to note that even whilst the Apple

trees are still literally smothered in a wondrously prolonged bloom, that Gooseberries should be gathered and marketed. The value of the "berry" is thus strongly evidenced as a market commodity, when it can thus early be put into commerce. We shall have long to wait yet before the Strawberries are in, and those are our earliest ripe outdoor fruits; but after the considerable rains which have fallen, the comparative certainty that all further danger from frost is past, and the prospect of some warm weather at last, there should be a heavy crop of this delicious and usually very profitable fruit. We shall not see any very early outdoor fruits unless heat comes quickly, as the bloom, though so abundant, is very late. Still there is ample time for the crop to fully mature, and that having regard to the extraordinary lateness of the Apple-bloom, is more than can be said of the Apple crop. But whilst generally there is every prospect of a big set of fruit, there are exceptions, the most notable of which are black Currants. It is remarkable that whilst there can hardly fail to be other than a tremendous crop of reds, the blacks are so thin and poor; the result is very disappointing, especially as we have not had a heavy crop of these Currants for some two or three years, and traditionally the black Currant is one of the most prolific of fruits. There is a disposition to place the blame of the poorness of the crop upon the spring frosts. They may have been in fault, but I am somewhat disposed to think that the intense severity of a prolonged winter did the harm. We all know that the black Currant plumps up its buds unduly early, indeed, they often near a green or almost bursting aspect early in the winter. It seems probable that in such condition the fruit germs must be more amenable to weather influences than are the hard, well-cased, and resting buds of the red Currant. It seems difficult to reconcile the fact that whilst the black is fruiting so badly, the red Currant is fruiting so abundantly, except on that hypothesis, especially when we also remember that reds and blacks bloom almost simultaneously. The bushes, in both cases, seem to be very clean; and, so far, it cannot be pleaded that insects are to blame, although these are usually made the scapegoats of most fruit failures. A hardly lesser misfortune is found in the comparative thinness of the Gooseberry crop. Some gardens are better favoured, and there is no special preference shown in the case of young as compared with old bushes. The original set was really enormous, giving promise of a tremendous crop; but some two-thirds have fallen, and what remain do not swell up in that free fashion common to a good crop. This is a distressing fact for many reasons, but especially for the one previously named, viz., that green Gooseberries both give early labour and early market returns. The price for the first pickings, I learn, was about 15s. per bushel; a big price ostensibly, but not so when it is remembered that the fruits, after all, are relatively small. The spring frosts again have to bear the blame of this precocious falling of the berry, but its general nature rather leads to the conclusion that the wood and buds suffered materially in the winter from the prolonged hard weather. Whilst there seems to be a big set on Pears, Plums, and Cherries, the singularly prolonged Apple bloom is giving some uneasiness. Growers very naturally reason that if the bloom be very late, the fruit must also be ripe very late; and in the case of long maturing sorts, they will have a very short season to finish up in. Then there seems to be some danger lest the unusually prolonged bloom should somewhat exhaust the trees, whilst it also largely checks the development of foliage. Many large trees are still, on June 1, literally smothered in bloom with hardly a leaf upon them, so great is the drain of sap for the development of flowers. It is true, so far as can be detected, the bloom, in spite of hail and frost, has set most freely; indeed, almost too freely. I refer of course to the earliest flowering trees, which have largely shed their petals; but even the earliest of these can hardly be said yet to have done flowering. The very cool drippy weather, with cold dull nights, have helped to keep the bloom so long in existence. The finely-matured, plump nature of the bloom-buds also helps in the same direction. Had not the buds been so finely developed and matured, the bloom would have fallen long ago; but then little of it probably would have set. We shall this year hardly be able to indicate fully what will be the real nature of the fruit crop until the middle of July. It is not enough that there must be ample time allowed not only for the fruit to set, but also to show what will fall and what will stand.

Pears have already thinned well, and yet have left an abundant set on most trees. Still it would be premature to regard all these as safe; and we may say the same of Plums and Cherries. Grand as the bloom has been, it is obvious it has had to pass through a critical time, a prolonged cold, inauspicious tail of an unusually severe winter. If we still find that there is generally a great fruit crop, we shall have to place it more to the credit of the fine ripening autumn of 1890 than to that of the cold ungenerous spring of the present year. A. D.

THE WEATHER, BIRDS, AND FRUIT BLOSSOM.

—*Apropos* of the very unusual severity of the weather during the month of May, it may be interesting to note the painful consequences which have happened to great numbers of the swallow family. Of these we had an early enough arrival, and I almost think in greater numbers than in some previous years. They seemed to quite enjoy themselves up to the time of the return of the cold east winds on May 15, which has continued with more or less severity until to-day, when it veered round to the south-west, where, let us hope, it may continue for some time. During the snow of the 17th and 18th, and rain, sleet, and hail of the 24th and 25th, it must have fared hardly with the poor swallows. To-day (Tuesday, 26th) we picked up twenty-five dead martins and one dead swift. They appear to have died during the night, and dropped to the ground from house eaves, crevices, and ledges, as we observed great crowds of them going to roost. We found them lying in all manner of positions; some, it would appear, had either fallen from the roosting-place not quite dead, or unable to alight there. These seemed to have crept into hiding on the ground, and there passed away in a comfortable sitting position. Their breasts are very thin as if from hunger, there being few insects abroad on which they could feed. The destruction of these birds all over the country must have been enormous. It is too soon yet to say what may be the result of these frosts amongst fruit blossom. Gooseberries and Currants will undoubtedly be thin; there will be a good sprinkling of Cherries and Plums, and Pears on walls are plentifully and safely set. There is hope that the Apple crop of this neighbourhood has escaped any great injury. True, much of the early expanded blossom was killed, but of the later blooms, even on the same cluster of blossom, there are many which are safe; and from these if we have no more frost, there may yet be a very satisfactory crop, and barring an "if" the later trees, the blossoms of which are yet unexpanded, have yet a very good chance. Early Potatoes on warm borders have had a terribly cutting up; everything in the way of vegetation is late, and has a starved look. We have now had seven months of winter, which leaves but five for summer and autumn; by how much can Canada beat that record? Ontarians tell us we can grow fruit trees, but we cannot fruit them! W. Miller, Combe Abbey.

BULBOUS PLANTS IN BORDERS.—The exigencies of bedding-out are such in many places, that the leaves of bulbs are removed too early, and before they are mature. This weakens the bulbs greatly, and ought to be avoided, and nothing removed that has any active life in it. If the foliage of Crocuses, where they are in clumps or masses, is in the way, it is an easy matter just to pull it together, and give a tie at the points, and when bedding-out is finished, let the tops loose again. By managing bulbous plants in this manner, growth goes on, and they are enabled to form other blooms within to send up the following season. S. D.

PERIWINKLES IN POTS.—I wish to advise your readers to grow the Periwinkle (*Vinca minor*) as a pot plant for balconies. I know of one specimen, brought from abroad, which has bloomed well for two successive years, its bright mauve flowers and long trails of leaves are much admired; and I may add that the former remain open and in perfection for a long time. The conditions of its existence are a warm south balcony and frequent watering. Leirion.

SCOTLAND.

ARDENCLUTHA.

THIS residence is situated about one mile to the southwest of the town of Hamilton. It is the abode of the Rev. P. M. B. Paterson, minister of the

West Free Church, who is a great patron of horticulture in all its branches, but he is especially enthusiastic in the cultivation of Orchids, of which he has a very fine collection.

By the kind permission of Mr. Paterson, who is always very pleased to show any one through his place, we had the pleasure of looking through the different houses, a passing word on which may perhaps not be uninteresting to your readers, more especially to lovers of Orchids. On entering the place, the first house you come to, is a large conservatory adjoining the mansion, in which there was a good display of bloom of Camellias, Azaleas, Rhododendrons, Deutzias, Guedres Roses, besides bulbs of various sorts, and a host of other well-grown greenhouse plants. Attached to the conservatory, is a small stove, which is devoted to the cultivation of Cypripediums, of which there is a very choice collection, including fine plants of *C. Parishii*, *C. Boxalli*, *C. caudatum*, *C. Spicerianum*, *C. villosum*, *C. venustum*, *C. barbatum*, *C. bellatulum*, *C. Dauthierii*, *C. Godefroyæ*, *C. Elliottianum*, *C. Dominianum*, *C. Lawrenceanum*, besides a great many other varieties, a number of which are in flower. These plants seem to enjoy their quarters, as they are the picture of health.

The next house we come to is the vinery; the Vines which appear in good health, are principally Black Hamburgh, Muscat of Alexandria, and Buckland Sweetwater, and there is every appearance of a good crop. On leaving here we pass through the Stable Court, where we come to a range of four houses, erected about three years ago; two of these are devoted to Orchids. The first we enter is the cool Orchid-house, this is really a pretty little house, with a serpentine walk up the centre, which gives it an uncommon, yet pleasing appearance. This house is principally occupied with *Odontoglossums*, *Oncidiums*, *Masdevallias*, &c.; notable among this collection are the *Odontoglossum Alexandræ*, although not large plants there were some good flower-spikes, especially those of the Pacho varieties. Good plants of *O. Pescatorei*, *O. Rossii majus*, *O. Cervantesii*, *O. hystrix*, *O. grande*, *O. triumphans*, *O. Pictripe*, *O. Andersonianum*, *O. sceptrum*, besides a great many other *Odontoglossums* too numerous to name here. At the time of our visit this house was looking very gay, there having been introduced into it some good plants in bloom of *Cattleya Trianae*, *C. Warscewiczii*, and *C. citrina*. There were beautiful specimens of *Dendrobium thyrsiflorum*; on this plant there were seven splendid flower-spikes, with an average of fifty flowers on each spike. There was also a really good plant of *Oncidium Marshallianum*, with a flower-spike about 3 feet long, upon which there were upwards of fifty flowers. We also noticed some nice plants of *Sophrontia grandiflora*, *Lycaste Skinneri*, and *Pleiones*, as also many others, all looking clean and healthy.

The house adjoining this is a beautiful span-roof building 35 by 16 feet; this house is fully stocked with *Cattleyas*, *Lælias*, *Cologynes*, and *Dendrobiums*. The centre stage being occupied with a very select lot of stove plants, such as *Crotons*, *Aralias*, *Dracænas*, *Pandanus*, *Alocasias*, and *Anthuriums*, of which there is one magnificent plant of *Anthurium Veitchii*.

Notable among the Orchids are some good pieces of *Cattleya Trianae*, *C. Mendeli*, *C. M. princeps*, *C. labiata*, the true old autumn-flowering variety; *C. l. Warneri*, *C. Aclandiae*, *C. gigas*, *C. gigas Sanderiana*, *C. amethystoglossa*, *C. crispa*, *C. Dowiana*, *C. Gaskelliana*, *C. Percivaliana*, *C. Warscewiczii*, besides a great many other varieties; *Lælia anceps*, and *anceps alba*, *L. Dayana*, *L. purpurata*, *L. Gouldiana*, and *L. acuminata*; *Cologyne cristata*, and its varieties; *C. Lemoniana*, *C. Massangeana*, *Dendrobium Ainsworthii*, *D. Brymerianum*, *D. crassinode*, *D. densiflorum*, *D. Findlayanum*, *D. infundibulum*, *D. Jamesianum*, *D. nobile*, and most of the popular species of *Dendrobes*; also a fine collection of *Vandas*, *Angræcums*, *Aërides*, *Cypripediums*, *Calanthes*, *Phalænopsis*, *Miltonias*, &c.

The above have been a carefully-selected collection, and really look well, showing that they are under careful management, and will, we are sure, compare favourably with any collection of Orchids in the west of Scotland. The next house to this is devoted to growing Roses. There is a well-assorted collection, upon which there were a rare lot of buds and fully-expanded flowers; there is a fine plant of *Maréchal Niel* covering the roof, which is showing well for bloom. We now come to the last of this range, the Peach-house. These, of course, are young trees, but are looking well for a fair crop this year. Here we observed a grand lot of *Chrysanthemums*, from their appearance and the varieties grown, numbering upwards of six hundred, we may expect to hear something more about them by the autumn. This range of houses forms three sides of a square; the houses are very compact, and are supplied with every convenience. Under the centre stage in the *Cattleya*-house, are three large water-cisterns, into which all the rain-water off the houses comes, and round these cisterns is a hot-water pipe. They are very well-appointed houses, and the whole structure is highly creditable to Messrs. Simpson & Farmer, horticultural builders, Partick, Glasgow.

Besides the houses mentioned above, there is a greenhouse, a range of hot frames, also cold frames, all being fully stocked. The kitchen garden extends to about an acre; the flower garden and lawns around the house are of about the same extent. The appearance of everything connected with this place shows the deep interest taken in horticulture by the proprietor. We are also bound to state that everything we saw reflected the highest credit on Mr. Henry Reynard, the gardener, and we have to thank him for the courtesy with which we were shown through this place. *J. F. A.*

SOCIETIES.

SCOTTISH HORTICULTURAL ASSOCIATION.

THIS Association held its usual monthly meeting on the 2nd inst., in 5, St. Andrew Square, Edinburgh, Mr. W. Welsh, President, in the chair. A number of candidates for membership proposed at the previous meeting were duly elected, and several names of candidates were proposed and seconded with the view to election next month. A paper on "The Leaf," by Mr. Hutton, Dundee, was read by Mr. Hugh Fraser. The writer dealt with his subject in a comprehensive way, treating of the importance of the leaves of plants in the economy of Nature, and of their importance to animal life. The functions of leaves, their structure, form, arrangement on the plants, and their varied adaptation to climatal and local conditions, were treated of in detail. A brief discussion followed, and the author was accorded a cordial vote of thanks.

Exhibits consisted of a fine lot of St. Brigid Anemones from Mr. Matheson, Curriehill, the flowers being remarkably fine, and worthy of the admiration they elicited. There were also some very superior *Hydrangeas* in flower in 5-inch pots—some bearing three or four trusses—which, considering the perfect state of the leaves, and the large size of the former, were regarded as good samples of this style of *Hydrangea* culture. They were grown by Mr. Petrie, Westerlea, Edinburgh.

THE TEMPLE SHOW.

OWING to the haste with which our report was written, some good exhibits were omitted, and amongst them that of Messrs. W. Cutbush & Son, Highgate, London, N., which consisted of a group of Palms, Ferns, stove and greenhouse, foliage, and flowering plants, occupying a space of 70 square yards. Especially noteworthy were *Ericas*, such as *Cavendishii*, *ventricosas* of sorts, *candidissima*, &c.; *Leschenaultia biloba major*, *Mignonette* *Snow-drift*, *Boronia elatior*, *Hydrangea paniculata*, *H. grandiflora*, &c.

Messrs. W. S. Iles & Co., of Camberwell Park, S.E., showed a fine and miscellaneous group of plain and ornamental pottery, including edging-tiles,

flower-box tiles, plain and rustic Orchid pots and baskets; also vases, after Roman and Greek designs, of very handsome make and finish, intended for painting on in colours.

The following list of awards is official, and it will serve to supplement, and in part amend, that which appeared in our last issue:—

Silver Cups.

To Messrs. F. Sander & Co., The Nurseries, St. Albans, for group of Orchids.

To Messrs. W. & J. Birkenhead, Sale, Manchester, for group of Ferns.

To Mr. G. Monro, Covent Garden, for collection of fruit.

To Messrs. Kelway & Son, Langport, for hardy herbaceous plants and cut flowers.

To Messrs. W. Cutbush & Son, Highgate, for group of foliage and flowering plants.

To Messrs. W. Paul & Son, Waltham Cross, for group of Roses, &c.

To Messrs. B. S. Williams & Son, Upper Holloway, for group of foliage and flowering plants.

To Messrs. James Carter & Co., High Holborn, for miscellaneous groups of plants.

Silver-Gilt Flora Medals.

To Messrs. Rothschild, Gunnersbury Park, Acton (gr., Mr. G. Reynolds), for group of *Vanda* *teres*.

To Leopold Rothschild, Esq., Ascot, Leighton Buzzard (gr., Mr. Jennings), for a group of Carnations.

Silver Flora Medals.

To T. B. Haywood, Esq., Woodhatch Lodge, Reigate (gr., Mr. Salter), group of Orchids.

To Messrs. B. S. Williams & Son, group of Orchids.

To Mr. H. B. May, The Nurseries, Edmonton, groups of Ferns and foliage plants.

To Messrs. Paul & Son, Cheshunt, for group of hardy herbaceous plants.

Silver Banksian Medals.

To Mr. G. Phippen, Reading, bouquets.

To Mr. F. Hooper, Bath, Pansies and Roses.

To Mr. T. S. Ware, Tottenham, group of *Pæonies*.

To Messrs. J. Peed & Sons, The Nurseries, Norwood Road, S.E., group of *Anthuriums*.

To Mr. G. W. Riley, 81, Dulwich Road, Herne Hill, rustic summer houses, seats, &c.

Bronze Flora Medals.

To Messrs. W. S. Iles & Co., Warner Road, Camberwell, collection of pottery.

To Major Berkeley, Bitterne, Southampton, group of Orchids.

TRADE NOTICES.

THE business of Messrs. Dick Radclyffe & Co., Lim., of High Holborn, London, W.C., in liquidation, is offered for sale.

The "Acme" Chemical Company is the new title for what has up to the present been known as the Agri-Horticultural Chemical Company of Tunbridge Wells.

Obituary.

PROFESSOR P. MARTIN DUNCAN.—On the 28th of May, in the 67th year of his age, Professor P. Martin Duncan, F.R.S., Fellow and Emeritus Professor of Geology in King's College, London, &c. Friends will kindly accept this, the only intimation. Dr. Duncan was an excellent naturalist, and although of late years he devoted his attention principally to echinoderms and to geology, yet in early life he was an accomplished botanist, and did some good work in histology.

LAW NOTES.

CLAIM FOR POTATOS.

In the Westminster County Court, on Tuesday, the case of *The Producers Association v. Field* came before his Honour Judge Bayley. This was an action by the plaintiff to recover an account alleged to be due for Potatoes supplied to the defendant in the way of trade.

A clerk in the plaintiffs' employ was called, and gave evidence as to the order and delivery of the

goods. For the defence, it was not denied that the goods had been delivered, but it was contended that they had already been paid for. In support of the contention, the defendant's solicitor produced the Company's receipt for the money, it being signed by a man named Thompson. It further transpired that Thompson was formerly in the employ of the plaintiffs, but had since run away. There could be no doubt that the money was paid over to Thompson, and he was the authorised servant of the plaintiffs.

The Judge said it was very clear that the money had already been paid to Thompson, therefore there must be a non-suit.

VEGETABLES.

EARLY VEGETABLE MARROWS.

The early production of Vegetable Marrows is now a feature of some of our leading market gardens. Ordinary frames are used for the purpose, and in the month of March a deep trench is made along the middle of the frame by throwing out the soil, and a good bed of fresh manure is put in its place; this is covered with soil and the seeds are sown, the lights placed on and kept close until the plants appear above the ground. Then air is given as required, the bines fill the lights, and when the weather is warm enough and danger from frost is past, the long shoots overflow on all sides, and enormous crops are produced during the season. In a favourable season the first fruits appear in the market about the last week in June or early in July, some time before they can be had in the open. The early-produced fruits command good prices. Young early Marrows are rightly esteemed a great delicacy by consumers, and so the production is advantageous to grower and consumer. A medium-sized and delicately-flavoured Marrow is much more preferable for table than the large overgrown fruits, which find their way into the markets later in the season. But large Marrows are not to be despised. They are much appreciated by the poor, and, however large they are, if not too far advanced, they find purchasers. The Vegetable Marrow shares with the Potato, Pea, Cabbage, and Scarlet Runner, the distinction of being among the most popular summer vegetables in London. When the bulk of the summer crop is thrown on to the market, prices are low, and the carriage heavy. *R. D.*

MARKETS.

COVENT GARDEN, June 4.

[We cannot accept any editorial responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they fluctuate, not only from day to day, but often several times in one day. *Ed.*]

Business brisker, with prices firm. *James Webber, Wholesale Apple Market.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemones, 12 bun....	2 0-4 0	Narcissus Poeticus	
Arum Lilies, 12 blms.	2 0-6 0	(Pheasant Eye), 12	
Azalea, 12 sprays ...	0 6-1 0	bunches ...	1 6-2 6
Bouvardia, per bun.	1 0-1 6	Pansies, 12 bunches	0 6-1 0
Camellia, white, 12		Pelargonium, scarlet,	
blossoms ...	2 0-3 0	12 spr. ...	0 4-0 6
Carnations, 12 blms.	1 0-2 0	12 sprays ...	0 6-1 0
Cineraria, 12 bchs. ...	6 0-9 0	Polyanthus, 12 bun.	1 0-2 0
Cyclamens, per doz	0 3-0 6	Primulas, double, 12	
Eucharis, per dozen	3 0-6 0	sprays ...	0 6-1 0
Gardenia, per doz. ...	1 6-3 0	Ranunculus 12 bun.	1 0-2 0
Heliotropes, 12 spr.	0 6-1 0	Roses, Tea, per doz.	1 0-3 0
Lilac, best, p. bunch	4 0-6 0	— coloured, dozen	2 0-4 0
— p. bunch ...	0 4-0 9	— yellow (Maré-	
Lilium Harrisii, doz.	3 0-4 0	chals), per doz. ...	2 0-6 0
Lily of the Valley, 12		— red, per dozen ...	3 0-6 0
sprays ...	0 6-1 0	— do. French, doz.	1 0-3 0
Maiden Hair Fern,		Spruce, per bunch ...	0 4-0 6
12 bunches ...	4 0-9 0	Tuberose, 12 blms...	0 6-1 0
Marguerites, 12 bun.	3 0-6 0	Tulips, various, per	
Mignonette, Fr., bu.	0 4-0 6	doz. bunches ...	3 0-6 0
Myosotis, 12 bun. ...	2 0-4 0	Violets, 12 bun. ...	0 6-0 9
Narcissus, double		— dark, Fr., bun ...	1 0-1 6
white, 12 bunches.	4 0-6 0	Wallflower, 12 bun.	2 0-4 0

ORCHID-BLOOM in variety.

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Endive, per dozen ... 4 0-...
Asparagus, wholesale, Worcester, bundle 1 0-1 6	Herbs, per bunch ... 0 4-...
Cambridge, bundle 1 0-1 6	Lettuces, per dozen ... 3 0-...
Various, sml. bdle. 0 6-10	Mushrooms, punnet 2 0-...
Beans, French, lb. ... 1 6-2 0	Mustard and Cress, punnet ... 0 4-...
Beet, red, per dozen 2 0-3 0	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 0 9-1 6
Cauliflowers, each ... 0 6-...	Shallots, per lb. ... 0 6-...
Celery, per bundle ... 2 6-3 6	Spinach, per bushel ... 7 0-...
Cucumbers, each ... 0 6-1 0	Tomatoes, per lb. ... 1 6-2 0
	Turnips, per bun. new 1 6-...

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Foliage plants, various, each ... 2 0-10 0
Aspidistra, doz. ... 18 0-42 0	Genista, per dozen ... 6 0-9 0
— specimen plants, each ... 7 6-10 0	Heliotrope, per doz. 4 0-8 0
Azalea, per dozen ... 12 0-30 0	Hydrangea, per doz. 9 0-18 0
Bedding plants, variety, per doz. ... 1 0-2 0	— paniculata, per plant ... 2 0-4 0
Buvaria, p. doz. ... 9 0-18 0	Ivy Pelargoniums, per dozen ... 4 0-6 0
Calceolaria, p. doz. ... 5 0-9 0	Liliums, various, per dozen ... 18 0-30 0
Cineraria, per dozen 4 0-8 0	Lobelia, per dozen ... 4 0-6 0
Cyclamens, doz. ... 9 0-18 0	Marguerites, doz. ... 6 0-12 0
Cyperus, per dozen ... 4 0-12 0	Mignonette, per doz. 4 0-9 0
D. acuta terminalis, per dozen ... 30 0-60 0	Musk, per doz. ... 2 0-4 0
— viridis, per doz. 12 0-24 0	Myrtle, per doz. pot. 6 0-12 0
Euonymus, in var., per dozen ... 6 0-18 0	Palma in variety, each ... 2 6-21 0
Erica, various, doz. 8 0-24 0	Pelargoniums, doz. 9 0-15 0
Evergreens, in var., per dozen ... 6 0-24 0	— scarlet P. doz. 4 0-9 0
Ferns, in variety, per dozen ... 4 0-18 0	Roots for bedding, in boxes, each, from 1 0-2 0
Ficus elastica, each 1 6-7 0	Spiraea, per dozen ... 6 0-9 0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, $\frac{1}{2}$ -sieve ... 3 6-6 0	Lemons, per case ... 15 0-25 0
— Nova Scotia, bri. 15 0-25 0	Peaches, per dozen ... 6 0-18 0
— Tasmanian, case 12 0-14 0	Pine-apples, St. Michael, each ... 2 0 8 0
Cobs, Kent, 100 lb. ... 35 0-40 0	Strawberries, p. lb. ... 2 0-6 0
Grapes ... 2 6-4 0	

NEW POTATOS.—Very heavy arrivals of Jerseys, Cornish, and French are coming to hand, which daily increase. Prices have been subject to a continual decline. Jerseys and Cornish, 12s. to 16s.; French, 11s. to 13s.; Lisbon Rounds, 8s. to 9s.; Malta Rounds, 12s. to 15s.; Malta Kidneys, 10s. to 11s. The latter kind being particularly in demand, on account of quality.

OLD POTATOS.—Demand and prices about the same as the past fortnight. J. B. Thomas.

SEEDS.

LONDON, June 3.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that to-day's market was poorly attended, with scarcely any business doing. Clover Seeds, just now, as might be expected, are quite neglected. There is some speculative inquiry for Italian Rye-grass. Rapeseed continues exceedingly firm. In Mustard there is no alteration. Blue Peas meet a slightly increased demand. Last Monday's prices are realised for Haricots. The trade for Linseed is dull. French Buckwheat now offers at moderate rates.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending May 30, and for the corresponding period last year:—1891, Wheat, 40s. 1d.; Barley, 26s. 9d.; Oats, 21s. 1d. 1890, Wheat, 32s. 11d.; Barley, 25s. 5d.; Oats, 19s. 10d. Difference: Wheat, +7s. 2d.; Barley, +5d.; Oats, +1s. 3d.

FRUIT AND VEGETABLES.

STRATFORD: June 3.—Quotations:—Cabbages, 4s. to 6s. per tally; Greens, 1s. 6d. to 2s. 6d. per sieve; do., 4s. to 5s. per bunch; Carrots, household, 130s. to 140s. per ton; Mangels, 22s. to 25s. do.; Onions, English, 120s. to 140s. do.; do., Lisbons, 8s. to 9s. 6d. per case; Apples, English, 4s. to 7s. per bushel; Asparagus, 2s. 3d. to 2s. 6d. per bundle; Mint, 1s. per dozen bunches; Cucumbers, 3s. to 5s. per dozen; Radishes, 8d. to 1s. per dozen bunches; Lettuces, 7d. to 1s. per score; Spinach, 1s. to 1s. 6d. per sieve; Watercress, 7d. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: June 2.—Quotations:—Old: Magnums, 90s. to 115s.; Imperators, 90s. to 120s. per ton. New: Jersey Kidneys, 10s. to 20s.; Lisbon rounds, 10s. 6d. to 11s. 6d.; Malta do., 10s. to 11s.; do. Kidneys, 14s. to 2 s. per cwt.

SPITALFIELDS: June 3.—Quotations:—Old: Magnums and Imperators, 90s. to 121s. per ton. New: Rounds, 10s. to 12s.; and Kidneys, 14s. to 18s. per cwt.

STRATFORD: June 4.—Quotations:—Magnums, 110s. to 130s.; Hebrons, 80s. to 100s.; Elephants, 80s. to 100s.; Scotch Magnums, 110s. to 130s.; Bruces, 115s. to 130s. per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 60s. to 102s. 6d.; inferior do., 46s. to 75s.; Hay, best, 60s. to 87s.; inferior do., 25s. to 50s.; and straw, 2s. to 3s. per load.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.					
	Above (+) or below (—) the Mean for the week ending May 30.	ACCUMULATED.				More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.								
											Day-deg.	Day-deg.	Day-deg.
1	3	—	33	4	+	19	+ 79	1	+	97	18.6	27	29
2	5	—	39	4	—	68	+ 98	4	+	62	8.1	21	32
3	4	—	37	0	—	94	+ 95	8	+	69	7.1	19	29
4	4	—	46	0	—	97	+ 128	4	+	71	7.2	23	32
5	5	—	44	3	—	82	+ 117	3	+	65	8.1	25	30
6	5	—	53	0	—	110	+ 149	3	+	62	8.7	36	33
7	3	—	46	1	—	21	+ 48	1	—	70	12.3	30	32
8	4	—	43	0	—	42	+ 37	1	+	59	7.5	25	29
9	5	—	45	0	—	71	+ 118	0	aver	62	10.7	43	37
10	4	—	43	0	—	54	+ 28	2	+	77	9.2	29	33
11	5	—	47	0	—	33	+ 32	3	+	70	9.7	32	35
12	4	—	59	0	—	55	+ 40	2	+	68	9.4	46	46

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.
Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 30, is furnished from the Meteorological Office:—

"The weather continued cold, unseasonable, and rainy very generally, until the end of the period, when the conditions improved somewhat. Thunder and lightning were experienced during the week in nearly all parts of the Kingdom.

"The temperature has remained below the mean, but the deficit (3° to 5°) has not been so great as that of the preceding week. The highest of the maxima were recorded during the 30th, and ranged from 67° in the 'Midland Counties,' to 61° in 'Scotland, N.,' and 60° in the 'Channel Islands.' During the earlier days of the period the daily maxima were in many cases below 50°. The lowest of the minima, which were generally registered on the 26th, varied from 30° in 'Ireland, N.,' and 31° in 'Scotland, E.,' to 38° in the east and north-east of England, and to 42° in the 'Channel Islands.'

"The rainfall has been a little less than the mean in 'Scotland, W.,' and about equal to it in 'England, S.W.,' in all other districts an excess is shown; that in 'England, N.E.' being large.

"The bright sunshine has been less prevalent than it was last week in most districts, but in the south and south-west of England there has been a slight increase. The percentage of the possible amount of duration ranged from 46 in the 'Channel Islands,' and 43 in 'England, S.W.,' to 21 in 'Scotland, E.,' and 19 in 'England, N.E.'"

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

Would any of our readers kindly inform J. P. if *Tritoma caulescens* has stood the past winter in the Midland or Northern Counties unburnt, or, if it is generally hardy.

NOTICES TO CORRESPONDENTS.

BOOKS: A Subscriber. *Cactaceous Plants, their History and Culture* (Lewis Castle), published at 171, Fleet Street, E.C. We are not acquainted with any books on the other two plants you name, but they are treated of in *The Handy Book of the Flower Garden* (David Thomson), Blackwood & Sons, Edinburgh and London.

CORRECTION—TEMPLE SHOW.—The samples of Imperishable Porcelain Labels were shown by the French Flint Glass and Bottle Company, 6 and 7, Long Lane, Aldershot Street, E.C.; not by Messrs. J. Green & Nephew, 107, Queen Victoria Street, E.C. The latter showed a selection of Balmoral Flower Glasses and Munstead Flower Vases.

COVENT GARDEN MEASURES: J. A. C. Bundle of Asparagus, 100 to 125; bundle of Celery, 12 to 20; bundle of Seakale, 12 to 18; Endive, by the score; Apples (New South Wales), barrel of 2½ bushels; Apples from Tasmania in cases vary in numbers, according to size and method of packing, but rather less than a barrel; Lemons, about 500 to a case.

EUCRYPHIA PINNATIFOLIA: Beta. A flowering shoot was exhibited at one of the Royal Horticultural Society's meetings in 1880, by Messrs. J. Veitch & Sons, Chelsea, with whom doubtless the plant may be found at the present day.

GARDENIA: W. and S. Nothing can be gathered from the miserable scraps sent; but, if you will kindly send better materials, and some specimens of the insect, we shall be glad to afford you the desired information.

INSECTICIDES: A. P. After making the carbonate of copper, as advised in *Gardeners' Chronicle*, May 30, p. 677, dilute it with clear water; allow it to settle, then syphon off the clear water that stands above it, and dry the precipitated carbonate of copper. When required for use, mix three ounces of carbonate of copper and one pound of pulverized carbonate of ammonia; add two quarts of hot-water, obtaining a clear solution. Dilute for use with water to fifty gallons. The carbonate of copper and sulphate of copper may be used as substitutes for each other. To apply it, use any fine sprayer, such as the Vermorel Knapsack Spray Pump. For aphid on Peach trees, Roses, Oranges, &c., it will be much safer to use the ordinary remedies.

INSECTS: T. N. The insect which has attacked your Roses, biting off the bark and young shoots, is one of the weevils (*Phyllobius Pyri*)—a rather indiscriminate feeder. Lay a white sheet under the trees, and shake them well after dark, when the insects will fall, and must be at once collected and killed with boiling-water. I. O. P.

NAMES OF PLANTS: A. M. 1, *Negundo aceroides*; 2, *Euonymus latifolius*; 3, *Staphylea pinnata*.—An Old Subscriber. *Staphylea pinnata*.—W. Thomson. *Polypodium Phyllitidis*.—Hannaford & Son. *Muscari comosum* var. *monstrum*.—W. C. 1, *Erica ventricosa rosea*; 2, double flowered *Tropeolum*, winter flowering, raised from cuttings; 3, *Acer negundo folius variegatus*.—T. J. S. 5, *Erianthus Ravenæ*; 6, *Arundo phragmites*; 7, *Helipterum eximium*; 8, *Festuca rigida*; 9, *Secale cereale*; 10, *Compositæ*, unknown.—W. P. 1, *Kerria japonica*; 2, *Genista scoparia*; 3, *Thalictrum majus*, probably; 4, *Spiræa confusa*, probably—send when in bloom.—B. R. S. 1, *Dendrobium Dalhousieanum*—a very fine variety; 2, *D. thyrsiflorum*.—Weir. Next week.—*Exoniensis*. *Vanda cristata*.

PEACH: Southtown. The Peach mildew. Try one of the many remedies mentioned in these pages of late.

PEACH TREE LEAVES FALLING OFF: W. J. W. The wood of last year's growth is very badly ripened, and doubtless the roots are in a wet, cold soil, and the more water you afford them the worse will be the results. Slugs have gnawed holes in the leaves.

PYRAMIDAL APPLE TREES DYING OFF: I. O. W. Probably they are dying, owing to something being wrong at the root. Nothing may be done at this season, unless it be to ascertain that the drains, if any exist, have a clear outlet for the underground water. Examine the trees when the foliage has fallen, and if the roots have got into

the subsoil, and the trees are not very old, lift them entirely; clear out the stations to a depth of 2 feet, and put a floor of 5 feet in diameter, and 6 inches thick of coal ashes and lime, or gravel and lime mixed with water; let it harden, partly fill in with the staple and some portion of new loam, treading it firmly, and replant the trees, spreading out the roots horizontally, and pruning off decayed and badly-bruised parts; and water thoroughly when the holes are partly filled with earth. Do not let the roots be exposed to the air whilst the work is being performed; and prune away all cankered branches and spurs. Steady the trees with a stake or two, and mulch the roots before hard frosts set in.

RHODODENDRON BLOOMS NOT OPENING: *J. Lewis & Son.* The result of late spring frosts. It will doubtless be a common source of complaint this untoward season.

SEEDLING PELARGONIUM: *G. B.* A nice shade of colour, and if the habit is good, that is, compact, and not very tall, and floriferous, it will be good for beds or pots. There are many that resemble it in colour.

STRAWBERRY LA GROSSE SUCRÉE: *R. Gilbert.* The fine examples of this variety were entirely spoiled during transit, and the fault did not lay with the Post-office.

STRAWBERRY LEAVES AND BLACK CATERPILLARS: *J. C. M.* Handpicking for plants in bearing, and Quassia-water and soft soap for the others. Old plantations should be pared off with the spade, and with an inch or two of the surface-soil charred on the ground.

SWEET PEAS: *W. F.* Wet the Pea-seed with linseed oil, and roll them in red-lead before sowing them.

TULIPS: *Mrs. M.* The flowers sent are very well grown specimens.

VINES: *T. M. J.* The Vines are suffering from faults in cultivation, and the leaves are covered with red-spider. The brown spots on the leaves are caused by burning. Give more ventilation, and less moisture in dull weather.—*G. B.* The border must be in a very unsatisfactory condition. It will have to be renewed in the autumn, for nothing that you can do short of that will restore permanent vigour to the Vines. You may aid them for the remainder of the season with Thomson's Vine Manure, applied according to the instructions sent with it.

WITLOOF LARGE BRUSSELS CHICORY: *Alex. V.* The culture is the same as that pursued with Carrots, except that the seed should not be sown before June. The land should be deeply dug, and in good heart. Sow in drills 12 inches apart, and thin out the plants to the same distance. Keep the crop clear of weeds, and in November dig it up, sorting out those which have narrow or divided leaves, as being of less value than the others. Trim the leaves of those retained for use to within 1½ inches of the crown, the lower end of the roots being also shortened, so as to give them a uniform length of 8 to 10 inches. The roots may then be laid in close together on a border, burying them up to the neck, and throwing some litter over them when hard frost threatens. In private gardens the roots are taken in numbers, according to the demand, and forced into growth in the dark, so as to secure blanched heads. In doing this, it is best to make ridges or conical heaps, with light earth or sand, placing the Chicory roots in layers with the neck slightly projecting outwards. The roots will not force a second time.

CATALOGUES RECEIVED.


ESSEX BEE-KEEPERS' ASSOCIATION—Report, List of Members, and Accounts for 1890.

W. RICHARDSON & Co., Horticultural Builders, Darlington—Conservatories, and other Horticultural Buildings and Requisites.


DICKSONS & Co., 1, Waterloo, Edinburgh—List of Bedding and Border Plants.

THE NATIONAL ROSE SOCIETY—Annual Report, List of Members, and Schedules of Prizes.

COMMUNICATIONS RECEIVED.—H. G. G., Dresden.—J. G. L., Oakland, California.—D. M. (next week).—J. A. C.—W. P. B.—J. B.—J. Weathers.—A. Beck.—A. B.—North British Agriculturist.—W. G.—W. N.—W. S.—T. N. R. and D. Morrison (next week).—Alex. B. MacD.—J. France (see this week's issue).—Sutton & Sons.—R. D.—W. E., Broadway, Trinidad.—C. R.—W. Cuthbertson.—J. S.—J. B. W.—A. D. W.—W. R.—A. Wellwisher.—W. H.—F. R.—J. Lowrie.—W. M.—S. T.—Kortor & Co.—Southtown.



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CAUTION TO THE PUBLIC.—Please carefully note our Name, Address, and Trade Mark, and do not be deceived by imitations.

NOTICE IS HEREBY GIVEN, that by virtue of an Order of the High Court of Justice the use of the name AGRI-HORTICULTURAL CHEMICAL COY. on Show-Cards, Circulars, Labels, or otherwise howsoever, by the parties recently trading under that name at Tunbridge, Kent, is **ILLEGAL**. We most respectfully call attention to the undernoted Order of the Court in an action brought by us against the Makers of the ACME WEED KILLER and other compounds, which latter company started business at Tunbridge, Kent, after we, the original company, had removed from there to GLASGOW.

ORDER OF THE HIGH COURT OF JUSTICE.

The Horticultural and Agricultural Chemical Coy.,
97 MILTON STREET, GLASGOW,
PLAINTIFF.

VERSUS


The Agri-Horticultural Chemical Coy.,
TUNBRIDGE, KENT,
DEFENDANTS

The Court granted an INJUNCTION RESTRAINING THE DEFENDANT COY.

- (1) From using in any manner or for any purpose whatsoever the Name Agri-Horticultural Chemical Coy. or any name likely to mislead or deceive the public into the belief that the business of the Defendant Coy. is the same as the business of the Plaintiff Coy. or in any way connected therewith.
- (2) From infringing the Plaintiff's Letters Patent, dated 11th March, 1886, by making or selling any compounds made according to the specification thereof or being a colourable imitation thereof.
- (3) The Court also ordered the Defendant Coy. to pay to the Plaintiffs £40 towards their costs of this action.

55,
LIONEL STREET,
BIRMINGHAM.

HENRY HOPE



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1 Gallon makes 51 Gallons for use.

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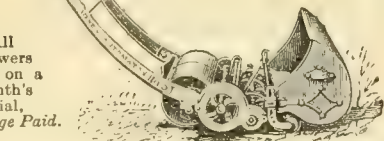
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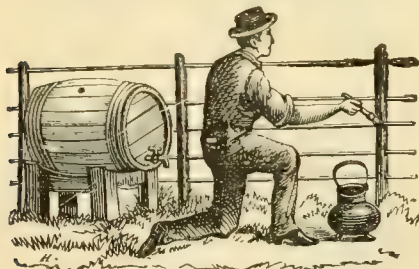
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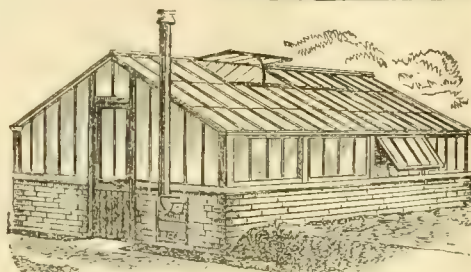
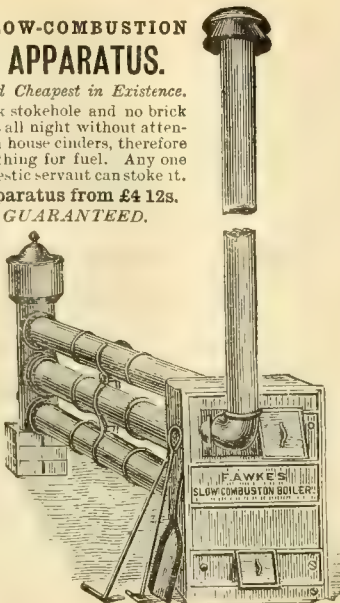
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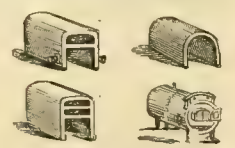
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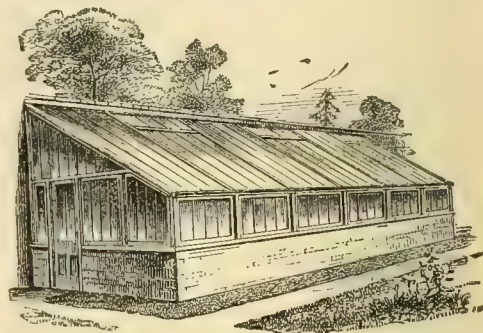
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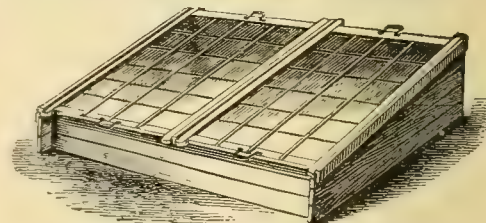


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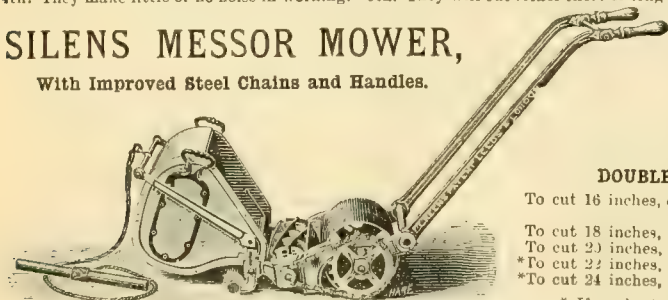
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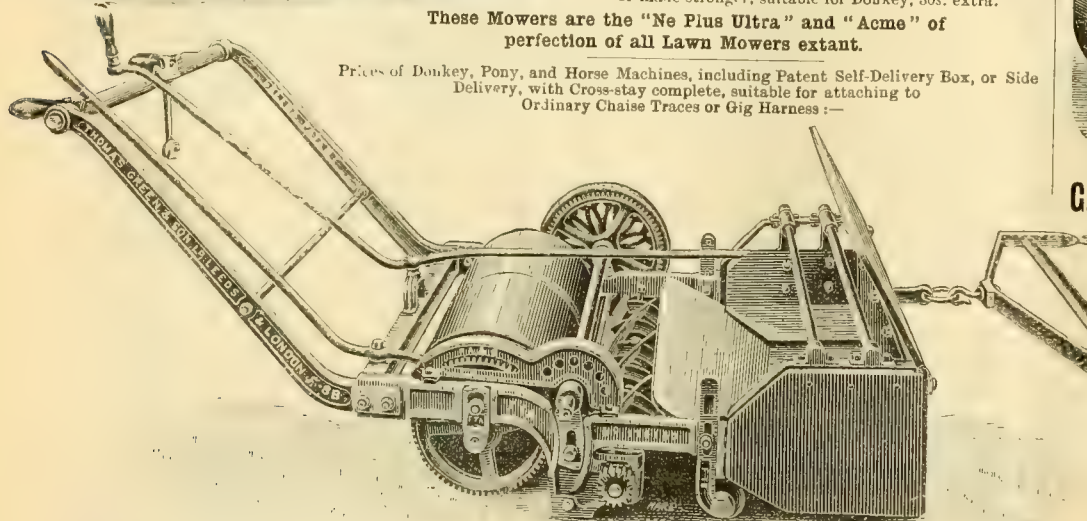
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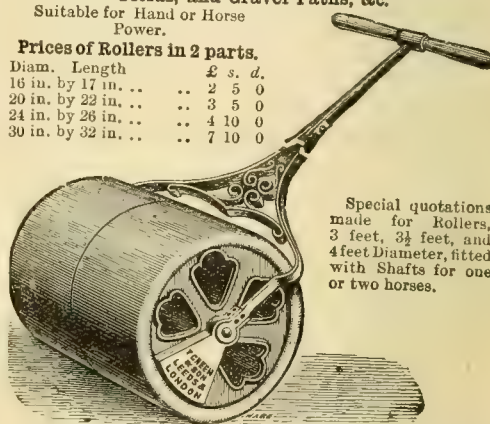


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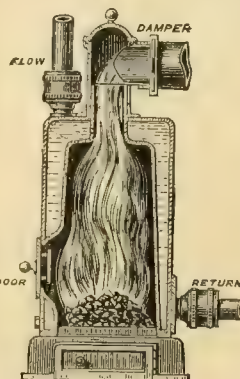
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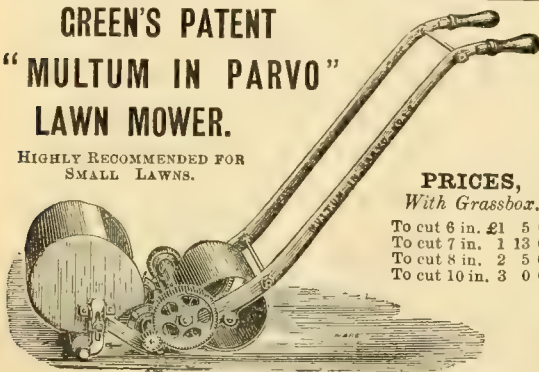
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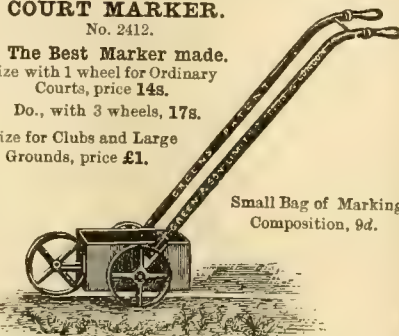
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The GARDENERS' CHRONICLE

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Nurserymen by Appointment to the London School BOARD.

JOHN PEED AND SONS offer CUPRESSUS LAWSONII, in cane baskets, from 5 to 8 feet high; grand plants, suitable for furnishing. ARAUCARIA EXCELSA, from 3 to 6 feet high, furnished to pot. Roupell Park Nurseries, Norwood Road, S.E.; also at Mitcham Road, Streatham, S.W.

Many Acres of Lilies of the Valley!

T. JANNACH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNACH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

PRIMULAS—PRIMULAS—PRIMULAS.

Twenty-first year of distribution. Williams' Superb Strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, same price; also double white PRIMULAS, 6d. each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

THE ENGLISH NEW ROSES

OF THE YEAR. BOURBON—Mrs. Paul, Gold Medal, N.R.S. HYBRID—Bruce Findlay. Strong Plants in pots (or 12 Buds in July), 10s. 6d. each. PAUL AND SON, The "Old" Nurseries, Cheshunt.

The Best Present for a Gardener.

VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published. New Edition. Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.

Caladiums a Specialty.

LAINGS' COLLECTION is quite unrivalled. Inspection cordially invited. Descriptive CATALOGUE post-free on application. Catford Bridge Railway Station.

JOHN LAING AND SONS, Caladium Growers, &c., Forest Hill, London, S.E.

FERNS! FERNS!! FERNS!!!

Trade offer. Twenty most saleable sorts, 12s. per 100; Adiantum cuneatum, for potting on large stuff in 2½ pots, 16s. per 100; fine stuff in large 60's, 20s. per 100; in 48-pots, full of top, 50s. per 100. Large Ferns, in 48's, 45s. per 100, in 6 sorts. Packed free. Cash with order. J. SMITH, London Fern Nurseries, Loughboro' Junction, S.W.

J. W. BARNHAM Receives on Commission, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.

Long Market, Covent Garden, W.C.

CHOICE FRUIT—CHOICE FRUIT.

Highest Market Prices guaranteed. Prompt cash. Address—HENRY RIDES, Centre Avenue, late 38, Hart Street, Covent Garden, W.C.

THE BEST PRIMULA.—CARTERS' HOLBORN PRIZE MIXED—vide Awards. New Seed. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post free. 237 and 238, High Holborn, London, W.C.

THE BEST CINERARIA.—CARTERS' BRILLIANT PRIZE MIXED—vide Awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post free. 237 and 238, High Holborn, London, W.C.

THE BEST CALCEOLARIA.—CARTERS' VICTORIA PRIZE MIXED—vide Awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post free. 237 and 238, High Holborn, London, W.C.

BARR'S SEEDS, for FLOWER and KITCHEN GARDEN, now ready. Descriptive CATALOGUE, full of useful information.

BEST SELECTIONS OF VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s., and upwards.

BEST SELECTIONS OF FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, TIGRIDIAS, ANEMONES, and RANUNCULI, &c., for spring planting. DESCRIPTIVE CATALOGUE free on application. BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

Trade Offer of Large Kentias and Cocos.

W. ICETON begs to offer some extra fine BELMORIANA, FOSTERIANA, MOOREANA, and RUPICOLA, from 8 to 15 feet high; a few extra-sized Grand Specimens, from 20 to 25 feet, with 10 to 18 leaves; large batch of COCOS FLEXUOSA and PLUMOSA, 9 to 15 feet. Prices on Application. Inspection invited. Putney Park Lane, S.W. (near Barnes Station); also 129 and 130, Covent Garden Market.

Verbenas—Verbenas—Lobelias.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Pink VERBENAS, well-rooted cuttings, barked off fit for potting, 6s. per 100, 50s. per 1000. LOBELIAS, Brighton Buestone, Emperor William, and Snowball, all true from cuttings, 3s. per 100, 21s. per 1000. Packing included. Terms cash. Cemetery Nursery, Gravesend.

Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to give Special quotations for their fine selected Stocks of Home-grown TURNIP and MANGEL WURZEL SEEDS of 1890 growth, and raised on their own farms from picked Buds. The quality is fine, and the prices will be found exceptionally low. Seed Growing Establishment, Wisbech.

VIOLAS (TUFTED PANSIES), resemble "a spray of Tufted Pine," in having a beauty and a fragrance all their own. Try them. Seed, 7d., 1s., and 2s. 6d. per pkt., post free. Sow now for next year's blooming. DOBBIE AND CO., Seed Growers and Florists, Rothesay, Scotland.

Sow now for early flowering in Spring.

ROEMER'S SUPERB PRIZE PANSIES. The finest strain of Pansies in the World (hardy). Introducer and Grower of all the leading Novelties. Catalogues free on application. FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

250,000 LOBELIA—LOBELIA.

In all the leading varieties, 2s. 6d. per 100; 21s. per 1000.

HARRISON'S MUSK, 1s. per doz.; 7s. per 100.

VIOLAS, in good varieties, or separate colours, 1s. 6d. per doz.; 10s. per 100; 80s. per 1000.

ANTENNARIA TOMENTOSA, 1s. 3d. per doz.; 8s. per 100; 70s. per 1000.

TOMATOS, in leading variety, 1s. 3d. per doz.; 8s. per 100.

ANEMONES, Hon. Joubert Japonica Alba, 2s. per doz.; 12s. per 100.

The above are all good well-rooted plants, and will be sent free to destination for Cash with Order only, by—

FLETCHER, SON, AND CO., Florists, &c., Chesterfield.

Please mention Gardeners' Chronicle.

THOMSON'S IMPROVED VINE AND PLANT

MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney. WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next.

SHORT NOTICE OF A SPECIAL SALE OF ORCHIDS.

A GRAND IMPORTATION OF VALUABLE ORCHIDS, brought home by Mr. J. D. OSMERS, from the Dutch West Indies.

MESSRS. PROTHEROE AND MORRIS will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **MONDAY NEXT**, June 15, at half-past 12 o'clock, the following valuable **IMPORTED ORCHIDS**:-

400 **VANDA SPECIES** (probably new).—Sepals and petals yellow, with purple spots; lip yellow, with fine violet-purple stripes in throat—free-flowering. The collector counted 28 flowers on one spike.

CYPRIPEDIUM SPECIES (new).—The collector saw three different varieties amongst them. Dorsal sepal white, with broad purple stripes; the petals violet-purple, and twisted about 5 inches long, upper part spotted; lip bright yellow.

GRAMMATOPHYLLUM SPECIES, probably new, golden-yellow, with dark purple spots; lip mauve, with dark stripes.

CYCAS CIRCINALIS.—Fifty grand stems, 4 to 8 feet high.

The Collector states that the whole consignment is in grand condition.

The Sale will also include 50 lots of **CYPRIPEDIUM** in the way of **SPICERIANUM**, the dorsal sepal being white, with violet-purple spots; the petals similar to **Spicerianum**, only very much fringed.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. F. Sander & Co., of St. Albans, to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., at half-past 12 o'clock precisely, a choice selection of **NEW AND RARE ORCHIDS**. A second importation of **Cattleya Bowringiana**, the plants being well-leaved and in very fine condition. The new and beautiful **Dendrobium hybridum Venus** (see drawing) which received a 1st-class Certificate from the Royal Horticultural Society; new white **Stanhopea**, the drawing sent home with these plants revealing much beauty and distinctness; **Lycaste Skinneri alba**, only a few plants received of this beautiful Orchid; new **Oncidium**, from drawings sent, this plant seems to resemble the rare **Oncidium haematostichum**, but it is distinct (see drawing). **Cattleya Mendelii** just to hand in very good order, **Lycaste Skinneri**, a second importation of this highly useful and decorative Orchid; **Epidendrum macrochilum**, among this importation are the two varieties, *E. macrochilum* album and roseum, both of which are fine flowering forms; **Odontoglossum hastilabium**, **Dendrobium Dalhousianum**, many of which will soon flower; **Oncidium Papilio majus**, **Anguloa Ruckeri**, good healthy plants with strong bulbs and sound leads; **Odontoglossum citrinum**, **Dendrobium densiflorum**, **D. Draconis**, **D. eripidatum**, **D. formosum giganteum**, **D. nodatum**. A small importation of **Cattleya labiata**, **Phaius Cooksonii**, a beautiful and wonderful hybrid raised by Norman C. Cookson, Esq., Wyham-on-Tyne. **Vanda Sanderiana**, undoubtedly the grandest Orchid extant (thoroughly established specimens of this gorgeous Orchid). **Dendrobium Casiope**, a very choice and handsome hybrid; new **Epidendrum**, **Dendrobium tortile**, **Thunia Marshalliana**, **Saccolabium retusum**, **S. curvifolium**, **Vanda teres**, and many other good, useful flowering Orchids.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS will include in their ORCHID SALE, on **FRIDAY NEXT**, June 19, **DIACRUM BICORNUTUM** (true), in grand masses in the most perfect condition, with growth pushing. This is also known as **EPIDENDRUM BICORNUTUM**, and is one of the finest of large pure white Orchids. The best variety of the true plant inhabits but one locality where it is plentifully distributed on rocks and very sparingly on trees. The plants previously imported have invariably been gathered from the rocks and have often proved unmanageable after a time, while those collected from the trees, both grow and flower freely. The plants offered were specially collected, and only those found on trees taken.

Also some fine plants of a distinct-looking **DIACRUM** with the general appearance of **D. BICORNUTUM**, but with more tender pseudobulbs, and narrow leaves 8 inches to 10 inches long. Flowers in bunches very large, pure white, with violet spots. Also a few good pieces of the rare **CATASSETUM TRIDENTATUM**, **CARYANTHES MACULATA**, **RODRIGUEZIA SEEMDA BIFRENNARIA AURANTIACA**, and healthy strong pieces of **ONCIDIUM PAPILLO MAJUS**.

On view morning of Sale, and Catalogues had.

Friday Next.

300 **ODONTOGLOSSUM ALEXANDRE**, good Established Plants, from a well-known Grower.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on **FRIDAY NEXT**, June 19.

On view morning of Sale, and Catalogues had.

Bickley.—Short Notice.

SALE of SURPLUS WELL-GROWN STOVE and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will **SELL BY AUCTION**, on the premises, Fairfield, Bickley, close to the railway station, on **THURSDAY NEXT**, June 18, at 1 o'clock, without reserve, a large quantity of well-grown **STOVE and GREENHOUSE PLANTS**, 40 **CAMELLIAS** and **AZALEAS**, 100 choice **ORCHIDS**, **PALMS**, **CROTONS**, **CHRYSANTHEMUMS**, **PORTABLE GREENHOUSE**, **SHED**, **TWO AIRRALE DOGS**, **GARDEN ROLLER**, **GARDEN SEATS**, **IRON HURDLES**, **HANDLIGHTS**, and other effects.

Catalogues obtainable on the premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.; and of Leytonstone, E.

On view day prior, and Morning of Sale.

Bath.
IMPORTANT UNRESERVED SALE of the choice and exceedingly well-grown collection of **ESTABLISHED ORCHIDS**, **STOVE and GREENHOUSE PLANTS**, and **GLASS ERECTIONS**, by order of Mrs. Studd, who is compelled to give up their cultivation, in consequence of relinquishing the gardens.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to **SELL BY AUCTION**, at the Assembly Rooms, Bennett Street, Bath (where the Orchids will be removed for convenience of Sale), on **TUESDAY and WEDNESDAY**, June 16 and 17, at half-past 12 o'clock each day, the choice collection of **ESTABLISHED ORCHIDS**, including, amongst many others, the following:-

Odontoglossum Alexandrie in variety	Lycaste Skinneri alba
" triumphans , specially fine variety	Cymbidium Lowianum
" Pescatorei , fine variety	Masdevallia Veitchi grandiflora
" Uro Skinneri	" varieties
" Roezli	Cattleya Mossiae varieties
Sobralia macranthe rosea	" Warocqueana
Dendrobium nobile Cooksoni	" Dowiana
" Leechianum	" Schilleriana Regnelli
" nobile Cypheri	" Wagneri
" album	" Trane superba
" Statterianum	" Perevaliana
" MacFarlanei (rare)	Cypridium Dayanum
" MacFarlanei (rare)	" Roezli
" Ainsworthi	" grande
" splendissimum grandiflorum	" Rothschildianum
" atro violaceum (rare)	" Leaeanum
Laelia anceps Stella	" Veitchianum
" Weddelliana	" insigne Maulei
" alba	" Lathomianum
" purpurata giganteum	Phaius tuberculatus
" elegans	Aërides Lawrenceanum
	Spathoglottis Kimballiana

Also a quantity of **STOVE and GREENHOUSE PLANTS** in variety, Six fine **KENTIAS** and other **PALMS**. The erections of **THREE GREENHOUSES**, 4-inch **HOT-WATER PIPING**, **GALVANISED TANKS**, &c. The Plants will be on view at the Assembly Rooms on the morning of each day's Sale, and the Greenhouses, by permission, three days prior to the Auction. Catalogues may be obtained at the Assembly Rooms, Bath, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Lee, S.E.—By Order of the Executors.

Highly important **UNRESERVED CLEARANCE SALE** of the valuable collection of **SPECIMEN and other STOVE and GREENHOUSE PLANTS**. By order of the Executors of the late J. W. Larkin, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to **SELL BY AUCTION**, on the Premises, The Firs, Old Road, Lee, ten minutes' walk from Lewisham or Blackheath Stations, on **THURSDAY**, June 25, at 12 o'clock precisely, without reserve, the valuable collection of **SPECIMEN STOVE and GREENHOUSE PLANTS**, being the contents of 12 Greenhouses, and the extensive Winter Garden, including several noble specimen Palms, embracing **Kentia Boreana**, **Scarothra elegans**, **Chamaerops Fortunei**, and others; splendid Tree and other Ferns, comprising immense trunk of **Dicksonia antarctica**, two magnificent examples of **Philodendron bipinnatifidum**, **Lastrea decomposita**; Orange and Lemon trees, **Azaleas**, **Camelias**, **Crotons**; Stove and Decoration Plants in great variety, **Gardenias**, a quantity of well-grown Orchids, consisting of **Cattleyas**, **Dendrobiums**, and others; 1000 Bedding Plants; **Pelargoniums**; a quantity of **Rockwork**, &c.

May be viewed two days prior to the Sale. Catalogues may be had of Mr. TROLLOPE, the Head Gardener, at the Lodge; and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Thursday Next.

Special Sale of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will **SELL BY AUCTION**, at his Great Rooms 33, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, June 18, at half-past 12 o'clock precisely, a **COLLECTION of ORCHIDS in FLOWER and BUD**, including **MASDEVALLIA ROSEA**, **M. HARRYANA**, **M. VEITCHII**, **M. CHESTERTONI**, and **M. SCHROEDERAE**, **PHALENOPSIS SPECIOSA**, **CYPRIDIUM ROTHSCHILDIANUM**, **C. SUPERBILARE**, **C. DRUYLI**, **CELOLYNE**, **TOMENTOSA**, **ODONTOGLOSSUM BENEDICTI**, **O. VENTILARIUM**, &c. Also semi-established plants of **DENDROBIUM FINDLAYANUM**, **D. GRIFFITHIANUM**, **LISSOCHILUS KRESBII**, **ANGRECEUM SUPERBUM**, &c. Also seven cases of **AUSTRALIAN ORCHIDS**, just received direct.

On view morning of Sale, and Catalogues had.

The Library of the Late Shirley Hibberd, Esq., F.R.H.S.

MESSRS. SOTHEBY, WILKINSON, AND HODGE will **SELL BY AUCTION**, at their House, No. 13, Wellington Street, Strand, W.C., on **MONDAY**, June 29, and following day, at 1 o'clock precisely, the **LIBRARY of the late SHIRLEY HIBBERD, Esq., F.R.H.S.**, Editor of the *Gardener's Magazine*, and other popular works, comprising a valuable collection of works in Botanical, Zoological, Agricultural, and other Sciences—Archæology, Travels, and works of general interest.

May be viewed two days prior. Catalogues may be had; if by post, on receipt of four stamps.

WANTED TO RENT, a Small **NURSERY**; or 1 or 2 Acres of **LAND** suitable; if Cottage and Greenhouses on preferred. No stock.

J. R., 13, Montrose Terrace, Hornsey Park Road, N.

Rivers' Fruit Trees in Pots, &c.

FOR SALE, by **PRIVATE CONTRACT**, at Spencer House, Cobham, Surrey, a Choice Collection of these Trees. Also an **ORCHARD HOUSE**, built on Rivers' instructions. Sold because of expiry of Lease. A very low price will be taken for the lot.

Apply to **THE GARDENER**, upon the Premises.

TO BE SOLD, a **NURSERY**, with extensive Glass, containing 13,711 square yards of Freehold Land; situate near Liverpool, easy of access per rail; with commodious Dwelling-house. For further particulars, apply to—

J. HOSKING, 16, Fenwick Street, Liverpool.

FREEHOLD LAND, 13 Acres, 10 Acres, and 35 Acres, suitable for Residential Purposes, Market Garden, or Poultry. Price £20 an Acre. Must be sold. Hants, near station, or would **EXCHANGE** for **HOUSE PROPERTY**.

B. DOWNES, 53, Cheapside, London.

TO LET or SELL.—The old-established **NURSERY GARDEN**, known as Leam Nursery, Leam Terrace, East Leamington; comprising large Glasshouses, with excellent Vines, &c., and a good collection of Fruit trees in full bearing. The Nursery has been in present hands 40 years. Apply, M. M., Ashlands, Leamington.

To Florists, Livery-Stable Keepers, and Others.
TO BE LET on a **LEASE** of fourteen years, a **PIECE of Ground**, nearly 1 Acre in extent, with Pits, Greenhouse, Vinery, and small Dwelling-House, &c., on a main thoroughfare in a North-West Suburb of London, and within the 4-mile radius, close to two railway stations, and almost adjoining a newly-opened Public Park, together with slip of **LAND** on other side of road, on which Show-House could be erected if desired. Large Stabling and Coach-houses, rooms, &c., adjoining, may be had with the Land or separately. Address, **VACANT**, Messrs. Brown, Gould & Co., 54, New Oxford Street, W.C.

DOVER.—**TO BE LET**, with immediate possession, a **FIRST CLASS NURSERY**, with residence, situate in the centre of the town. Plants and Stock by valuation. A first-class opportunity to a young man. Apply to **TERSON AND SON**, Estate Agents, Dover.

TO NURSERYMEN and FLORISTS.—**TO LET** on **LEASE**, old-fashioned House, Garden, Yard, Sheds, Stabling, and 8 acres Grass Land, near Finsbury Park, 4 miles from London. B. 3, Praed Street, Paddington, W.

THE TOWER FURNISHING COMPANY (Limited), **SUPPLY GOODS ON HIRE**, direct from Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus. Address, **SECRETARY**, 43, Great Tower Street, E.C.

THE "GAIR" COLLECTION OF ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), Limited, HAVE JUST PURCHASED

The Large and Fine Collection of **ORCHIDS**, Formed by the late **JOHN GAIR, Esq.**, of **THE KILNS, FALKIRK, N.B.**

The Company have removed the Collection to their Nurseries at Garston by Special Train. The Collection will be on Sale from Tuesday morning next, the 16th inst., and inspection is very earnestly invited. Descriptive and priced Catalogues are being prepared, and will be ready on Saturday the 13th inst. Copies will be sent, post-free, to all who will furnish their names and addresses for that purpose to the Company.

THE VINEYARD & NURSERIES, GARSTON, near LIVERPOOL.

WHITE ROMAN HYACINTHS.

BENJAMIN RIMBAUD,

BULB GROWER,

Quartier du Temple, Toulon (Var), France (The largest Bulb Grower in the South of France).

Offers—

EARLY WHITE ROMAN HYACINTHS.
PAPER-WHITE NARCISSUS GRANDIFLORA and other **NARCISSUS**.
LILIUM CANDIDUM. **FREESIA REFRACTA ALBA.**
And all other Specialties of South of France.

Seeds and Plants of CARNATIONS MARGARITE and other CARNATIONS.
PRICE LIST on application to the **LONDON AGENTS:—**

Messrs. R. SILBERRAD & SON, 25, Savage Gardens, Crutched Friars, London, E.C.

LOVELY TEA ROSES.

Best sorts, in pots, 18s. per dozen; stronger, 2s. 6d. and 3s. 6d. each; New and Choice Varieties, 2s. 6d., 3s. 6d., and 5s. each. See Catalogue, gratis.

WM. CLIBBAN AND SON, Oldfield Nurseries, Altrincham; also 10 and 12, Market Street, Manchester.



TRADE MARK.

FOR PLANTS. QUICK. LASTING. ECONOMICAL.

The Gardens, Seacroft Heath, Hawkhurst, Kent, March 11, 1891.
DEAR SIR,—Having used your "Clay's Invigorator" for some time, I am exceedingly pleased with the results obtained from it. As an Exhibitor I have used it upon most sorts of Vegetables with great advantage; also upon many sorts of Stove and Greenhouse Plants, Melons, Cucumbers, Tomatoes, Pot Strawberries, Chrysanthemums, &c. For Lawns it has a quick and beneficial effect. For Amateurs and those with small gardens, where there is a difficulty in obtaining stable or farm-yard manure, your "Invigorator" ought to be of special value, as it is clean in use, easy of application, and reasonable in price.—Yours respectfully, J. GILMOUR, Gardener to the Right Hon. G. J. GOSCHEN, M.P.

Sold by Seedsmen, Florists, and Nurserymen, or direct from the Works, in 6d. and 1s. Packets, and SEALED BAGS:—

7 lbs.	14 lbs.	28 lbs.	56 lbs.	112 lbs.
2s. 6d.	4s. 6d.	7s. 6d.	12s. 6d.	20s.

The above Trade Mark is printed on every Packet and Bag, and also impressed on the Lead Seal attached to the mouth of each Bag.

A SAMPLE PACKET will be sent post-free on receipt of ONE SHILLING by the MANUFACTURER—

S. C. CLAY,

Marsh Island, Stratford New Town, London, E.
NO CONNECTION with ANY OTHER FIRM

TO NURSERYMEN AND AMATEUR GARDENERS.

CRUSTACEAN FERTILISER.

Made from the Waste of the Lobster Tinning Factories in Newfoundland and Nova Scotia.

The most beneficial and the cheapest Fertiliser in the Market for Nursery, Vegetable, and Flower Gardens, and for Conservatories, producing the highest results with the smallest outlay. Ask your Seedsmen for a shilling 1 lb. Tin, with printed directions for use, and see that you get none other.

For Wholesale Quantities address:—

5, SALTERS' HALL COURT, CANNON ST.,
LONDON, E.C.

THE STOTT

PATENT DISTRIBUTOR,
PATENT SPRAYER,
PATENT SYRINGE,
KILLMRIGHT,

BEST Insecticide for Destruction of Caterpillar and all Insect Pests, and Prevention of Mildew.

Mr. NORMAN, gardener to the Right Hon. the Marquis of Salisbury, writes as follows under date April 20, 1891:—

Mr. STOTT. The Gardens, Hatfield House, Herts.
Sir,—I am pleased to report that I consider your Distributor a very useful invention for mixing your Insecticide Killmright as it passes through the hose, supplied by gravitation.

Your Sprayer is the best I have used. It is very easy to damp a large house of plants with Insecticide without it running into the soil to damage the roots. The Sprayer may be used on either garden engine pipe, or on pipes where the water is laid on.—I am, yours truly,
G. NORMAN.

Retail from Ironmongers, Seedsmen, and Wholesale and Retail from, The Stott Distributor Co. Ltd., Barton House, Manchester.

GISHURST COMPOUND used since 1859 for Red Spider, Mildew, Thrips, Greenfly and other blight, 2 ounces to the gallon of soft water, 4 to 16 ounces as a winter dressing for Vines and Orchard-house trees, in latter from cake for American blight, and as an emulsion when paraffin is used. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

BENTLEY'S WEED DESTROYER.

Mr. J. HUDSON, Gunnersbury House Gardens, writes:—"I am glad to say that the Weed Destroyer has given us every satisfaction; it proved most effectual, and is a great saving of time and labour."

Mr. A. WARD, Stoke Edith Park Gardens, writes:—"I am pleased to tell you that I am exceedingly gratified with the results of your Weed Destroyer, as it destroys both Weeds and Moss on the walks most effectually, and gives the gravel a bright appearance."

In the following sizes, carriage paid:—
3 Gallon Drums, 5s. 6d. | 12 Gallon Casks, 19s. 0d.
6 " " 10s. 0d. | 18 " " 27s. 6d.
40 Gallon Casks, 50s.

SOLE MANUFACTURER:—

JOSEPH BENTLEY,
CHEMICAL WORKS,
BARROW-ON-HUMBER, HULL.

One Success has many Imitators.

The Best and Cheapest Preparation for Destroying Weeds, &c., on Garden Walks and Carriage Drives, is

SMITH'S Celebrated WEED KILLER

Leaves no stain nor smell; makes the gravel equal to new. A great saving of labour. 4 Gallons, sufficient to make 100 Gallons when mixed, 7s. 6d., Carriage Paid.

THE ORIGINAL AND ONLY GENUINE.

Full Particulars and Testimonials of

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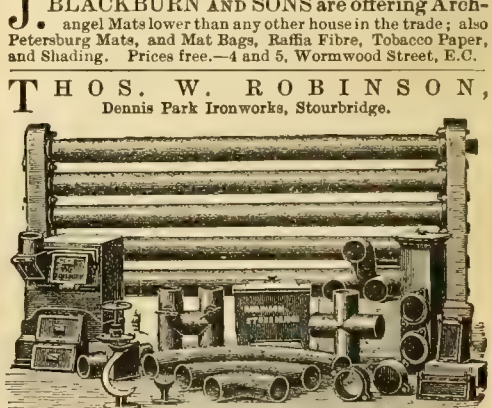
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We most respectfully call attention to the undernoted Order of the Court in an action brought by us against the Makers of the ACME WEED KILLER and other compounds, which latter company started business at Tunbridge, Kent, after we, the original company, had removed from there to GLASGOW.

ORDER OF THE HIGH COURT OF JUSTICE.

The Horticultural and Agricultural Chemical Coy.,
97 MILTON STREET, GLASGOW,
PLAINTIFF.
VERSUS
The Agri-Horticultural Chemical Coy.,
TUNBRIDGE, KENT,
DEFENDANTS

The Court granted an **INJUNCTION RESTRAINING THE DEFENDANT COY.**

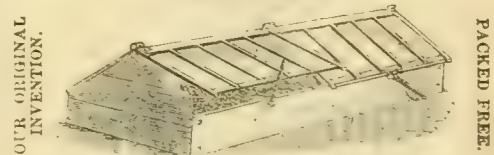
- (1) From using in any manner or for any purpose whatsoever the Name Agri-Horticultural Chemical Coy. or any name likely to mislead or deceive the public into the belief that the business of the Defendant Coy. is the same as the business of the Plaintiff Coy. or in any way connected therewith.
- (2) From infringing the Plaintiff's Letters Patent, dated 11th March, 1886, by making or selling any compounds made according to the specification thereof or being a colourable imitation thereof.
- (3) The Court also ordered the Defendant Coy. to pay to the Plaintiffs £40 towards their costs of this action.



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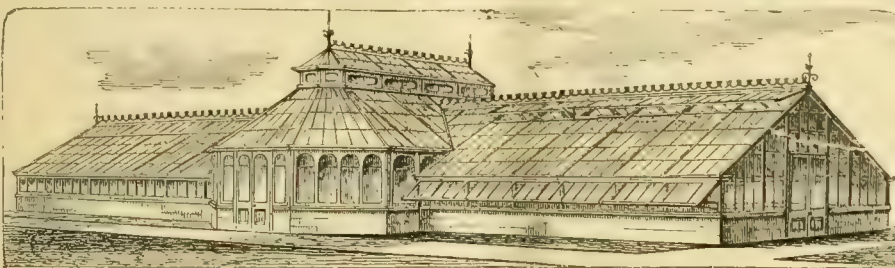
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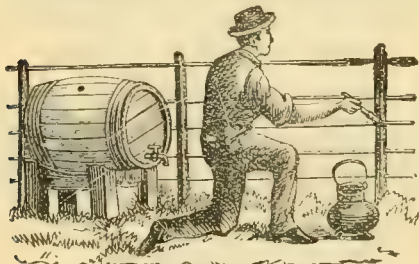
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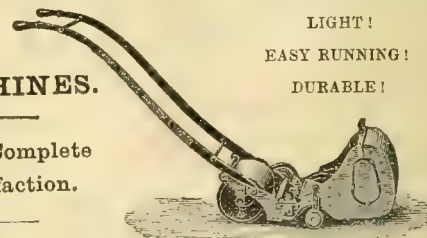
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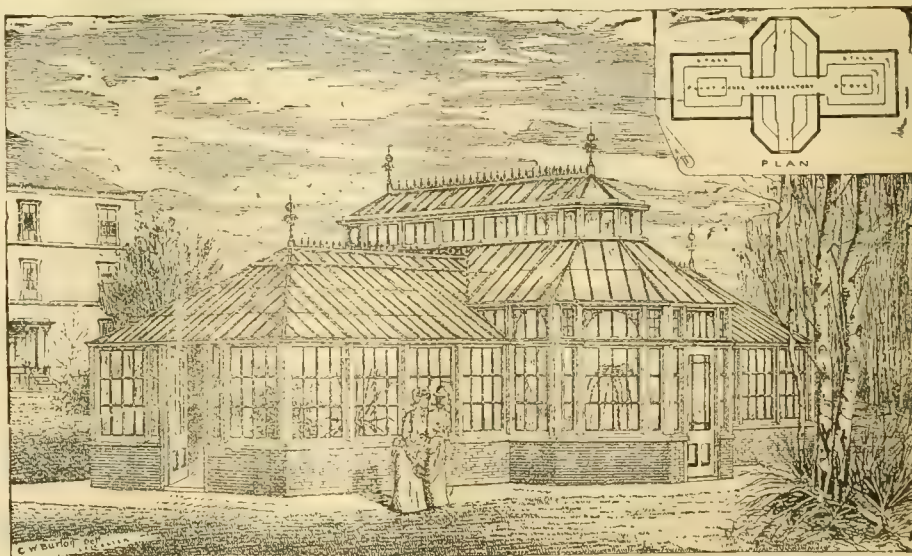
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FOR

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VIEWS AT SANDRINGHAM.



THE

Gardeners' Chronicle.

SATURDAY, JUNE 13, 1891.

THE WINTER OF 1890—91, AND THE ROSES.

THE past winter was of such a kind as long to
make it memorable in the annals of our time.
Horticulturally, too, it has been a disastrous one;
all who have had much glass have found the coal-
bill almost doubled, while those who do not in-
dulge in that luxury have suffered in their gardens
very much. Especially has the wail come up
from the growers of Carnations and Picotees.
From one friend I learned that he had lost
2000 plants, and from another that his collec-
tion was literally decimated. Plants that have
been reputed hardy have lost their character as
such, and many a blank in the herbaceous
border testifies to the credulity which believed a
plant to be hardy which has succumbed to the
rigour of an unusually severe winter.

Probably no two Rose growers have met during
the past two months whose first question was not,
"How have you got through the winter?"—
the "you" not meaning your poor not-to-be-
considered personality, but your Roses; and
when some answer has been given, "What about
the Teas?" I was anxious, some time ago, to
obtain some information that might be relied
upon on this subject, but my correspondents
assured me that it was then too soon to give an
opinion, and so I have had to wait; but now that
the pruning season of Teas is over, and a more
correct opinion can be given, I have received
from various parts of the kingdom the information
that may be interesting and perhaps useful. I
have felt that no general conclusions—at least,
very few—could be drawn where situation, soil,
stocks, &c., are such potent factors. But there
are two things which seem to me to be very
evident—that Roses in a high position, although
exposed to rough weather, stand the frost better
than those on low situations; and that, in the
second place, we must give up the notion we
have sedulously proclaimed for some years past,
that the Teas were as hardy as H.P.'s. This
they certainly are not; nor is it any answer to

say, "Oh, but this was so hard a winter," for plants must be compared with one another, no matter what the season may be.

The questions which I have put to my correspondents had reference to:—1, the lowest temperature recorded during the winter of 1890-91; 2, the situation, character of soil, and height above sea-level; 3, the effect on Tea Roses; 4, the effect on H.P.'s; 5, which varieties of Teas suffered the most, and which the least.

I will take the West of England first, because we have been in the habit of associating it with mild winters and a moist climate—notions which have had a rude shock this year, when we hear of the terrific storms which have swept over Devonshire and Cornwall.

The Rev. F. R. Burnside, Birch Vicarage, Hereford, who we may regard as the champion Tea Rose grower, and who is a very close observer of his favourites, is situated on a ridge 550 feet above sea-level; his soil is on red sandstone, and the aspect of his garden is about south-west—conditions which, it will be seen, are favourable to the growth of the beautiful class of Roses which he grows so well; yet here the thermometer went down to 5°, or 27° of frost. The consequence of this was, that with one exception all his Roses were frozen to the ground level. With the exception of one, the Hon. Edith Gifford, the deaths were inappreciable, amounting to only fifteen out of his large collection. Curiously enough, amongst the deaths, Comtesse de Nadaillac, which in some places has been swept from the face of the earth, is not mentioned. As Mr. Burnside grows no hybrid perpetuals, or next to none, I have no record from him.

On the other side of Hereford are situated the grounds so long known to the Rose world as Cranston's, but now as those of the British Fruit and Rose Growers' Association, and of which Mr. W. J. Grant, so long personally known as an amateur Rose-grower and exhibitor, is now the Rose manager. Mr. Grant has kindly, in answer to my inquiries, given me some interesting information. "Here the thermometer fell to 4°, or 28° of frost, 1° colder than at Birch Vicarage. The soil is a strong loam interspersed with clay, and consequently cold in winter, and not retentive enough to keep a sufficient degree of moisture in dry summers without injury to crops in general, and especially to Roses. Standard Teas were almost killed outright; dwarf Teas hit very hard, being killed to the ground. Some dwarf Teas planted under the protection of a north wall were uninjured; this I attribute to the fact, that they were completely covered with snow, which, in such a situation left them well covered. I found some dwarf Teas in the open which had been protected with Gorse very little injured, and so effectual was the Gorse as a protection that I intend to use it for the future in preference to Fern."

Of hybrids, Mr. Grant gave the following piece of interesting information: "Of the Victor Verdier and Countess of Oxford race, Paul Neyron and Anna de Diesbach, killed to the snow line where budded on the Manetti, but the same varieties on the seedling Briar and Briar cuttings uninjured, proving conclusively to my mind that the Briar stock is better adapted to give constitution and longevity to Roses than the Italian Rose. Manetti is, however, indispensable for preparing Roses for exportation and for pot culture, as those on the Briar are apt to shrivel during a long journey, and being impatient of restraint, it quite resists being cramped up in a pot." Comtesse de Nadaillac, Etoile de Lyon, Comtesse Riza du Parc, Innocente Pirola, Madame A. Jacques, Souvenir d'Elise, Perle de Lyon, Maréchal Niel, and Madame de Watteville have suffered most, the two last I consider to be the most tender of all, while Souvenir d'un Ami, Hon. Edith Gifford, Madame Lambard, and one or two others have come through quite uninjured. I am much struck with the hardness of hybrid perpetuals having a dash of Tea blood in them, which seems good for their constitution. This rather confirms me in the view that the Roses of the

future will have more or less of the Tea in them. I now think, though I did not always do so, that red Teas are a mistake. I fear we shall have more of them, and I do not think that that will be an unmixed blessing." I am glad to have such an authority on my side. I have always held that opinion, and have considered that a bloom of Souvenir de Thérèse Levet, and such high coloured flowers, took away from the beauty of finish and elegance of a stand of Teas. In the same way, I believe that many are coming round to the view I have always maintained on the councils of the National, that hybrid Teas have no business amongst their more refined cousins. *Wild Rose*. [These remarks were penned on May 20. Ed.]

NEW OR NOTEWORTHY PLANTS.

BAUHINIA GALPINI, N. E. Br. (n. sp.).

It is a pleasure to record such a first-class novelty as the present plant promises to be, especially as, with the exception of Orchids, really good novelties appear to be getting scarce. Although many species of Bauhinia have very showy flowers, yet being tall woody climbers, very few are in cultivation. The present plant, however, being of much dwarfer habit, will probably be found more suitable for general cultivation. It is a native of the Transvaal, where it grows "amongst shrubs on the banks of streams, and amongst scrub on the lower hill slopes," at an altitude of 2000 to 3000 feet above sea level, flowering from March to September. The plant is a half-climbing shrub, with two-lobed leaves, and racemes of large and handsome flowers, of a bright crimson colour, which seem to be produced in great abundance. It was originally discovered by Mr. Nelson, who first sent dried specimens of it to Kew in 1880, and now Mr. E. E. Galpin, having sent excellent dried specimens and good seeds to Kew, a drawing of it has been made for Hooker's *Icones Plantarum*, and plants have been raised, and are being distributed. The following is a description of this novelty:—

A half-climbing shrub, growing 5 to 10 feet in height. Stems with a brown bark, the younger parts covered with a minute rusty pubescence. Stipules subulate, very deciduous, about one-eighth of an inch long. Leaves petiolate, petioles about half an inch long; the blade $\frac{3}{4}$ to 2 inches long, 1 to 3 inches broad; transverse, two-lobed for about one-fifth of the way down, the lobes very obtusely and broadly rounded, the base broadly rounded, subtruncate, or slightly cordate, seven-nerved; upper surface glabrous, dull green; under surface rather paler, and obscurely glaucous, sparsely covered with very minute adpressed hairs, and sprinkled with small, fleshy, adpressed, yellow, pointed bodies, those on the principal nerves often being larger. Flowers large and showy, bright crimson, racemose. Racemes leaf opposed on terminal or short lateral shoots, six to ten-flowered, the axis, pedicels, and calyx clothed with a minute rusty pubescence; bracts $\frac{1}{2}$ to $\frac{3}{4}$ inch long, subulate, very deciduous; calyx-tube cylindric, $\frac{3}{4}$ to 1 inch long, limb spathaceous, about as long as the tube. Petals $1\frac{1}{4}$ to $1\frac{1}{2}$ inch long, including the claw, which is about as long as the calyx-limb, the blade of the petals orbicular, with a short acute point, narrowed at the base into the claw; bright crimson. Fertile stamens three, filaments about an inch long, glabrous, four to five times as long as the seven filiform rudimentary stamens. Ovary stipitate, about as long as the filaments of the fertile stamens, pubescent, with rust-coloured hairs. Pod flat, with a double margin along one edge, 3 to $4\frac{1}{2}$ inches long, $\frac{3}{4}$ to $\frac{1}{2}$ inch broad, oblong-lanceolate acuminate, narrowed into the $\frac{1}{2}$ -inch long stipes at the base, nearly glabrous, brown. Seeds oblong, flattened, $\frac{1}{2}$ -inch long, dark chestnut-brown.

Transvaal, at Dorn Spruit Spelunken, Nelson, No. 409; and near Barberton, Mrs. Saunders (Wood No. 3885), and E. E. Galpin, No. 421. *N. E. Brown, Herbarium, Kew*.

ODONTOGLOSSUM LUTEO-PURPUREUM, COBB'S VARIETY, n. var.

This is a beautiful form of *O. luteo-purpureum*, its very dark sepals and petals resembling in their rich, shining colour, some of the bright transparent hues seen in tortoise-shell. The sepals are reddish-chocolate-brown, except the tips, and two fine lines at the base of each, which are bright yellow. The fringed petals are yellow, richly barred and spotted with reddish-brown; and the broad and beautifully fringed lip, which approaches that figured in the *Gardeners' Chronicle* as *O. l.-p. crispatum*, February 23, 1889, is yellow, with a large chestnut-brown patch in front of the crest; the edge of the labellum is exquisitely crimped, folded and toothed, and the margin is further decorated with crimson spots. It flowered with Walter Cobb, Esq., Silverdale, Sydenham. *J. O'Brien*.

DENDROBIUM DALHOUSIEANUM LUTEUM.

A clear straw-yellow form of *D. Dalhousieanum*, in which the only other colour is found in two bright mauve purple blotches at the sides of the base of the lip. It comes from General Emeric S. Berkeley, Spetchley, Bitterne, Southampton, who collected it with about two thousand other plants of *D. Dalhousieanum*; and on flowering all of them in India, this was the only one which varied in any remarkable degree from the more or less red-tinted apricot-yellow of the type. Of it General Berkeley says, "This is the only *D. Dalhousieanum* I brought home on my last journey, when I brought home marked kinds. I have seen before a nankeen-coloured form, but mine, as you can see, is a bright straw-yellow, much better, brighter, and more attractive. You will notice, also, the substance of the sepals and petals of my variety is thicker than the ordinary *D. Dalhousieanum*. It is altogether brighter coloured than the one described in the *Gardeners' Chronicle*, June 17, 1882, p. 796."

The largest and most beautifully-coloured form of *D. Falconeri* I have seen also accompanies the above mentioned. *James O'Brien*.

RODRIGUEZIA ANOMALA, Rolfe, n. sp.*

A photograph (reproduced at fig. 145), together with an excellent dried specimen, of a minute but very elegant little Orchid, has been sent to the Editor by Señor Graciano A. de Azambuja, of Porto Alegre, South Brazil, which has been handed to me to report upon. Señor Azambuja remarks that it is found in the neighbourhood of the city of Porto Alegre, in the province of Rio Grande do Sul, South Brazil, though it is not common there, and of such diminutive dimensions as to be easily overlooked. The individual flowers are insignificant, but the many racemes, with their numerous white flowers, slightly tinged with rose, and with a yellow crest, present a beautiful contrast with the bright green terete leaves. The flowers are said to be very sweetly-scented, in no way inferior to those of *Burlingtonia fragrans*. The plant from which the accompanying portrait was taken scented a room for many days. The sender is of opinion that this exquisite little gem is worthy of attention and cultivation. I believe it must be referred to *Rodriguezia*, though the species is a somewhat anomalous one. The flowers agree in structure, though the sac at the base of the lip is so minute as to be easily overlooked, and the habit of the plant is more like that of *Leptotes*, though there is no other point of resemblance. I have not

* *Rodriguezia anomala*, n. sp. — A very small, densely-tufted plant, under 3 inches high. Pseudobulbs narrowly oblong, about 1 inch long, monophyllous. Leaves terete, subfalcate, acute, about 2 or $2\frac{1}{2}$ inches long. Racemes numerous, scarcely equalling the leaves; dense-flowered. Bracts small, triangular-ovate, acute. Sepals subconnivent, ovate-oblong, acute, two lines long, the lateral ones slightly connate. Petals similar. Lip free, broadly unguiculate, as long as sepals, limb suborbicular, or nearly obovate, the unguis bicarinate at base, and with gibbosity or sac beneath. Column short and broad, dilated at the base, slightly constricted in the middle, and with a pair of short broad membranous arms on either side the stigma; rostellum narrow and elongated. Anther-case linear, elongated; stipes of pollinia long, and very slender gland, small and linear. Native of South Brazil.

been able to find any description at all approaching the characters of this floriferous little species, which we hope may some day be introduced to Europe, and prove amenable to cultivation. *R. A. Rolfe.*

KEW NOTES.

PRIMULA IMPERIALIS.—In the *Botanical Magazine* for 1884, t. 6732, Sir Joseph Hooker published a figure of the Himalayan *P. prolifera*, which had been prepared from a plant raised from seeds sent to the late Isaac A. Henry by Mr. Elwes from the Sikkim Himalayas. This plant had leaves 6 inches long by 2 inches in width, and a thin erect scape about 15 inches high, bearing several whorls of pale yellow flowers, which were poor in substance, and altogether wanting in those attractions which horticulturists had been led to expect in this species. As Sir Joseph Hooker remarked, "The introduction of this fine Primrose had long been regarded as a desideratum." But the plant, longed for by every-

fectly erect, and $\frac{1}{2}$ inch in diameter at the base, from whence to the first whorl of flowers the distance is 17 inches. There are eighteen flowers in the first whorl, which is about 4 inches below the second whorl; altogether there are five or six whorls upon each scape. The flower-buds are erect, the newly opened flowers horizontal or drooping, and they finally become erect again, pressing closely around the scape. Each flower has a tube $\frac{1}{2}$ inch long, a limb $\frac{3}{4}$ inch across, almost waxy in substance and coloured a rich deep cowslip-yellow, tinged in some cases with orange. The calyx is shaped exactly as in *P. japonica*, and it is covered with a whitish meal. We have some plump pods of seeds ripening upon a plant of *P. japonica* fertilised with pollen from *P. imperialis*.

Primula Poissoni, Franchet.—This is one of a number of very interesting and beautiful Primulas found by l'Abbé Delavay in Yunnan, and described by Franchet in the *Bulletin de la Société Botanique de France* in 1887. Seeds of the above-named species were sent to the Jardin des Plantes, Paris, from

the tube; the folded buds are of a deep violet-purple colour. The plant is evidently quite as easy to cultivate as *P. japonica*, and it is a prolific flowerer, for in addition to the central scape, several lateral scapes spring from its base. This species may be hardy—possibly the French cultivators can inform us on this point; but whether hardy or not, I believe it will find general favour among the many who admire Primulas. According to Hemsley, it was discovered in Yunnan in marshes between Tate and Tapintze at an elevation of 3000 mètres.

Pinguicula lutea.—This is a really pretty-flowered Butterwort, a native of the Pine barrens of Lower Carolina, from whence it appears to have been sent to England by Nuttall in 1816, when Lindley published a figure of it in his *Botanical Register*. This figure, however, does the plant but scant justice, the specimen now flowering in the porch adjoining the Orchid-house at Kew, being much larger than that represented by Lindley. It has the habit and foliage of our native *P. vulgaris*, a thin, erect scape about 6 inches high, bearing a drooping flower nearly an inch across, and coloured clear sulphur-yellow. The segments are sub-equal, overlapping, and the form of the limb suggests the flower of a common Primrose, except that the segments are deeply crenate, and there is a curious hairy projection which Lindley calls a palate, attached to the lowest segment, and extending down into the throat. I do not know enough about the plant to be able to say if it will prove hardy here, but it grows well, and blooms freely, in a cool, sunny greenhouse. *W. W.*



FIG. 145.—*RODRIGUEZIA ANOMALA*: FLOWERS WHITE, TINGED WITH RED, THE CREST YELLOW. (SEE P. 728.)

body who had read Wallace's *Malay Archipelago*, was that which was known to occur only on the top of the loftiest mountains in Java, and not the Himalayan plant at all; for although botanists are probably right in looking upon both as forms of one species, the difference between this Himalayan plant and the plant seen and described by Wallace is as great as that between the original *P. sinensis* and Mr. Cannell's giant seedlings from it. In my opinion, *P. imperialis* is a grand plant, and if it prove hardy it will probably come to fill as large a place in the garden as its near ally from Japan, *P. japonica*, does now.

A batch of large examples of the Javan plant are flowering in a cold frame at Kew. They were raised from seeds received from Dr. Treub of the Java Botanic Gardens in June, 1889, and which, I may remark, germinated in a few weeks after being soaked in warm water and sown in a tropical-house. The leaves are similar in form to those of *P. japonica*, but much larger, the largest measuring 15 inches in length by 5 inches in width. The scape is central, per-

whence a few seedlings were obtained for Kew last year, and these are now all flowering in a cool greenhouse here. *P. Poissoni* belongs to the same section of the genus as *P. imperialis* and *P. japonica*, resembling them in habit and form of inflorescence, but at the same time differing abundantly from both. The most forward plant at Kew has a tuft of about fifty leaves, each 6 inches long and from $1\frac{1}{2}$ to 2 inches wide, the margins clothed with very fine teeth, the surface smooth and glaucous-green, and the midrib very broad and channelled at the base. The erect scape is as thick as an ordinary cedar-pencil, and it measures from the base to the first whorl of flowers 16 inches. There are from ten to a dozen flowers in a whorl, and each flower is as large as the very largest forms of *P. japonica*, or, say, $1\frac{1}{2}$ inch across the limb. Curiously enough, all the flowers that have opened so far at Kew have either six or seven segments, which are each $\frac{1}{2}$ inch across, and obcordate, with denticulate margins. The colour of the open flower is a rich rosy-mauve, with a very distinct ring of bright yellow round the mouth of

PLANT NOTES.

BEGONIA BAUMANNI.

A NEW sweet-scented tuberous Begonia, named in honour of E. Napoleon Baumann, Bollweiller, who received the seed from the discoverer of the plant, Dr. Sacc, Cochabababa, Bolivia. Caulescent in habit, leaves kidney-shaped with short thick stalks, flower-stalks numerous, red in colour, stout, erect, 15 to 18 inches high; flowers rose-red, 3 to 4 inches in diameter, four petalled, the males appearing first. Perfume as of the Tea Rose. The tubers grow to the size of an ostrich egg. *Garten Flora*, May, 1891.

ACHILLEA RUPESTRIS.

This is the name given to the best new alpine plant which has come under my notice in the past year—it came to me from Mr. W. Thompson, of Ipswich. It grows only 3 or 4 inches high, bearing an abundance of umbels of pure white flowers; the flowers resemble those of *A. Clavennæ* or *A. argentea*, but the growth is more compact, and the foliage, which is not glaucous, as in those species, is quite hidden by the flowers. I have been unable to verify the name in any catalogue of the plants of Europe, Western Asia, the Himalayas, or North America.—*C. Wolley Dod, Edge Hall, Malpas.*

ACUBIETIA TAURICA.

This plant is, perhaps, the dwarfest growing variety of the species, and is a capital subject for the rockery. Its flowers do not exceed 2 inches in height, the plant is very compact of growth, and profuse in flowering; and if its flowers had but the colour of those of *A. Campbelli* it would be even more prized than it is. The flowers are a shade darker in colour than *A. græca*, and the habit similar to that variety. *A.*

STIFFETIA CHRYSANTHA.

This plant may be said to possess both horticultural and botanical merit; and its fine showy flowers should make it sought for by all cultivators who grow a collection of stove plants. The student of botany will find it interesting, on account of its being an arborescent Composite. In order to convey a rough idea to those who are unacquainted with the flowers of this plant, it may be compared to a very superior and compact Mari-

gold, though this is underrating the value of the plant. The pappus hairs are very much extended, and this gives it a very striking effect. A specimen of this plant flowered in the stove at these gardens a short time since. The flower-heads are about 2 inches in diameter. The habit of the plant is bush-like and compact; the leaves are simple, lanceolate-acuminate, and glabrous; and it is said to attain a height of 6 feet, though it would take many years for it to attain to that height under cultivation. It should be grown in the lightest part of the stove in a compost of good fibrous yellow loam, half-decayed leaf-mould, and coarse sand. Partly-ripened shoots should be selected as cuttings, which may be put into the close case simply in the cocoa-nut fibre or in any other suitable mixture of soil. The cuttings are rather long in making roots, so that a little patience is desirable. It is a native of Brazil, and was introduced in 1840. *W. Harrow, Botanic Garden, Cambridge.*

NOTES FROM COOMBE WOOD.

This year June has overtaken us before we can really enjoy the characteristic spring beauty of our gardens in genial weather. The spell of cold has retarded the blossom of tree and shrub in a remarkable way, for even in the first week in June the Hawthorn was not fully in bloom in London gardens. The beauty of the early-flowering trees has in a sense been lost to us, for in that cold weather it made one feel more chilly to see the Cherries and Plums snowed with bloom. Now, with the welcome change to warmth, the delights of an English spring are enjoyed to the full, perhaps not more so by those who have experienced the miseries of "an old-fashioned" winter, than by those who have just come from the parched plains of India, where, after March, the eye can rarely rest on cool greenery.

If the sun will deign to continue his brightness and warmth, our gardens will be lovely during the next month, for everything is ready to burst into bloom. The effects of the past winter will, I fear, be plainly visible in most gardens, especially in those where tender and half-hardy trees and shrubs are exposed to the open. At Kew, where naturally much is always being done in testing the relative hardiness of exotic plants in the open air, there is a long list of the dead and crippled; but still not so long as I had anticipated, judging from the weather reports of the past winter. A severe winter really gives us the knowledge that we often speculate upon in discussing the hardiness of plants, and we should profit by the lessons it affords, for though we may not have such a winter as the last for several years, there is the possibility of its recurring at a short interval.

I notice that the plants most injured are those from temperate South America, such, for instance, as the Escallonias; and from South Europe, as the Cistuses; while Japanese, Californian, and New Zealand plants have mostly escaped. I was particularly anxious to see how Japanese trees and shrubs had withstood the winter, so I have just been to the Coombe Wood Nurseries, where Messrs. Veitch have probably the largest gathering of Japanese plants that could be seen anywhere in the open air in this country. I was surprised to see almost every Japanese shrub and tree as fresh as after an ordinary winter; indeed, I think that owing to the retarding effect of the cold spring, they all look finer in their new foliage than I have before seen them.

The ornamental-leaved Maples are simply delightful, their perfect foliage in rich masses of bright crimsons, ruddy browns, delicate greens, and pale yellows, must convince everyone who sees them that no shrub with a suspicion of tenderness could send forth such luxuriant growth, so that the question of hardiness in these Maples (for it always has been a question) should be set aside so far as this part of North Surrey is concerned. These ornamental-leaved Maples are chiefly forms of the polymorphous *Acer palmatum*, and the varieties that have the richest effect in the garden landscape are sanguineum and

atropurpureum, the latter being of a much deeper crimson than the other. You can see the heavy masses of these 500 yards distant, and at Coombe they are massed on a sloping bank, so that the effect is more conspicuous. It is noteworthy, too, that the sloping bank of *Acer* is of stiff soil, which one would imagine would be detrimental to tender plants. These red-leaved forms are the finest, but some of the others are very elegant in leaf, among the best being *A. semptemlobum elegans* and *laciniatum linearilobum*, decompositum, and dissectum, while the original *A. palmatum* makes a beautiful small round-headed tree of delicate green. Of the others, *A. japonicum*, and its variety, *aureum*, with leaves of soft yellowy-green, is a beautiful contrast to the reds; while as good hardy trees there are *A. rufrinervum* and *A. crataegifolium*, both with handsome foliage.

Of the Japanese flowering trees and shrubs there is an interesting show, finest among them being the Magnolias. Full in the open is the beautiful little *M. stellata*, *alias* *Halleana*, with masses of white bloom, though I dare say it would have been finer in more genial weather. It is a shrub of the first rank for a sheltered lawn, but it must not be put in shade or it will not flower freely. Though not a novelty, how seldom is it seen in even the best private gardens. Of the greater flowered Magnolias, none were to me so remarkable as the *M. Soulangeana nigra*, with enormous flowers of the deepest, almost black purple. What a contrast to the lovely white *M. conspicua* (of which you gave lately such a fine picture), this will be when people plant the two side by side. If a garden is only big enough for three Magnolias, these three would be my choice. The Japanese *Viburnum plicatum*, both against a wall and in the open, is profusely wreathed with snow-white bunches of bloom. This, too, is an indispensable shrub in all good gardens. It is a fine shrub for a mass by itself on a lawn, with perhaps a colony of yellow Daffodils beneath its shade. The slope where the Red Maples are, is crowded with the good things from Japan. Presently, *Styrax japonicum* will be hung with a profusion of its starry, waxy-white bloom, hanging like drops from the undersides of the flat table-like branches. *Daphniphyllum glaucescens* has come through the winter perfectly uninjured, and harder in fact than the Common Laurel. It is a rich-leaved handsome evergreen. This reminds me of *Phillyrea Vilmoriniana* (*P. decora*), which has wintered well, and bids fair to supersede the Laurel as a sturdy evergreen of quick growth; but the drawback is, that there is no great quantity of it yet in the country.

A shrub that I admired greatly in bloom is *Citrus japonica*, with leafless spiny branches and great white flowers, in shape and size like those of our old favourite *Cydonia japonica*, of which the Coombe Wood collection contains several splendid varieties, finest in colour being *cardinalis*, deep crimson, and the new *Moerloosei*, if anything deeper than the other. The white *nivalis* is in lovely contrast to these, but I did not see one called *luteo-viridis*, a variety now in bloom at Kew, which has one of those indescribable tints, like the so-called "art colours" in ladies' dresses. It is probably not distinct enough from a nurseryman's standpoint; but I should always try to plant it in the group with the others, as it comes half-way between the orange-red of *Cydonia Maulei* and the deep reds of *japonica*. Other good things among flowering shrubs in bloom are *Indigofera decora alba*, a chastely-beautiful shrub, with pendent clusters of snow-white blossoms among its tender green leaves. The white *Wistaria* is a climber that many would like to plant, to ramble among the purple, but the double is not a variety to praise, so far as I have seen of it. The little *Hydrangea rosea* is one of the prettiest shrubs I have seen for a greenhouse in May, slightly forced, I assume. I think it is one of Messrs. Veitch's novelties, and it ought to prove a first-rate "commercial" plant, as the phrase goes. Among the shrubs under glass, persuaded to flower early by the shelter and a little warmth afforded, is *Hydrangea paniculata grandiflora*, which everyone

knows, but such enormous flower clusters I think I have never before seen. I was glad to see a large quantity of the old *Clethra alnifolia*, every plant carrying numerous feathery spikes of white blooms. This as a forced shrub is not common, and I wonder how many other beautiful hardy shrubs are amenable to a little coaxing into early bloom for the greenhouse? *Staphylea colchica* is fine, and so is the new *Spiraea astilboides*, which is probably the finest of all the white herbaceous *Spiraeas*; what a beautiful contrast its white plumes made with the bold massive blooms of the tree *Paeonies*—*Reine Elizabeth* especially, which is truly a queenly flower, just the colour that everybody admires. The new (to me) *Hypericum Moserianum* seems to combine in a remarkable way the great flowers of the common St. John's Wort (*H. calycinum*) with the elegant growth of *H. patulum*; it forces well and makes an admirable yellow mass. I was not surprised to see the new *Andre's Broom* (*Cytisus scoparius Andreanus*) receiving special attention in regard to propagating it largely. There is a great demand for it, I hear, and no wonder, seeing what a splendid shrub it is. What will it be when we can plant it on a sunny bank as we do the common Broom? It is as beautiful as any *Oncidium*, and more so, for what would the orchidist give for an *Orchid* with such a glowing contrast of colour in an *Oncidium*. One more good thing at Coombe, I must note for the information of those who want to know what is, perhaps, the finest of all the white *Rhododendrons* for early bloom. This is the lovely *Rosalie Seidel*, a foreigner, I believe, but she will rapidly become a naturalised subject of English gardens. The habit of growth is good, the foliage broad, thick, and deep green; the flower-trusses large, massive, and were it not for a few yellowish spots on the upper petals the flower would be snow white. Mr. Howard tells me that it is very hardy, and flowers naturally early in the open. It can be lifted easily, and put under shelter to protect its delicate bloom from the merciless winds and frosts. I saw a good many of *Vuytske's* new hybrid *Azaleas* crossed with *A. mollis*, but I should like to see how they look in the open ground, though they looked beautiful under glass. *W. Goldring.*

LILACS.

THERE are few shrubs that so amply repay the small trouble they give as Lilacs. Of late years, nurserymen have produced several extremely beautiful varieties, of very varied colours, some of them, especially the darker and redder sorts, being a wide departure from the parent plant—*Syringa vulgaris*—of which I believe they are all merely seedling varieties. I have more than a dozen sorts, and they are now (May 25) objects of great and striking beauty. I may especially mention:—

Insignis rubra, a magnificent red Lilac; *Souvenir de la Späth*, much like the last; *Philemon*, very dark purple, with immense waxy flowers; *Dr. Lindley*, brilliant deep lilac; *Lavensis*, a beautiful large, pale lavender; *Dr. Noble*, a blue lilac. *Charles X.*, *Berenger*, *Professor*, *E. Stexchordt*, and others are good sorts, and various shades of lilac. *Persica alba* is the best white I have seen, but I am not sure that the name is correct; it certainly has nothing to do with the Persian Lilac.

Now, though the Lilacs have so many charms, they have one great drawback, when grown as grafted specimens; they are very prone to throw up suckers. If the plants are not carefully watched, the strong-growing suckers are apt to take possession in the shrubbery, and the more beautiful named sorts disappear. I believe all the named nursery varieties are sold in the form of grafted specimens; indeed, I do not see how it can be otherwise. This practice has brought trouble upon myself; the named sort has disappeared, and the common sort, straight and strong from the root, has taken its place. Indeed, in one instance, this evidently occurred before the plant left the nursery.

How is this to be prevented? or rather, circumvented? Simply by raising one's own seedlings, using the seed of the best-named varieties for the purpose. Before I did this, I looked upon it as a doubtful and difficult undertaking, but I have found it the simplest thing imaginable, and the results have altogether exceeded my expectations. In the early autumn, I gather the hard follicles or seed vesicles, and remove the seeds carefully, and then sow them at once in pans, start them with bottom heat, and keep them growing through the winter. In the early summer, I plant them out in beds, keeping the sorts distinct, and do everything to encourage their growth. A few blossom in the second, and about a half in the third year.

In this manner, I have tried the seeds of *Insignis rubra*, *Philemon*, *Charles X.*, and *Persica alba*. *Insignis rubra* has produced a large number of very

best-named sorts from nurseries, and whose suckers and offshoots will be my friends and not my enemies. *James Salter, Basingfield, Basingstoke.*

CELMISIA CHAPMANII.

THIS handsome mountain Daisy, says Mr. T. Kirk, F.L.S., of Wellington, New Zealand, to whose kindness we are indebted for the drawing of the plant (fig. 146), was discovered on Campbell Island, by Messrs. M. and F. R. Chapman and T. Kirk. It is perhaps but little more than a broad-leaved form of *C. vernicosa*, Hook. f., the leaves of which are densely rosulate, narrow linear convex above, and extremely glossy, but the appearance is so widely different that it will be highly prized by the cultivator. These two species are distinguished from all others by the white-rayed florets, and rich violet-purple disc florets.



FIG. 146.—CELMISIA CHAPMANII: FLOWERS WHITE AND VIOLET PURPLE.

good flowers, closely resembling the parent, and some quite as good. Three-fourths of this batch have been worth keeping. *Philemon* has produced good flowers, in much smaller proportion, perhaps one-third, but these have been superlatively good; one especially, like the parent, but with even larger and thicker flowers, is of a deep rich purple. The progeny of *Charles X.* have been failures altogether, poor in colour, and in all good qualities.

Among twenty-five seedlings from *Persica alba*, not a single white flower has appeared, to my surprise and disappointment. They are mostly good flowers in quality and texture, and about the colour of the common *Lilac*; but there is one of a deep rich red, like *Insignis rubra*.

The result of my little experiment with *Lilac* seedlings is, that I now possess some twenty-five plants, that may favourably compare with the

Leaves rosulate, coriaceous, loosely tomentose beneath, pubescent above, $2\frac{1}{2}$ to 3 inches long, $\frac{1}{2}$ to $\frac{3}{4}$ inch broad, oblong or oblong-spathulate; narrowed and membranous at the base, with from seven to ten closely parallel nerves; acute or obtuse; margins rather distantly toothed. Scapes 7 to 10 inches long, flexuous, with short close set linear pubescent bracts. Head 2 inches in diameter; involucre scales linear, purple, hairy, or almost ciliate; rays, numerous white; disc florets perfect. Achenes, silky.

ORCHID NOTES AND GLEANINGS.

"LES CYPRIPEDIUMS."

UNDER this title, Sig. Angiolo Pucci, of the School of Horticulture and Pomology of Florence, has published a descriptive list of the species and varieties

of this favourite genus. The work is written in French, and comprises a preliminary section on the botany and geographical distribution of the genus, and some brief hints on the cultivation of the different kinds. Then follows an alphabetical enumeration of all the species, varieties, and hybrids, with a short description and references to books and plates. Sometimes the information is too condensed to be of much use; thus, writing of certain hybrids, the expression "*Obtenu par Drexelt*," or "*par Boering, de Forest Farm*," is all the information given. To be sure, the references given to the publications in which the plant was originally described place the reader in a position to hunt up further details for himself. The true nature of the so-called genus *Uropedium* does not appear to be known to the author, who in this case has not fully consulted the literature and iconography of the subject. The work, nevertheless, is one which will be most serviceable to the cultivator, to whom we cordially recommend it.

CYPRIPEDIUM DESBOISIANUM X.

A hybrid, out of *venustum* by Boxalli, var. *atrata*, raised by MM. Vervaeet, of Ghent; one of the most remarkable hybrids produced of late. The upper sepal is greenish-yellow, tinted with white, spotted with black, and margined with creamy white; the lower sepal is straw-yellow, with a dark green line. The petals are broad, undulate, clear yellow at the base, mahogany-red, with a coppery refulgence below, and rather strongly marked with large black dots from the centre to the base. The lip is large, elongated, reddish-maroon about the opening, olive-green, veined with emerald-green at extremity, and bordered with golden-yellow at the orifice. Staminode flesh-pink in the centre, marked with dark green hieroglyphics, and bordered with cream-yellow. *Lindenia*, t. 277.

ODONTOGLOSSUM HASTILABIMUM.

This thrives best in a pot, taking care that the drainage is kept perfectly free and open, and in good working condition. The pot should be of good size, for we have found this plant, unlike many Orchids, delights in a largish quantity of soil about its roots. This soil should consist of good peat-fibre (from which most of the particles have been beaten) and some chopped sphagnum moss, adding in the course of potting some nodules of charcoal, and pressing the whole down firmly. This plant thrives well with other species of *Odontoglossum* during the summer season, but during the dull dreary days of winter it should have a little more warmth than such kinds as *O. Alexandræ* appear to revel in, and therefore we recommend the *Cattleya-house*, or a temperature which does not fall below 55° or 60° . It should be kept rather dry at the root in winter if not growing, but by no means allowed to suffer through want of water.

A WONDERFUL CALANTHE.

There was recently in flower, in the collection of Orchids belonging to J. A. Rolls, Esq., The Hendre, Monmouth, a plant of *Calanthe vestita oculata gigantea*, having a spike 6 feet 4 inches long, and carrying forty-eight fine flowers; this plant was grown in a 32-size pot, in a compost of peat and loam in equal parts, with a little sand and decayed manure added, and we must congratulate the gardener, Mr. Coomber, upon his method of cultivation. *H. W., Orchid Album*, vol. ix., p. 107.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

CARDOONS.—Plants raised in frames or in flower-pots may now be planted in trenches, well manured and prepared as for Celery; the situation being open and warm. Those in pots should be watered and allowed to drain for an hour before planting them entire in the trench. Plant carefully at 2 feet apart, and make the soil firm about the plants but not breaking the mass, and give a good watering. Keep the ground clear of weeds in summer, and in dry

weather water the plants with clear water, and occasionally with liquid manure. As growth advances, support the leaves in an erect position with raffia bands and a stout stake put to each plant. Plants so treated will make sufficient growth by the middle of September to be fit for blanching. At the proper time, I will describe various methods of blanching the stems.

FRAMES.—Any of these which may have been in use hitherto may be employed for growing Cucumbers; the soil inside being thrown out, and its place taken with stable dung and tree leaves in sufficient bulk to promote a gentle warmth; and on this, 1 foot in depth of rich soil, should be placed. A hardy free-bearing variety should be selected for planting in these frames.

ASPARAGUS.—Where the beds show signs of weakness, cutting must be discontinued. The beds must be kept free of weeds during the next few months, and frequent waterings of liquid manure afforded them during the present month and July. Seedlings of the present season should be thinned to 6 inches apart, and where sown to form permanent beds, they should be thinned to 9 inches apart, each alternate plant being dug up next year, planting them in new beds if these be required. All newly-planted beds should be hoed a few times, and afterwards mulched with manure.

TURNIPS.—Larger sowings may now be made, employing Snow-ball, Model White, Green Top White, and Sutton's Yellow Perfection—a very fine yellow bulb of good flavour. A cool aspect and a rich soil are indispensable for Turnips after this date; and if the ground be dry, the drills should be watered with liquid manure one or two hours before sowing—doing this promotes rapid germination of the seeds, and aids the plants to escape the attacks of the Turnip-fly. Thin the plants before they get crowded, and make frequent use of the hoe amongst them, and dust them on dewy mornings with soot mixed with road-dust to keep the fly in check. [A good plan to catch the Turnip-fly is to have several boards made 1 foot wide and 2½ feet long, and fitted with handles stuck obliquely into them. Smear the lower surface with coal-tar, and pass them just over the heads of the plants. The fly will be disturbed, and springing upwards will be caught by the sticky tar. A few men with these boards can go over a large area in a few hours. Ed.]

RUNNER BEANS.—A small sowing made now will keep up the supply until the end of the season. Earth up and stake advancing crops of Beans, and where crowded thin out the plants so that they stand at from 9 to 12 inches apart, according to the variety grown; the plant may also be carefully lifted with a trowel and used to fill up gaps in other rows, or transplanted to form a row alone.

BRUSSELS SPROUTS.—These may now be planted in large breadths in sunny open situations, and if the soil be light, it should be made firm by treading or rolling it. Draw drills 2½ feet apart, and let the plants stand at the same distance from each other. If the plants have to be drawn from the seed-beds, give these a thorough watering before beginning to draw, and plant firmly in the drills. Well supply the plants with water in dry weather until they are established.

CAULIFLOWERS.—Walcheren, Autumn Giant, Self-protecting, and Autumn Mammoth may be planted, and as the above-named, with the exception of the first, are strong growers, from 2½ to 3½ feet space may be allowed from plant to plant—that is, if very large heads are looked for. The ground should have been heavily manured and deeply dug; and in dry times on dry land good waterings are of great benefit to this crop. Plant in drills so that water may readily be afforded. The earliest plants now forming heads should be examined daily, and the leaves turned down or tied over the heads of those becoming visible. The tying method is to be preferred to the other.

BEET.—The main crop will now require to be thinned, and gaps in the lines made good with the strongest thinnings, which should be carefully lifted. Keep these transplanted Beets watered until established. *C. J. Waite, Glenhurst, Esher.*

THE ORCHID HOUSES.

THE CATTLEYA-HOUSE.—The plants in this house will now be at their best. Such species as *Lælia purpurata*, *L. Schilleriana*, and *Cattleya*

Mendeli, *C. Warneri*, and *C. Sanderiana*, the finest and largest flowers and the easiest of cultivation, should find a place in collections, especially as they are all moderately cheap to buy. It will be found that these Orchids thrive when placed in a compost consisting of three parts fibrous peat of good quality to one of sphagnum moss, and some clean crocks. The best time to repot *C. Warneri* and *C. Sanderiana* and their varieties is immediately after the flowers fade, as a great number of roots spring from the base of the last-made pseudobulb soon after the flowers are removed, and these young roots quickly travel to the side of the pot, and establish themselves in a short space of time. *Cymbidium Lowianum* will be generally passing out of flower, and may be repotted into a compost consisting of one-half fibry or turfy loam, from which the fine particles have been sifted, one part of peat, and one of crocks or broken clinkers, which answer the purpose very well; a little sphagnum moss should be inserted here and there, which adds to the appearance of the work when done, and is a good indicator of the state of the plant as regards moisture at the roots. Where the roots cling around the pots, it is well to assist the plants with some kind of liquid-manure, as guano and soot-water, or Clay's Fertiliser, instead of repotting them.

Barkerias, now growing freely, should be kept very moist at the roots, and syringed overhead three or four times daily, and hung up near the roof, and where there is a good circulation of air. The plants do well when grown on wooden rafts or in baskets, but they do not require a large amount of materials placed about the roots. In rebasketing any of these plants, great care should be taken in cleaning the roots of old sour materials, and the baskets should be made as clean as possible, and new drainage put in, as few plants are so susceptible to injury as these. A very small quantity of peat, sphagnum moss, and clean crocks should be placed round about the roots.

Angræcum falcatum, one of the prettiest of the smaller species of Orchids, is now showing its flowers, which are small, but the spike itself is a comparatively large one for so small a plant. As a flower for personal adornment, there is nothing in Orchids that excels it. The *Cattleya*-house is the best place for the plant, provided that it is hung up near the glass. It requires but little water at any period of the year, and during its season of rest none at all for some months. Even in summer the damping off of the growths may be brought about by too much water. Do not weaken *Cattleya Sanderiana*, or indeed any Orchids, by retaining the flowers upon the plants for long periods of time, or bad effects will be sure to make themselves apparent, the first being shrivelling of the pseudobulbs, then the roots that push forth will be seen to be small and weak. It is much better when the flowers have grown to their full size, to cut off the flower-spikes, and place them in phials or tubes filled with water, which may be stuck in round about the plants. Thrips will not be found very troublesome if fumigation with tobacco is afforded all the Orchids once a week, except *Odontoglossums*. The temperature and ventilation of the various houses may remain as before. *A. G. Catt, Parkfield, Hallow, Worcester.*

FRUITS UNDER GLASS.

THE PREPARATION OF STRAWBERRIES FOR FORCING.—This is work which should be proceeded with without delay when good runners can be found, and to secure them, it is always best to plant for the purpose, taking off all the flower-spikes as fast as they appear, and thus obtain early and strong runners. I find it a good plan to plant rather closely together for this purpose, and after the runners are taken, remove each alternate plant with the hoe, the remainder being left for fruiting the following season, and thus there is no loss of ground. The compost, got in readiness for filling the pots, should consist of turfy loam (not light) that has been stacked for a time, and bone-meal or ground bones with a sprinkling of soot, well mixing the whole previous to potting. Some good cultivators prefer spent Mushroom manure and good loam, but whichever is made use of, firm ramming when filling the pots is essential, and careful watering until the roots get round the sides of the pots. The runners may be layered into the fruiting pots, if that be preferred, using 5-inch pots for early fruiters, and 6-inch for later ones; or small 60's may be employed, or small squares of turf. This last is an old method, and has its advantages, but I prefer the 60-pots, as it will be found that the large mass of soil in the

fruiting pots becomes sour during the wet weather before the roots have permeated, and bits of turf once allowed to become dry are not easily moistened. Use clean, dry pots, and a moderate amount of drainage, and when small pots are used, the runner must be firmly pegged to prevent it shifting, and watering must be performed daily in dry weather. Stop the runners at the first joint beyond the one layered, and remove them from the mother plants when rooted, and stand them in the shade for a few days, when they should be placed in their fruiting pots, arranged on a hard bed of coal-ashes in rows, with plenty of space allowed them for making sturdy growth. Most growers have their own choice of varieties for forcing, but I may mention a few which are worth growing by those who have hitherto not made their choice. A good deal will depend on soil and situation and where the forcing is done, but I find *Vicomtesse H. de Thury* still one of the best, it being a free cropper and setter early in the year, and the flavour is good; *La Grosse Sucrée* and *Auguste Nicaise* may follow this one; then *Keen's Seedling*, *President*, *Sir J. Paxton*, *Sir C. Napier*, and *British Queen*. Where it does well, *Waterloo* is a good variety for late purposes; indeed, *Sir C. Napier* and *Waterloo* do well in a cold frame, and do not mildew so badly as some others, *President* being one of the worst in that respect, although it is one of the best forcers, and has good flavour; it and *Waterloo* require an airy house, and to be close to the light.

FIGS.—Stop the shoots, and avoid overcropping the trees, the Fig often bearing a too heavy second crop; and to have large fruits it is necessary to remove quite half of those which appear. Heavy cropping at this season means a poor early crop next year. Trees with ripening fruits should have free ventilation and a drier atmosphere, the foliage being kept thin, so as to allow the sun to mature the wood as much as possible. These Figs should be heavily mulched with decayed manure, if that which was placed over the roots at an earlier date has disappeared. Continue to syringe the trees which are robust and growing freely, and feed them liberally with liquid manure; occasionally dressing them with some kind of artificial fertiliser, and mulch with manure. Trees in pots should not suffer drought, or the want of a good mulch or liquid manure, all useless wood being pinched off, and the shoots reduced in number.

ORCHARD HOUSE.—This house will require much attention, the fruits being at a critical stage, and the least neglect in watering will prevent them finishing properly. Large well-rooted pot trees require water thrice a day in dry weather, liquid manure at least once a day, and abundant overhead syringing in all directions, so as to keep the foliage healthy. In mixed houses, some of the earliest kinds of fruits will be ripening, and more air will become necessary, and less syringing. Trees that fruit in advance of others should be placed where more air enters from the ventilators, or, which is better, removed to another cold house. Fumigating with tobacco, or some of its preparations, must be closely attended to before the fruits reach their colouring period, and if Strawberries have been in the house, red spider and mildew may cause trouble, and must be got rid of at the earliest moment. Trees in pots should also be surfaced with decayed manure about this date, which is just before the final swelling of the fruit, and the last thinning of the leaves shading the fruits should be given. Any trees removed outside to make room for others should not be neglected, but the pots plunged in some cool material to prevent excessive evaporation of water from the soil. Stop any runaway shoots, and syringe the trees late in the afternoon on warm days. *G. Wythes, Syon House, Brentford.*

THE FLOWER GARDEN.

CARPET BEDDING.—This subject having been touched on in last week's Calendar, we need only say that the work of bedding-out such tender subjects as *Alternantheras*, *Mesembryanthemum cordifolium variegatum*, &c., should be pushed on to completion during the next week. The plants, having been propagated and grown on in a high moist temperature during the last eight weeks, should have been gradually hardened off in cold pits or frames four or five days before being planted out. They should be well-watered an hour or two before being transferred to the beds with nice balls of soil adhering to the roots, setting the plants pretty closely together, and making the soil firm about the

roots. The colours of the foliage plants employed in the several pieces forming the individual patterns, should be well chosen and contrasted, and they should accord with those of foliage or flowering plants in adjoining beds. In the absence of rain soon after planting, water should be afforded, to settle the soil about the roots of things, repeating the application every afternoon, as much with a view to freshening up the plants as moistening the soil, until the roots have pushed into the soil, which, the ground being nice and warm, they will do in the course of a few days. The dividing lines, if of species or varieties of *Sedum*, must be kept within their proper limits, pulling out all flowers and seed pods, pressing the plants down, and trimming the sides with a pair of sheep-shears, so that the several parts forming the whole pattern in each bed or border may be well defined, and shown up to advantage. The clipping of carpet-bedding plants is done better, easier, and quicker with the above-named implement than with any other that I am acquainted with.

WALLFLOWERS.—Young seedling plants of the varieties of Wallflowers annually raised from seed sown early in May should now be pricked out in an open situation, fully exposed to the influence of the sun. Place a couple of inches thick of short dung on a hard bottom, and over that a like thickness of fine loamy soil, into which prick out the young plants in rows from 6 to 9 inches apart, and at the same distance from plant to plant in the rows, making the soil firm about the roots, afterwards giving water through a rosed watering-pot, to settle the soil about them; and if the plants are shaded during the heat of the day for a few days, it will greatly advance their progress. After the plants have pushed their roots into the new soil, all the after-attention necessary until the time arrives—say, in October—for transferring them to the flower-beds is to keep them free from weeds, and supplied with water at the roots during dry weather.

CARNATIONS.—These, notwithstanding the trying season through which they have passed, and are passing, look very promising, although, like everything else in the way of growth in hardy herbaceous plants and trees, they are one month or more late. The flower-shoots should be supported by short sticks and matting; the same remark applies to other subjects requiring support in this department.

ROSES.—Rose trees of every description should be looked well after, with a view to detecting and dislodging, or squashing the Rose-maggot between finger and thumb. Those who have the time may unfold the leaves and remove the maggots, otherwise, they will work havoc amongst the blooms and leaves by eating into them. Aphids should also be kept down. A solution of tobacco-juice and water, at the rate of 1 quart of the former to 4 gallons of the latter, syringed on to the trees in the evening when the sun has gone off, will rid them of this troublesome though easily-got-rid-of pest. *H. W. Ward, Longford Castle, Salisbury.*

THE HARDY FRUIT GARDEN.

PEAR TREES.—Pyramid and espalier Pears, notwithstanding the trying season, have in most cases set heavy crops of fruit, and if fine fruits be looked for this year, and also a crop in 1892, early thinning to the dimensions of a moderate crop, must be resorted to. Leave the best placed fruits, and in sufficient numbers to need a second thinning at a later date. Pears which are on the Quince, more especially when growing on light soils, should be mulched heavily with good manure at an early date, to encourage growth, and assist the production of fine fruits. Wall-trained trees should also be well-attended to as above, and in the meantime the forwardest of the trees may have gross shoots shortened, and ill-placed ones removed or cut half back, but do not denude the trees entirely of young shoots, rather leave the chief portion of the summer pruning to be done in July and August. Young Pear trees should have their branches, or rather the growth which will form these, neatly fastened to the walls or trellis, and where shreds are employed, as is the case with wall trees, it is safer to pull the pliable shoots to their required position at once, but avoiding the evil of forcing them against the nails used. On wire trellises, on the contrary, they are sure to be injured if pulled down to the wire, and often shoots are lost by this means which can ill be spared. Young Plum trees will require at the present time similar treatment to Pears, but fruiting ones should

have all the shoots that are intended to be saved fixed in their proper places, and kept free of the Plum aphid by the use of tobacco-water or other insecticide.

SWEET CHERRIES.—These being the first stone fruits to ripen, and Rivers' Early Black the first to come into use, the shoots and foliage of the trees must be kept clear of black aphids, which is best done by dipping the ends of the shoots in tobacco-water or strong quassia-water, and well syringing the trees afterwards with clear water. When no more insects are visible, fasten the shoots neatly to the wall, and mulch the ground over the roots. Autumn-bearing Raspberries should have the fruiting-caneshortened back a little, and be secured to stakes or wire strained between uprights, all weak ones springing up about the stools being pulled up. Six canes to a stool are sufficient to leave for fruiting. Summer fruiters should be treated in a similar manner, except in regard to cutting back, which must be omitted. Suckers, if stock be wanted, may be planted, if they have roots in a shaded spot, affording them water in dry weather, and some may be left in the rows to be lifted in the autumn. *H. Markham, Mereworth Castle, Maidstone.*

PLANTS UNDER GLASS.

AZALEA INDICA.—Plants of the above which have completed their growth should be moved into a cooler and more airy house, previous to their being placed out-of-doors. Plants later in making growth, or which have just finished blooming, should be placed in a genial temperature of 60° to 65° by night, and 80° to 85° by day, to make free growth, syringing the plants freely twice each day when the weather is bright, and always when shutting up the house at 3.30 P.M. Examine the plants frequently for the first appearance of thrips, and use means to clear them of these insects without delay.

FUCHSIAS.—Those which may be in their blooming pots, and the pots are well filled with roots, should be assisted with some kind of manure-water, given twice a week. Young stock should be moved into pots several sizes larger than those they are standing in, employing a rich compost, consisting of two parts good turfy loam and one each of leaf-mould and decayed manure, with a small amount of sand; pot firmly, and stop the side shoots occasionally, and also the leader, so as to develop a full habit of growth. The young plants may receive intermediate house treatment for several weeks longer.

CINERARIA SEEDLINGS.—The early-sown Cinerarias will now be ready for pricking off, either into boxes or small pots filled with a compost consisting of equal parts loam and leaf-soil, with the addition of some silver-sand, afterwards placing them in a cold frame in a spot not reached by the midday sun, keeping them close for a few days, when more air should be admitted. Do not shade them except when the weather is very bright, and the sun reaches the frame. Seedlings of *Humea elegans* and *Campanula pyramidalis* should be pricked off into boxes or small pots as soon as large enough.

ROCHEA FALCATA.—Plants of these which are large enough to flower, and are growing fast, should be assisted with weak manure-water, applied about once in ten days, which will materially increase the size of the flowers. Plants struck from leaf-cuttings last summer, supposing that they are now in small pots, may be repotted into 5 or 6 inch-pots, employing good loam, which, when it is obtainable, is preferable to any other kind of soil, adding to it a sufficient quantity of sand to keep it open. During the summer, keep the plants close to the glass, and fully exposed to the sun, as should be done with most succulent plants, as exposure to the sun tends to good flowering. The present is a good time to increase the stock of Rocheas, which is generally done by taking full-sized leaves, cut off with a sharp knife, so as not to bruise them, and letting them wither for a few hours, so that the cut surface dries before putting them into the sand. Place two or three leaves together in a 4-inch pot filled with sand, to about one-third their length; afford no water, or they will rot, and place them in the stove on a shelf near the glass, but not under bell-glasses or other contrivance, and with no more shade than the plants in the house require.

THE STOVE.—*Nepenthes* will require special attention at the present time and for the next two

months, in the way of watering them daily at the roots, and syringing them freely overhead, when the house is closed each afternoon during the time they are making their growth, and this should be so done that the water will reach both sides of the leaves. Suspend the plants from the roof of the house, so that the tops of the leaves will not be more than 18 inches from the glass, and afford them a little thicker shading than the other occupants of the house require. Any plants which require more root room should be seen to at once. I prefer pots to baskets to grow them in, as when grown in baskets, as soon as the points of the roots extend to the outside of the compost in which they are growing, they then stop, but when grown in pots, I find they do not suffer in this respect.

In shifting the plants, be careful not to damage the roots, but leave everything intact, even to the crocks at the bottom of the ball, should the roots be interlaced amongst them. The best material for the *Nepenthes* is good fibrous peat—taking care to have all the earthy portions shaken out—chopped sphagnum, charcoal, and some sand. When potting, be careful in not pressing the material too much about the ball, as the roots are so very brittle, that they break with the least pressure. As soon as the potting is completed, soak the whole well in tepid water.

Cuttings which were put in during the autumn will now be well-rooted, and should be potted in 5-inch pots, using the same kind of material as that recommended above. *R. Milner, Penrice Castle, Swansea.*

THE APIARY.

INCREASE BY NUCLEI.—Should increase of stocks be desired, now is a good time to set about it. Foreign bees are very suitable for this purpose, especially Ligurian, as their queens are so prolific, [and their progeny swarm earlier. *Ed.*], and on that account they can be worked up into strong colonies quicker than blacks. Should the former be used, when the necessary number of stocks has been reached, it is an easy matter to requeen if desired, and so change the race; and in the autumn, black queens can be procured to almost any extent in most country districts, where otherwise they would with their subjects be consigned to the sulphur-pit. Makeshift-boxes to hold five or six frames are very useful for making nucleus colonies, but ordinary hives, if on hand, may be used. Directly a swarm issues, split up the old stock, by taking two or three of its frames with the adhering bees, and place them in these hives, taking care that each one has a queen-cell. They must be provided with dummy feeders, containing Porto Rica sugar, which also act as division-boards for contracting the space, and they should be wrapped up warmly. When the queens are hatched and laying, these small colonies can be rapidly built up by placing a frame in the centre of the brood-nest every week or so. It is not essential to use full sheets of foundation, although it is a help to the bees to do so, as the queens being young and newly-mated, there is no desire for drones, and consequently worker comb is almost invariably built. The hives should stand close together, so that there should be no difficulty in uniting any of them in the autumn if necessary, or in case any queens get lost, and cannot be replaced. The swarm should be hived on the old stand, and have the super, if any, from the parent stock transferred to it.

PREVENTION OF SWARMING.—To prevent swarming, properly-constructed hives are of great importance, so that additional space may easily be afforded the bees in advance of their requirements, and in which bottom ventilation is readily supplied by enlarging entrances to their fullest width so soon as the warm weather renders it necessary. Keeping only young queens is a help in this direction, and no doubt much could be done in the way of selection by breeding queens from mothers whose progeny have given large yields of honey with an apparent disinclination to swarm; and if only fertilisation could be controlled so as to get the same trait on the drone side, this plan would, no doubt, be wholly successful in course of time.

HONEY PROSPECTS.—Owing to the bad weather hitherto, little or no surplus honey has resulted from the fruit blossoms. Whilst this is being written, Horse Chestnut and Hawthorn are yielding honey freely, and there is every prospect of a good return as soon as the blossoms of white Clover and the Lime trees make their appearance. *Expert.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

PLANTS, &c., TO BE NAMED.—Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

ILLUSTRATIONS.—Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are solicited.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, JUNE 18—Linnean Society.

SHOWS.

TUESDAY, JUNE 16 { Oxford-hire; Sittingbourne Society.

WEDNESDAY, JUNE 17 { Royal Botanic Society's Second Summer Show.

FRIDAY, JUNE 18—Sandringham.

SALES.

MONDAY, JUNE 15 { Special Sale of Orchids at Protheroe & Morris' Rooms.

TUESDAY, JUNE 16 { Established Orchids, at Bath (two days), by Protheroe & Morris.

THURSDAY, JUNE 18 { Stove Specimen Plants, at Fairfield, Bickley, by Protheroe & Morris. Orchids in Flower and Bud, at Stevens' Rooms.

FRIDAY, JUNE 19 { Established and Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—61°·1.

Fungus and Timber.

THE mischievous consequences that arise from the attacks of fungi upon trees and plants do not receive half the attention from cultivators that their importance demands. The Potato fungus, or fungi rather, for there are several, compels some degree of interest, although not sufficient to prevent farmers and gardeners from thoughtlessly doing their very best, as we have repeatedly pointed out, to facilitate the distribution of the spores, and to promote their germination; whilst as to preventive and palliative measures, they are scarcely even thought of outside of experimental gardens. If this be the case with crops like the Potato and Tomato, in which the whole process takes place under our eyes in a limited space of time, and under familiar conditions, how much more true is it in the case of timber trees, where the processes are more concealed from observation, and the action more prolonged than in the more quickly-growing crops. The injury inflicted by a thoughtless boy, who tears off a twig from a tree, is well known to the observant forester; but very few others are at all capable of estimating the potential mischief that may make itself apparent even from so apparently simple an injury, perhaps many years afterwards. It is satisfactory under such circumstances to find that our colonial botanists are fully alive to their duties, and do their best to place their knowledge at the disposal of the practical men. In these matters, the man of science—to use a metaphor we have often employed—resembles the miner searching for ore, and bringing it to the surface. It is for the practical man, so called, to avail himself of the material thus placed at his disposal. The following remarks, based on an article signed "M." in a recent number of the *Agricultural Journal* of the Cape Colony, are so much to the point that it may be of use to repeat them in substance, because they are just as applicable here as in the colonies:—

Agaricus melleus works its mischievous way through the soil by means of its long threads, establishes itself upon the cambium layer, or zone, where growth is going on most actively, and thus grows up into the tree stem. There are several other fungi which act in a similar manner. It will probably be found that Polyporus isidioides, a common dark brown pore-fungus, adhering by one side of the cap without intervention of any stem, thus passes from tree to tree. The attention of the many observant officers scattered over the Government forest reserves should be directed to the life-history of our Polyporei particularly, so that it may be known which are true parasites, like *A. melleus*, and which are merely wound-parasites. All of these latter are unable of themselves to effect an entry into healthy tissues. But wherever the outer casing of the bark has been injured, whether by trimming, breaking of branches by the wind, or the attacks of insects or larger animals, there the ever-present spores of the wound-parasites find a lodgment, and begin their course of mischief. Each spore may protrude into the cambium cells, and thence to the medullary rays that form the so-called silver-grain of the timber, branching and increasing in every direction. Ultimately the whole substance of the once solid timber is permeated with the white felted threads, and a section exhibits a curious marbled pattern of brown and white. During this stage of growth the mycelium, or spawn, has been living on the food material in the cells of its host, piercing them one after another, and dissolving out the store of starch-granules. The walls of the cell become brittle, and the hard deposit of sclerogen, or woody substance, on their interior side loosens its hold and becomes powdery. If the tree is cut down, the central portion is almost always found to have disappeared, leaving a more or less extensive hollow. Such wood as remains is brown, brittle, and utterly valueless, every cubic inch of it showing white threads of spawn interspersed among its substance. For many years the tree, although fungus-rotten at the core, may continue to live. This is possible, owing to the peculiar mode of life of most timber trees. Every spring they form a new cambium layer, and by its means lay on a new zone of young tissue outside that which did duty the previous year; hence the tree's life is annually set going again by this new layer, while the fungus plays on last year's layer. This fungoid death continually spreads outwards in a widening circle, until at the end of perhaps fifty or sixty years, the reparative powers of the tree become weakened, the zone of fungus gains on the slackening pace of the new growth, and kills it outright.

In no tree-destroying fungus is this process of killing by mycelium in the heart-wood so commonly observable as in *Polyporus sulphureus*, Fr. One need not go far to see its ravages. Whenever an aged tree is blown down or laboriously dug out, the heart-wood, which should be fit to build a ship, is reduced to a brown friable stuff like clotted ochre, and the white network of threads variegates the mass. Each year the growing spawn in the still living trees is quickened into a second or reproductive stage of life. Wherever there is access to the external air and moisture through some wound, there appear round bosses of pale yellowish cheesy matter, which grow with extraordinary rapidity, developing at last into immense flat tiers of yellow fungi, sticking out from the tree like dead men's hands. From the under side of these, spores are given off in millions. They are caught by the rough bark below them, blown by myriads before the wind,

and are ready to start new mischief wherever they can find a home.

When a tree appears ornamented with a crop of the *Polyporus*, breaking out at a place where a branch was blown away or other wound made, the owner may be perfectly certain that however long he may keep it alive for ornament or for wind-shelter, its wood is utterly worthless, its life necessarily short, and it is a standing menace and source of infection to all the trees in the vicinity. Nothing can be done in the way of cure.

The life history of *Polyporus sulphureus* starting from a spore shed upon the moist healthy growing tissue, or cambium of a wounded tree, growing in its wood tissues for perhaps a quarter century, and then breaking out into its yellow cancerous cap or hymenium, has some important lessons for everyone interested in the planting and well-being of trees, whether for ornament or profit.

Let us gather them up into aphorisms. Never make an unnecessary wound in the bark of a timber tree. If an ill-placed branch must be removed, let it be done aslant and close to the trunk, whence it springs.

The cut must be clean, and pared with such keen tools that the bark shall not be loosened from the wood at the line of section. A coat of coal-tar should be applied as soon as the cut surface is dry. All these rules are the natural outcome of the knowledge that destructive spores are ready to vegetate on every open wound and surface of wood moistened by rain, and that the phenol of coal-tar is one of the best fungicide appliances known.

These two fungi illustrate the chief types to which attention should be directed, viz., (1), the parasites proper, with a wandering root-like spawn passing through the ground from tree to tree; (2), the wound-parasites, for whose spores a resting-place must be artificially formed by accident or the want of skilled foresight in the cultivator. There is abundant reason for our taking preventive measures and getting to know our enemies' ways that we may overcome them.

Acclimatisation.

"ACCLIMATISATION," in the restricted sense of the word, implying a sudden change occurring within a relatively short period, seems to be purely mythical. Only by gradual selection can we pick out from a number, a few individual plants hardier and more enduring than the rest, and these we can propagate. We can do something by growing tender subjects against a wall, or by grafting them on a more robust stock, but it is only by a very loose extension of the original meaning that we can apply the term acclimatisation to such manoeuvres. There are, however, certain phenomena to which sufficient attention has not been paid in this connection; such, for instance, as the fact that certain plants, though natives of warm countries, are so constituted as to endure our winters with impunity. Dean HERBERT noted that *Zephyranthes candida*, a native of the hot, dry country near Lima, produced ripe seeds in Yorkshire; and DARWIN alludes to the fact that *Berberis Wallichii*, a native of the very tropical Khasia Hills, is uninjured by our winters, and ripens its seeds in our cool summers. The common Passion-flower, *P. cœrulea*, though a native of Brazil, fruits and produces ripe seed freely in the neighbourhood of London. The tropical *Roscoea purpurea* grows and flowers at Kew and at Bilton in the open air; and numerous other illustrations of a like kind might be cited to show how great is the range of temperature and other conditions to which some plants can be subjected without injury. The moral to be deduced from this is not to rely too exclusively on *à priori* reasoning, but in the words of an old song, to "try, try again."

Another point not sufficiently attended to, is the circumstance that buds taken from one part of the plant are often differently endowed from those which shoot from another part of the same plant. Many such cases have been recorded in our columns, and DARWIN, in his *Variation of Animals and Plants*, vol. ii., chap. 11, alludes to some of them; as, for instance, to the seedless *Berberis*, which can be propagated by cuttings or layers, whilst suckers always yield shoots producing fruit containing seeds. We were reminded of this a short time ago, when the "grand winter" we have lately passed through had hardly loosened its hold upon the earth, by the receipt of flowering branches of *Acacia dealbata*—"From Nice, or the Riviera," some reader will say, "or from some conservatory." Neither from one nor the other. The flowers came from the shores of the Isle of Wight, from the gardens of the college at

even the Isle of Wight could claim no exemption from the general rigour of the winter, were covered with flowers. *C'a donne à penser*, as the French say. It is probably due to the same causes which often confer so much robustness to the shoots sent up from old stubs or coppice wood.

LINNEAN SOCIETY.—At a meeting of the above, held on June 4, Professor STEWART, President, in the chair, the following were elected Fellows:—Messrs. W. Somerville, H. S. Fergusson, W. F. Weldon, A. C. Jones, and L. A. Waddell. After nominating as Vice-Presidents Mr. A. W. Bennett, Dr. Braithwaite, Mr. F. Crisp, and Dr. St. G. Mivart, the President took occasion to refer to the loss which the Society had sustained by the recent death of a Vice-President, Professor P. Martin Duncan, F.R.S. His genial presence at the meetings, no less than his valued contributions to the publications of the

vegetable cells, and the microscopical detection of Glucosides therein," Part I., by Spencer Moore, F.L.S.

ROYAL HORTICULTURAL SOCIETY.—The Royal Horticultural Society's dinner, which is to be held at the Hôtel Métropole on Tuesday, June 23, promises to be a great success. Amongst the invited guests of the Society who have already accepted the invitation of the Council, we may mention the American Minister, the Greek Minister, the Rt. Hon. the Lord Mayor, the Right Hon. the Earl of Rosse, the Right Hon. Sir Lyon Playfair, Bt., M.P.; the Lord Justice Fry, Sir James Paget, Bt.; Sir Joseph Lester, Bart.; Sir James Whitehead, Bart., F.R.H.S.; Sir Henry Thompson, Mr. Sheriff Farmer, F.R.H.S.; Mr. Brymer, M.P.; Dr. Farquharson, M.P.; General H. H. Donnelly, Norman Lockyer, Esq.; S. B. Bristowe, Esq., Q.C.; Dr. Aitchison, the Mayor of Croydon, F.R.H.S.; Dr. Herman Weber, H. W. Lawrence, Esq., &c. A few tickets (price 12s. 6d.) may still be obtained, on application to the Secretary, 117, Victoria Street, S.W.

THE "BOTANICAL MAGAZINE."—We are informed (through the columns of *Nature*), that Kew has recently acquired by purchase from Mr. F. CURTIS, a descendant of WILLIAM CURTIS, the founder of the *Botanical Magazine*, about 1650 original drawings, chiefly of figures which appeared in that publication. They belong partly to the first series and partly to the second, from 1800 to 1826—that is to say, during the period that the magazine was edited by Dr. SIMS. Many of these drawings are very beautiful, and very carefully coloured, especially those done by JAMES SOWERBY and SYDENHAM EDWARDS; but some of the finest of their work was not reproduced in the plates. The collection also includes some of the poorest work that ever appeared in the magazine. In 1815, SYDENHAM EDWARDS seceded, and worked for the rival *Botanical Register*; SOWERBY had ceased contributing, and there seems to have been a lack of novelties for illustration. Towards the end of Dr. SIMS' editorship, in 1826, the *Botanical Magazine* was doubtless supplanted in a great measure by the *Botanical Register*, then conducted by the vigorous LINDLEY. Its circulation greatly decreased, and the impression was small; hence this series is very rare. The following year, however, Sir WILLIAM HOOKER became editor, and speedily raised both the artistic and botanical character of the magazine. Many of the plates published during the latter half of Dr. SIMS' editorship are not signed, but all the drawings are, and we learn that WILLIAM HOOKER, the artist of the *Paradisus Londinensis*, was an occasional contributor. The collection also contains a number of unpublished drawings.

—The number of the above for the current month contains figures of four ornamental garden plants and one of economic value. *Lilium Henryi*, a native of China, occurring so far as is known at two places, both near the town of Ichang, in the Hupeh province, on grassy slopes at an altitude of 200 to 2000 feet above sea-level. The bulb is large and globose, stem 3 feet long below the inflorescence, bearing about 80 sessile leaves without bulbils in the axils. Flowers few, arranged in a lax corymb; colour yellow, with minute red spots, and a green keel on the segments.

Cypripedium Klotzschianum.—A native of British Guiana, discovered by the late Sir ROBERT SCHOMBURGK during his second exploring expedition into that country, and collected by Mr. IM THURN from the Roraima Mountain in 1885. Living plants were introduced by Messrs. F. SANDER & Co., in 1886. Technically a *Selenipedium*, it is in conformity with Veitch's *Manual*, retained under *Cypripediums*. The lip is primrose-yellow, with a tinge of green in it. Sepals pale rose, with stripes of a darker shade of colour; dorsal sepal ovate lanceolate; petals resembling sepals in colour, and twisted twice in their length, which is about 4 inches; scape and ovary pubescent.

Aphelandra Blanchetiana.—A handsome plant,



FIG. 147.—FLOWERING PLANTS OF ACACIA DEALBATA, AT RYDE: FLOWERS YELLOW.

Ryde, and were sent at the instance of our excellent correspondent Mr. EWBANK. That gentleman, in writing to us, lamented the death, in his own churchyard, of a fine bush of this species which had attained a goodly height. With the fate of this tree in his mind, he came upon the scene depicted in our illustration (fig. 147), not half a mile from his own residence, and was naturally not a little surprised, for there was the *Acacia* in question forming a veritable thicket, and as full of its fragrant blossoms as if it were on the shores of the Mediterranean, rather than on those of the Solent. The history is pertinent to our narrative. The original tree had, like Mr. EWBANK's own, succumbed to frost some years ago, but it was only killed to the ground, and subsequently threw up a thicket of suckers, which, as we have said, prove so hardy as not only to resist an Isle of Wight winter, but in this season, when

Society, would, he felt sure, be missed by everyone. On behalf of Mr. F. J. Hanbury, Mr. W. H. Beeby exhibited and made remarks on a sterile form of *Ranunculus acris*, on which some criticism was offered by Professor H. Marshall Ward. A paper by Mr. M. C. Potter was read, on "Diseases of the leaf of the Cocoa-nut tree." The specimens examined had been received from Ceylon through Dr. Trimen, and in Mr. Potter's opinion the diseases noticed were referable to three causes, namely, to the rays of the sun, to the ravages of insects, and to fungi. These were separately considered, and descriptions were given of the different appearance which the leaves, thus variously affected, presented. A discussion followed, in which Professor H. Marshall Ward criticised, in some detail, the observations which had reference chiefly to fungi. An evening meeting will be held on June 18, 1891, at 8 p.m., when the following papers will be read:—1, "An Investigation into the true Nature of Callus," Part II., by Spencer Moore, F.L.S.; 2, "The alleged existence of Protein in the walls of

with an inflorescence 6 to 7 inches long, consisting of golden-yellow flowers, emerging from crimson bracts, which are deeper-coloured at their points than at the base; leaves light green, deeply furrowed, and with a whitish midrib. A native of Bahia, introduced by Mr. W. BULL, and found in his list of new plants for 1888.

Edgeworthia Gardneri.—An economic plant from the Himalayas, from which paper of the best quality is made. The specimen figured is from a very young plant, raised by Mr. GAMMIE, manager of the Government Cinchona plantations, Darjeeling. It makes, when full-grown, a handsome greenhouse shrub. Flowers yellow, in close globular heads, and sweet-scented.

Colchicum Sibthorpii.—The finest of all the Colchicums in cultivation; flowers bright mauve-lilac, one to five in a cluster. Autumnal. Native of Greece.

FRUIT PROSPECTS IN KENT.—A correspondent of the *Kentish Observer*, states:—"The fruit prospects in the Sittingbourne district are, on the whole, favourable. Black Currants are a failure, and Gooseberries will be scarce; but against this, Strawberries are favourably spoken of, and, although it is rather premature to give an opinion, Cherries and Plums are expected to yield handsomely. Apples and Pears will also be a more than average crop. From Sevenoaks comes the report that Strawberries and Raspberries have suffered greatly by the many frosts. Maidstone district: the late frosts have thinned the Gooseberries and Black Currants, and the crop will be short. Red Currants and Strawberries promise well; also Raspberries, where they have escaped the frosts. Cherries generally look well, especially the late sorts. Plums are mostly promising. Apples and Pears were attacked by maggot during the cold dry weather, but are now growing away from it. Mereworth and West Peckham: Black Currants (green buds) will be a total failure, and other sorts of Black Currants must be very short. Reds are looking better, but are inclined to drop. Gooseberries are very short in most grounds. Cherries, although backward, look well. Early sorts of Apples look well. Cobs look well, but it is too early to form an opinion of the crop. Sittingbourne: At one time there was an enormous show of Cherries on the Noud's Estate, but the recent cold winds and rain have reduced them to half a crop. Apples, Pears, and Plums look well, and appear to me like having a full crop. Gooseberries and Currants cut very much.

THE MIDLAND COUNTIES PANSY SOCIETY.—In consequence of representations from many growers and intending exhibitors of Pansies at the Exhibition advertised for June 10, in the Central Hall, Corporation Street, Birmingham, the committee have decided to postpone the exhibition from Wednesday, June 10, to Wednesday, June 24. The Central Hall, Corporation Street, is adjacent to the railway stations, and has good hotel accommodation close by. The exhibition promises to be the greatest display of Pansies and Violas ever seen. Mr. WILLIAM DEAN, Dolphin Road, Sparkhill, Birmingham, is the Hon. Sec.

ORCHIDS, ETC., AT MR. B. S. WILLIAM'S NURSERY.—At the Upper Holloway Nurseries, many nice things in Orchids and foliage plants may now be found. Amongst the former, there are in flower many of *Lælia purpurata* in variety, *Cattleya Mossiae*, including some choice forms; *C. Warneri*, and *C. Mendeli*, both dark and light-flowered varieties. The *Miltonia vexillaria* are coming to an end, although there are still some noteworthy varieties of the plant in bloom. The *Cypripediums* in flower are numerous and choice. Amongst foliage plants there is a new *Dracæna*, Miss Glendenning, a narrow-leaved variety, perfect for indoor and table decoration; as is also *D. Arthur Laing*, with pendent leaves of a crimson and bronze colour. *D. Lord Wolsley* has the same colours, but the leaves are broad—2 inches—and also pendent. Fine Anthu-

riums were met with in Smet Duvivier, Londinense, and eburneum.

ORCHIDS BY SPECIAL TRAIN.—To the uninitiated, a special train filled with Orchids will no doubt seem very extraordinary, but we understand, says the *Liverpool Daily Post*, of June 5, that the Liverpool Horticultural Company, whose headquarters are at Garston, have just removed a fine private collection of Orchids, which they have purchased from the executors of a well-known collector at Falkirk, N.B., to their premises by special train.

PREVENTIVE MEDICINE.—Dr. KLEIN, in concluding a lecture at the Royal Institution of Great Britain, says:—"After having shown you what an enormous amount of accurate knowledge about the nature and causation, about the prevention and treatment of infectious diseases has been gained by the experimental method, and by this alone, it will hardly be credited that a number of persons, as well-meaning as they are ill-instructed, are still maintaining the contrary; it is they who have succeeded in inducing Parliament to pass a law restricting, if not in some cases altogether prohibiting, the use of that method. This law is interfering with research in this country to a large extent, and has even put a stigma on those who are engaged in elucidating truths that are for the benefit of mankind, and of the animals themselves. What can be of greater benefit in the battle against diseases than the knowledge of their causes, and the devising of means for their prevention and treatment? Fortunately for progress in general, this country is the only one in which such restrictions disfigure the statute-book; other countries, more enlightened and able to recognise the value of researches of this kind, have wisely resisted the clamour for restrictions." [The responsibility of those who, of course unwittingly, are thus endeavouring to perpetuate and multiply misery, the cure for which is within our reach is too awful to be conceived. ED.]

RECOVERY OF VINES FROM PHYLLOXERA.—By the latest inspection of the Phylloxera-infested districts of Portugal by the officials of the Portuguese Agricultural Institute, some interesting observations were made, says Dr. KLEIN in the *Gartenflora* for May. Vines which had been infested for a number of years, and dressed latterly with sulphate of copper, had completely recovered from the attack, and given extraordinary crops, a fact which is not without analogy in the history of the malady. It is the question now, if the proprietors can bear the cost entailed by a continuance of this expensive remedy. In other cases it would appear, that where rows of trees intersected the vineyards, the trees were attacked by the Phylloxera—which the Editor questions. These trees acted as traps or conductors for the lice; and so far no evil consequences to the trees have appeared.

GARDENERS' ORPHAN FUND.—This estimable fund has, as our readers are aware, made wonderful headway in the short period that has elapsed since its formation, and the Committee are desirous of still further developing its usefulness. To this end, it is purposed to hold a "Grand Floral Fête and Rose Fair" at the Crystal Palace, on Wednesday, July 15 next. This festival is intended to take the place of that held in former years in the flower market, Covent Garden; but which is discontinued owing to its interference with market arrangements. One hundred thousand Roses will be provided, and blooms will be given to all visitors entering the Palace before 3 P.M. After that hour a Rose fair will be held, and there will be a general display of many diverse plants and flowers. The cultivators of flowers and well-wishers of the Fund are invited to send flowers for exhibition and sale; and still further service may be rendered in the purchase and sale of tickets for the fête, which Mr. A. F. BARRON, Hon. Secretary, Royal Horticultural Society's Garden, Chiswick, will supply on application.

At the present time, the Fund is the means of distributing assistance at the rate of 5s. per week to thirty-nine fatherless children, being a cost to the Institution of £507 per annum. More, however, is required to meet the many pressing claims, and to alleviate the distressing cases that are being constantly brought under the notice of the committee. The Gardeners' Orphan Fund has no paid officers, nor expensive offices to maintain. Beyond the payment of the necessary working expenses, which are kept to the lowest limit, every penny given is directly applied for the benefit of the orphans. Every 5s. given will secure a vote for the next election, and a donation of £5 one vote for life.

—The monthly meeting of this committee took place at the Horticultural Club, Hotel Windsor, on the 5th inst., WILLIAM MARSHALL, Esq., in the chair. The Secretary announced the balance at the bank to be £508 17s. 2d. Among special receipts was the sum of £10 10s. from Mr. JOHN WILLS, he having promised to subscribe this sum annually on his birthday for a period of five years, making a contribution of 50 guineas in this manner. The secretary announced that some 10,000 collecting-cards had been sent to gardeners and others in Great Britain and Ireland, with a view of having a general national collection in aid of the Fund on Saturday, June 13; also he laid before the committee a draft agreement with the Crystal Palace Company for the Grand Floral Fête and Rose Fair in aid of the Fund on Wednesday, July 15.

"THE LUDGATE MONTHLY" is a new magazine, containing contributions by WALTER BESANT and other well-known authors. The contents are in considerable variety, and there are plenty of illustrations; the whole is clearly printed on good paper, and issued for the small sum of 3d.

THE DECLINE OF THE COUNTRY GENTLEMAN.—The *American Garden and Forest* laments the tendency of the age, as manifested in the increase of town population, and the corresponding decline of that of the country districts. It is curious to note that the self-same process is manifested in the States as here, under conditions one would have thought somewhat different. "The questions involved," says our contemporary, are worthy of study by the most thoughtful men. How can the conservative practices of agriculture and horticulture be adjusted to the swiftly changing conditions of this growing country? How is the farmer to command his fair share of the value of the products of the soil? What can be done to make country life more attractive, wholesome, and satisfying? Is it possible to restore the tiller of the soil to the position of consequence he once held in the social and political life of the Republic?

"PRACTICAL LANDSCAPE GARDENING."—Under this title, Messrs. PUTNAM, of New York, announce the speedy publication of a work by Mr. SAMUEL PARSONS, Superintendent of Parks in the City of New York.

BAMBOOS.—It is pleasing to note that this beautiful genus of plants is gradually gaining popularity. Indeed, it is a wonder how it is they have kept in the background so long, as they are much superior to a good many of the Palms in cultivation; for the conservatory and general decorative purposes, it is hard to find their equal, as their lax and graceful foliage renders them suitable for mixing with all kinds of plants. Most of the species are either hardy or half-hardy, and very easy of cultivation, their chief requirements being a rather rich soil and abundance of water in summer. The following are a few of those best suited for general purposes. *Bambusa Fortunei* var. *variegata*, a very pretty dwarf-growing variety well adapted for pot work; *B. striata*, *B. aurea*, *B. violascens*, and *B. nana*, the latter is rather a tender species, and does best when in a stove. The genus *Phyllostachys*, found in China and Japan, also contains many beautiful species, well deserving more attention from

horticulturists; should the demand for them increase, many forms will doubtless be produced superior even to those existing at present.

FLORAL TURF.—We read in MÖLLER'S *Deutsche Gärtner Zeitung* of the Petrowski Park, which lays to the north of the city of Moscow, and in which the keeper of the *Restaurant Mauritiens* (The Moor's café) has sowed the bare places in his garden with a mixture of summer-flowering annuals, which has gained the name locally of Moorish turf. This floral kaleidoscope found approval from the public, and now a certain firm of seedmen have hit upon the idea of offering a mixture of suitable kinds, and perennial grass seeds. The following amongst others are good for the purpose:—*Bartonia aurea*, *Gilia tricolor* and other varieties, *Clarkia pulchella*, *C. elegans*, *Collinsia bicolor*, *Convolvulus tricolor*, *Crepis*, *Leptosiphon*, *Linaria*, *Linum*, *Lupinus*, *Malope*, *Nemophila*, *Nigella*, *Reseda*, *Portulaca*, *Saponaria*, *Silene*, *Centaurea*, *Eschscholtzia*, *Iberis* in variety, and *Papaver Rheas* vars. The mixture must be proportionate, so that no one colour or species predominates.

EGG PLANTS.—A recent *Bulletin* of the Agricultural Experiment Station of Cornell University, deals with the varieties, cultivation, and mode of cooking of the fruits of Egg plants, including the Aubergines. Professor BAILEY says the requisites for success are "early starting, warm quarters, vigorous plants, rather late transplanting, warm, rich, moist soil, and constant attention against insect pests." The best varieties are Early Dwarf Purple, Early Long Purple, White Chinese, and Black Pekin as a late variety. The best market varieties are New York Improved and Black Pekin, with Early Long Purple for the first demands. The methods of cooking are as follow:—

"1. *Fried.*—Cut in slices crosswise not over a half-inch thick, and parboil in salt water about fifteen minutes; then remove, and fry in a hot "spider" in butter and lard.

"2. *Fried.*—Cut into slices $\frac{1}{4}$ or $\frac{1}{2}$ inch thick, and lay in strong brine for two hours; then wash very thoroughly; sprinkle with brown sugar, pepper and salt, and fry slowly to a dark brown.

"3. *Baked.*—Cut in two lengthwise, remove the seeds and pulp, and fill with dressing made of half a teacupful bread crumbs, one teaspoonful butter, and salt and pepper to taste; lay the halves side to side in dripping pan, add a little water, and bake nearly an hour.

"4. *Fritters.*—Pare, cut in thin slices crosswise, and soak in salt water for eight or ten hours; dry on a towel, dip in beaten egg and roll in bread crumbs, then fry slowly in hot butter until the pieces become a rich brown; serve hot."

KEW.—There was recently rather an interesting parasite (*Lathræa squamarea*), to be seen in bloom in Kew Gardens growing on the roots of a *Rhododendron*. It is the only British species of that genus; the stem is thick and fleshy, bearing a raceme of bracts and flowers of a purplish-white colour, from 4 to 10 inches high. *Lathræa clandestina*, figured in these columns, June 25, 1889, was also in bloom, growing on the roots of a Willow by the side of the ornamental water.

THE CUT FLOWER TRADE IN FRANCE.—Three hundred and twenty-three tons of cut flowers, says the *Liverpool Mercury*, sounds an enormous amount, and so, without doubt, it is. Yet this was the weight of the quantity of cut flowers packed and sent out during the four months from November to February from Cannes alone. Their value would be estimated at £65,268. The trade is said to be increasing at an almost incredible rate, and within the past eighteen months no fewer than fifty-three new establishments have been started for the cultivation of flowers. From Nice, the report is that the flower trade has been much depressed owing to the severe frost of the past winter. It is said, however, to have yielded—the whole district—15,000,000 francs during last year.

PROPOSED WINTER GARDEN FOR EDINBURGH.—At a meeting held, on the 3rd inst., of the Edinburgh Town Council, the Lord Provost's Committee submitted sketch plans of a proposed winter garden in West Princes Street Gardens. Questions were raised as to the cost of the building, and the suitability of a site mentioned at the western extremity of the gardens. A member doubted also whether a glass structure would be suitable for concert performances; and finally it was agreed to delay the matter until next meeting, when probable estimates and other information sought would be forthcoming.

PERSIAN ASAFÆTIDA.—In the garden of the Apothecaries Company, at Chelsea, *Ferula persica* is now in flower in the principal collection of classified plants of medical interest. It was figured in 1819 from the Chelsea garden, in the *Botanical Magazine*, t. 2096. It is quite distinct from the true *Ferula asafetida*, but it was described and figured under the name of *Asafetida* by HOPE, in the *Philosophical Transactions*, in 1785, p. 36, tabs. 3, 4, and by MARTIN, in MILLER'S *Gardeners' Dictionary*.

CHRYSANTHEMUM SHOW AT HANOVER.—We are informed by the President of the Horticultural Society of Hanover, Herrn F. A. TÜP, that an exhibition of Chrysanthemums will be held in the Odéon Hall, Hanover, from November 6 to 8 next. A programme will shortly appear.

CROYDON GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT SOCIETY.—On the occasion of the next meeting of the above, on the 16th inst., the Rev. W. WILKS will read a paper on "Hardy Herbaceous Borders," which, since its announcement, has been looked forward to with great interest.

MUSHROOMS AT THE INDUSTRIAL HOME GARDENS, POOLE.—The gardens in this town were established for a very worthy object, forming, as they do, part of a scheme for industrial homes, inaugurated and supported by Lady WIMBORNE and young ladies at Candford Manor. Work is provided for willing hands in the daytime. The produce is sold, and the proceeds go towards the support of an evening school, so that those who are lucky enough to find employment there, are not only taught practical gardening, but have every opportunity of intellectual improvement on advantageous terms. This is undoubtedly a step which is deserving of imitation, as many men who have been brought up in the country fail to make the most of and obtain the best results from their gardens, owing to the want of a little practical training. Mushroom-growing is somewhat extensively carried out, and for the purpose there exists upon the premises a structure 100 yards long, by 7 yards wide, formerly used as a rope-walk. There are three large beds made up in this shed, two ridge-shaped, 50 yards long by 4 feet wide each, and one flat bed, 40 yards long by 6 feet wide. The beds are kept covered with a layer of straw, and at the time of our visit there was a wonderful show of Mushrooms in all stages of growth. The horticultural part here is under the supervision of the head gardener at Canford. Asparagus is largely grown, and succeeds well.

PUBLICATIONS RECEIVED.—*Physique, a Journal of Physical Education*. Published by G. BELL & SONS, York Street, Covent Garden.—*Royal Horticultural Society's Proposed Conferences and Exhibitions*, to be held in the Society's Gardens at Chiswick, July 7 and 8, and October 6, 7, and 8.

THE LIBRARY OF A GARDENER.

Few who knew the late Shirley Hibberd as simply the editor of the *Gardeners' Magazine*, suspected his extraordinary versatility in half-a-dozen other specialties—in directions, any one of which most people regard as sufficiently extensive for a life's study. Brilliant and witty as a speaker, charming as a companion, and full of vivacity in writing on the most

abstruse and inherently heavy topics, Shirley Hibberd was also a student and an omnivorous reader of the best books. *Les livres ont toujours été la passion des honnêtes gens*, once wrote that entertaining bibliophile, Gilles Ménage—who, probably, qualified his enthusiasm when he discovered that a certain Cardinal had stolen one of his books! Shirley Hibberd's passion for books was genuine and well-defined. He was too practical a man to be bitten with that extraordinary and increasing madness for "first editions" and "large paper copies," on which so many collectors nowadays squander so much money with such little satisfaction. A glance over the catalogue of his library, which Messrs. Sotheby, Wilkinson & Hodge will sell at their rooms in Wellington Street on Monday and Tuesday, June 29 and 30, will prove not only the catholicity of his literary tastes, but also the intuitive nature of his insight into distinguishing the best editions from those which do not come into that category. The books, which will shortly be brought under the hammer, do not represent, either in variety, choiceness, or number, the book-collecting side of Shirley Hibberd's life. At one of the Horticultural Club dinners, to which he invited the present writer in the spring of last year, he related many interesting particulars about his books, and of how, a few years ago, when suffering from a severe domestic affliction, he gave up housekeeping, and sold an extensive library, numbering many thousands of books. Among these were several *incunabula*, and many excessively rare early English printed books.

With Shirley Hibberd, as with so many other men, the passion of collecting books was too genuine, and their companionship too absolutely essential to life and intellect, to be suppressed by any amount of sorrow. This is obvious, from the fact that in a few years he had again gathered together a well-stocked library. In the sections relating to horticulture, botany, zoology, and agriculture, the collection is singularly complete and valuable, whilst in archæology, travels, and works of general interest, it is noteworthy. Nearly a hundred books relate to Shakespeare, including the best editions, old and new, of the dramatic works, and of the principal Shakesperiana of recent years in so far as it relates to the folk, plant, and animal lore, whilst even the Baconian "cranks" are not omitted, as witness Mrs. Pott's Quixotic absurdity, *Bacon's Promus*, illustrated from Shakespeare. The other "old dramatists" are also well represented, there being Dyce's excellent edition of Beaumont and Fletcher, and Cunningham's editions of Ben Jonson, Chapman, Marlow, and Massinger, and that most useful book of reference, Halliwell's *Dictionary of Old English Plays* (one of only twenty-five copies printed on thick paper).

In books of travel, Shirley Hibberd appears to have manifested quite the habitual "first nighter's" ardour for coming in at the beginning, and of forming his own opinion before it could possibly be influenced by the critics. All the best modern books of exploration, travel, and adventures, are here catalogued. Stanley, De Chailu, Nordenskiöld, H. H. Johnston, Livingstone, Thompson, Captain Cook, Franklin, and Major Serpa Pinto, all found diligent students in Shirley Hibberd, whose exhaustive reviews of several of these books in the *Gardeners' Magazine*, if somewhat a little outside the prescribed sphere of that excellent journal, were very widely appreciated, for they were independent essays rather than mere reviews in the technical sense.

Archæology was, as already indicated, a special feature with Shirley Hibberd. It will be unnecessary to indicate any particular books by name, but there is one phase to which allusion must be made, and that is, his uncommonly great interest in King Arthur and the Knights of the Round Table. His theories in regard to the hero were iconoclastic and revolutionary, which time may or may not accept. He appears to have collected every book which had a bearing on the subject, in English, French, Welsh, and Latin, the rarest

being the *Most Ancient and Famous History of the Renowned Prince Arthur*, printed in black-letter type, and published by William Stansby in 1634; and a first edition of Heywood's *Life of Merlin*, 1641. Of *Notes and Queries*, that delightful repository of forgotten lore, to which Mr. Hibberd was a frequent contributor, there is a complete set from 1849 to the time of his death. Among books on Art, the most noticeable are Muntz's *Raphael, his Life, Works, and Times*; Audsley and Bowles's *Keramic Art of Japan*; Eaton's translation of Thausing's *Life and Works of Albert Durer*, Mrs. Jameson's works, Crowe and Cavalcaselle's *Life and Times of Titian*, the "Memorial" edition of Bewick's works, and many others, all standard books of reference.

In botanical and horticultural literature, of course, the library is strongest. Among the more select and rarest books we may mention Sweet's *Geraniaceæ*, Lindley's *Pomologia Britannica*; a complete set, with index, of the *Botanical Register*, with about 3000 beautifully-coloured plates; a black-letter edition of Tusser's *Five Hundred Pointes of Good Husbandrie*, 1586, besides several modern reprints; a fine copy, also in black-letter type, of Turner's *Herbal*, 1568; a copy of the first edition of Gerarde's *Herbal*, 1597; and two copies of the edition published under the supervision of T. Johnson in 1633, and several "Herbals" by other writers; Wallich's *Plante Asiaticæ Rariores*, with 300 beautifully coloured plates; Dillenius's *Hortus Elthamensis*, Sweet's *British Flower Garden*, and also a complete set of the same author's works in sixteen volumes, bound in half morocco; *Flore des Serres et des Jardins de l'Europe*, in twenty-three volumes; Paxton's *Magazine of Botany*, sixteen volumes; and a complete set of the *Botanical Magazine* with all the indices—this work rarely occurs for sale in so perfect and complete a condition, and the competition for it will be very keen. There are also complete sets of all the leading horticultural periodicals of the day, and of many more which have long ceased to appear. So far as books on gardening and allied subjects by modern authors are concerned, it would probably be difficult to name a single example absent from Shirley Hibberd's shelves, and it is rare indeed that so extensive a horticultural library comes into the market. As the proceeds of the sale will go to the only child of Mr. Shirley Hibberd, it is to be hoped that the competition will be keen, and the prices good. *W. Roberts.*

NOTICES OF BOOKS.

A MANUAL OF ORCHIDACEOUS PLANTS. Part VII. *Phalænopsis, Aërides, Vanda, Angræcum, Arachnanthe, Renanthera, Rhynchostylis, Saccolabium, Stauroopsis, &c.** (James Veitch & Sons.)

STEP by step, as Messrs. Jas. Veitch & Sons include these great genera in their Manual, its value to all concerned in Orchids, directly or indirectly, becomes the more apparent. In all its details there is a completeness and thoroughness in dealing with the genera as a whole, and with the individual species, that after looking up any reference in it, one is astonished at the amount of information conveyed regarding the species, and of facts in regard to culture which could have been gleaned only by years of experience. A work of this kind is calculated to greatly enhance the pleasures of Orchid culture, while at the same time it assists in a high degree to simplify it.

In previous issues the great genera *Odontoglossum*, *Cattleya*, *Lælia*, *Dendrobium*, *Cypripedium*, *Masdevallia*, *Calanthe*, *Cœlogyne*, *Phaius*, *Epidendrum*, and allied genera, have been dealt with in a very complete manner, and in the present issue the important and favourite *Phalænopsis*, *Aërides*, *Vandas*,

Angræcums, *Saccolabiums*, &c., are carefully and fully dealt with, the latest revisions being followed. Thus, under *Stauroopsis*, are placed the plant known in gardens as *Vanda gigantea*, and *V. Batemanni* as *S. lissochiloides*. *Arachnanthe* embraces those known as *Vanda Cathcartii* and *V. (Renanthera) Lowii*, and many other such changes are tabulated, all of which have been proved with the test of time and careful scrutiny. One very interesting feature in the present issue is the complete enumeration of all the *Phalænopsis*, both species and hybrids, many of which are illustrated.

Turning to the *Aërides*, we find many which have been accorded specific rank falling as varieties under species, and evidently with justice, for the slight variations which may have been observed in the earliest plants have long since been nullified by the instability of those which in each case have subsequently flowered. The part under notice consists of 142 pages, embellished with fifty illustrations, many of them of full-page size, and giving in most cases analytical illustrations of the various parts of the flower, which will greatly assist amateurs in the identification and relative comparison of species.

The work is also furnished with a large coloured map of the Indo-Malayan region, to illustrate the geographical distribution of the *Phalænopsis*, *Aërides*, and *Vandas*, and which, with these and the other genera dealt with, will greatly assist the reader in realising the copious details regarding the climate of the country the plants inhabit, and the no less full particulars of the treatment they require under glass.

It is a most excellent work, useful alike to the beginner and to the old practitioner, to the gardener and to the botanist, and to him who consults it for the fullest information, as well as to him who peruses it for interesting plant lore.

ELEMENTARY TEXT-BOOK OF BOTANY. E. Aitken. (Longmans & Co.)

This book is a tribute to the botanical teaching at Girton, of which College Miss Aitken is an alumnus. It has evidently been inspired by Huxley's *Biology*, and will supply a desideratum that has long been felt, namely a book adapted to no syllabus, but designed to interest young people to take up the physiological side of the subject. Boys now are taking such interest in photography, that it must have occurred to many teachers to interest them in microscopical work, also in which there is much scope for manual cleverness and attention to details. Miss Aitken's book is not only adapted for self-instruction, but is one of the best class-books for schools that has yet appeared, and also an excellent introduction to the more advanced manuals like Goodale's *Physiological Botany* and Bowers' *Practical Botany*.

The book is divided into three parts. The first treats of the important morphological features of the root, stem, leaf, flowers, and fruit; only the chief characteristics are insisted upon, the multiplicity of botanical terms being banished to the limbo it deserves in a first book. Then follows the classification of plants, and a typical example of some of the common orders of *Phanerogams* is fully described. The second part treats of some typical *Cryptogams*. Here, among others, are described the *Protococcus*, *Yeast*, *Spirogyra*, *Mould*, *Vaucheria*, *Pythium*, *Algæ*, *Agarici*, and *Ferns*. At the end of each chapter is a summary of the practical work that can be done with each, with adequate and plain instructions. The third part is devoted to the life-history and histology of flowering plants. Here also, at the end of each chapter, is a page of full instructions for microscopic work. The style is terse, but clear and easy, and the arrangement could hardly be improved upon.

HOME CORRESPONDENCE.

THE COWSLIP AS A POT-PLANT.—The common Cowslip, if carefully potted, is excellent either for a balcony or conservatory. Not only is it absolutely

hardy, bearing any amount of ill-treatment, but even in the neighbourhood of London it sends up in early spring clusters of bright clear yellow flowers, amid a sheaf of fresh green leaves. I have counted over twenty flower stems on one plant, which has bloomed for several years in succession, receiving no attention beyond frequent watering. *Leirion.*

THE HORTICULTURAL HALL.—A circular issued by the Royal Horticultural Society, inviting the Fellows to subscribe to the above, seems to open up a question which every well-wisher will desire to hear answered. May I ask whether the proposed site is chosen, and if so, where it is? Also, whether anyone has a clear idea of what is really wanted? and whether the size and general arrangements of the proposed Hall have been considered, and by whom? Unless all these questions can be satisfactorily answered, it is quite possible that a huge building may be erected, at enormous expense, and then found to be utterly useless for the end in view. Architects have been known to design extremely ugly exteriors, with interiors so arranged that they are practically of no use for the purposes required of them. Many instances of this must occur to everyone, and I have an example in my mind's eye now, on which the owner spent £50,000, hoping to make a perfect convalescent home. His architect was sent on the Continent to study every notable building—to note its perfections, and avoid its defects. In due time, this much-studied convalescent home arose, and was presented to an admiring public; when, alas, for human hopes and human learning! it was found to be entirely unworkable for the purpose intended. Walls had to be cut through, doors stopped up, and the whole erection given up again to the workmen for months, at a cost which only a millionaire could contemplate with calmness! To avoid a mishap of so serious a character, it is very desirable that we should all know whether the plans for the Horticultural Hall are in existence, and can be seen; also by whom the building is designed; for hitherto (so far as I know) a thoroughly suitable place for floral exhibitions has never been built. For proof of this assertion, consider the Crystal Palace, the Westminster Aquarium, &c. I pass over the Drill Hall, which well deserves the name which the munificent Baron Schroder gave it—"The Dusthole!" Perhaps the large tent in the Royal Botanic Gardens is the nearest approach to perfection, in the way of adapting means to an end; but being only of canvas, there is the drawback that it is not suitable for all times and all weathers, which we trust the Horticultural Hall, if it ever becomes an accomplished fact, will be. May I hope this matter will be opened up, and thoroughly and frankly discussed, before it is too late? *A Well-wisher.*

AUBRIETIA VIOLACEA.—The recuperative powers of this plant appear to be astonishing. I have a line of plants growing over some stones, and forming an edging to a border, that every winter, owing mainly, I think, to the action of fog, lose all their leaves, and appear to become nothing else but layers of dead stems—so utterly naked and miserable after the past winter, that I abandoned all hope of seeing any young growths appear; but as soon as warmer weather set in, growth burst forth in all directions, and there is now a bank of fresh green foliage surmounted with hundreds of violet-tinted blossoms. The *Aubrietia* is a plant that will endure a large amount of rough treatment, and then break forth into a joyous bloom at the proper time. The drip from trees does not appear to injure it, but it is a plant that should be in the open; a bright and sunny position brings out its remarkable profuseness of bloom. Though under the drip of trees, my plants get the sun up to early in the afternoon, and are none the worse for the shade which falls upon them in the after-part of the day. *R. D.*

MR. ALDERMAN MARRIOTT'S GARDENS AT COVENTRY.—The specimen stove and greenhouse plants grown here are very familiar objects at flower shows, especially at Reading, Oxford, Liverpool, Northampton, Derby, Shrewsbury, and other large towns. Mr. Cypher and Mr. Finch the gardener here, often meet in friendly competition, and two years ago these two cultivators staged two grand lots of twenty plants at Shrewsbury, and two finer lots were never before seen—Mr. Finch was placed 1st, but it was a close run. Those who have seen Mr. Marriott's garden are surprised that such specimen plants can be grown there. It is virtually a town garden of not more than half an acre in extent, and is covered with glass structures, and in hot

* *A Manual of Orchidaceous Plants Cultivated Under Glass in Great Britain.* Part VII. *Phalænopsis, Aërides, Vanda, Angræcum, Arachnanthe, Renanthera, Rhynchostylis, Saccolabium, Stauroopsis, &c.* James Veitch & Son, King's Road, Chelsea, S.W.

weather suffers greatly from heat, and dust from off the roads. But plant culture here, even under these difficulties, is wonderfully well done, and specimen plants are numerous of *Allamanda*, *Clerodendron*, *Ixora*, *Rondeletia*, *Phenocoma*, *Croton*, *Bougainvillea*, *Lagerströmia indica*, *Anthurium*, *Eucharis*, &c. Mr. Finch speaks very highly of Messrs. B. S. Williams & Son's fine new *Allamanda magnifica*, a large specimen just now showing blooms at every point, flowering most profusely, but none of the other varieties in the same stage of growth are anything nearly so forward. There is a good-sized house devoted to specimen *Ericas*, and many of the specimens are very fine, and one wonders how specimen Cape Heaths can be so well done in a confined garden like this. Orchids are well cared for, and there is a good collection, including a plant of the beautiful *Lycaste Skinnerii alba*, another of *Cattleya Mossiae*, with a good deal of yellow in it; and a large specimen of *Oncotoglossum citrosium album*, a mass quite 18 inches through, with fifty blooms on it, was noticeable. Amongst other Orchids in flower were *Cypripedium caudatum* and *C. Boxalli*, fine specimens; some good varieties of *Lælia purpurata*, and the lovely *Acrides crassifolia*. In addition to the specimen plants, Melons, Grapes, Peaches and Nectarines are well grown. *W. D.*

JAPANESE MAGNOLIAS.—Is it possible that none of the Japanese species are in English gardens? They are all well established in this country, especially *M. hypoleuca*, of which there are some fine trees now near New York. With us here *M. Kobus* is the hardiest of all *Magnolias*, and, by the way, this is one of the species with precocious flowers, and must not be confounded with *M. parviflora*. There are large plants in the arboretum, but they have not flowered yet. This year a correspondent in Pennsylvania sends me flowers from a tree which has been growing there for several years. *M. parviflora* and the plant which I take to be identical with Sir Joseph Hooker's *M. Watsoni*, have been grown and distributed for years by Parsons of the Flushing Nurseries, where both the species flower finely. *Magnolia stellata* is very fine in this country; it is the earliest species by a week or ten days to flower, and it is one of the most desirable of all our spring-flowering shrubs. Here it sometimes forms a dense bush 6 or 8 feet high. I fancy our hot summers agree with the Japanese deciduous plants, and that we get more out of them than you do in England, and, as a rule, we escape, too, spring frosts, although recently we had a bad one, which cut a good many things, even forest trees, like Hickories and Oaks; but it is a very exceptional occurrence in this climate. *C. S. Sargent.*

HIMALAYAN RHODODENDRONS.—*Apropos* of your note on these plants at p. 594, I can quite endorse what you say respecting their suitability for indoor culture. Indeed, with a very few exceptions, the many attempts which have been made to get these plants established out-of-doors have ended in failure. But in the coolest of greenhouses they will flourish, and on that account we have often wondered that they are not more largely employed in the furnishing of many of those large half-corridor, half-conservatory structures in which it is difficult to get some kinds of plants to exist. Moreover, if planted out in a suitable bed, many of the kinds, like *R. argenteum* and *R. Falconeri*, attain gigantic proportions; and in their case, contrary to the general rule, they look, if anything, better when viewed from underneath. The glaucous silvery under-sides of the leaves of *argenteum*, and the tawny fulvous colour of *Falconeri* render them (especially when they reach a length of 18 inches) foliage plants of no inconsiderable merit; of course when in flower their huge blossoms are an extraordinary addition. In addition to those mentioned at p. 594, *R. Aucklandi* is a species with magnificent white flowers. A peculiarity of this species is the rose-coloured bract leaves which are produced with the young growth. *R. calophyllum*, has flowers also white, but faintly tinged with yellow; a free-growing bushy species. *R. Maddeni* would seem to be identical with this, but somewhat reduced in size. Another very large, white species, is *R. Dalhousiae*—said to be epiphytal; however, it grows and flowers freely enough planted with the others in an ordinary peat-bed under glass—most of these Himalayan *Rhododendrons* are strongly scented—and in *R. Dalhousiae* it is very marked, the odour being that of a lemon. *R. formosum* is a plant for every one to grow, dwarf and free, with large white fragrant flowers, which it produces in great profusion, but there would appear to be more than one variety

of this, some of them not half so good as others; again we have seen the same plant called *R. Sesterianum*, and which had on authority been determined as *formosum*, their forms scarcely distinguishable from *R. Veitchianum*. Amongst the most desirable of the large-flowered and large-growing species, the yellowish *Nuttalli* should not be forgotten, as well as those with coloured flowers, as *R. arboreum*, *R. Wightii*, *R. Thomsoni*, *R. barbatum*, and *R. virgatum*, &c. One of the most distinct is the lovely *R. cinnabarinum*, a plant of slender, rigid growth, and sparse foliage, but producing pretty cinnabar-coloured flowers, in many-flowered heads; the colour is slightly different from that of *Lapageria rosea*, and the corolla is more campanulate, otherwise the heads of bloom bear a great resemblance to an aggregation of miniature *Lapageria rosea* blooms. This plant is so distinct, that it ought to be worth something in the hands of the skilled hybridist. *R. Roylei* would appear to be synonymous with this species. According to the *Treasury of Botany*, *R. cinnabarinum* would seem to be rather more poisonous than common, even in this poisonous genus of the *Ericaceæ*; at all events, it is there stated, that "Goats are said to die after eating of the leaves of *R. cinnabarinum*; and, when used as fuel, it produces swellings of the face and inflammation of the eyes;" and the same authority goes on to say, "Notwithstanding this, a jelly is prepared in India from the boiled-down flowers of *R. arboreum*; further, the Siberian *R. chrysanthum* is narcotic, and used medicinally—rather mixed and diverse properties of these beautiful plants." Their successful cultivation in pots is by no means difficult, and in some respects has advantages over planting out, which, unless carefully managed, is apt to cause a second growth to be made, which rarely sets for flower; whereas with pots, the job is easily managed by turning the plants out-of-doors as soon as they have completed their growth, a shady, somewhat moist situation being chosen for them, as dryness, whichever system be pursued, is fatal to their welfare. In autumn, before the heavy frosts arrive, the plants should be housed again, but any cool structure, such as an orchard-house, would suit them very well, for there they could, as you have mentioned, be gently forced into flower by being introduced into a little additional warmth, such as a Peach-house orinery just started; withal, they are very accommodating. *F. R.*

METHODICAL HYBRIDISING OF SPECIES, AND CROSSING OF VARIETIES.—The interesting articles on bud variations or sports, which appeared in these pages a few weeks ago, have rekindled an old desire of mine to murmur against the apathy shown by many gardeners, particularly those in private gardens, to the systematic crossing and hybridisation of the plants existing in their gardens. This, generally speaking, simple and interesting branch of gardening has been confined to a comparatively small band of specialists, some of whom have laboured, and are still labouring under adverse climatic circumstances and inconveniences, especially those who live in large cities; hence it is a notorious fact, that our garden hybrids are not so numerous as one might expect. The *Philæria* is one of the most conspicuous that we have, partaking of the character of two distinct species, intermediate between the shrubby *Philæria* and the climbing *Lapageria*. Much good work, however, has long been done in raising improved strains of florists' flowers, vegetables, and fruits, and latterly considerable attention has been devoted to the encouragement of improved stocks of agricultural roots and cereals, &c.; but so far as I have seen, all this has been a rule-of-thumb sort of business—merely a matter of selection, and weeding-out of rogues, with an almost entire absence of artificial fertilisation. The pedigree breeding of garden hybrids and varieties was evidently known and followed by some of the ingenious old gardeners and florists of long past years; but it was, it seems, a custom of the practitioners of the art in those days to keep secret the knowledge of such mysterious functions, and during my early career, which was passed in a famous old Exeter nursery, there were vestiges of such absurd notions. But now, thanks to the gardening press and the School Board, this traditional prejudice is dying out, and gardeners often meet together in their respective districts, and freely discuss all matters relating to their craft; and some go further than this, and relate their experiences—frequently with considerable zest and intelligence—in the form of treatises, or by paragraphs in the gardening journals. "There is still a wide field for hybridisers," these were the words of my

esteemed and lamented friend, the late John Dominy, but a short time before his death, at the conclusion of one of the last of our happy little gossipings together. I quite agreed with him, because my own conviction is, that what has already been done by the scientific breeding of plants is simply a prelude of what might be expected in the future, and, apart from it, proving an impetus in the production of novel kinds. I believe that it would pay any leading nurseryman to gather together a collection of our garden hybrids and varieties in the form of a free exhibition, because all things find a level, and it is pretty certain that our plant collectors have ransacked every quarter of the globe, so there cannot be many more plants to expect from foreign countries [What about Central Africa? *Ed.*]; and sooner or later it must become the fashion to cultivate garden hybrids and varieties. The late Mr. Pince of Exeter was very fond of hybridising, working assiduously on many classes of plants with much success. His seedling *Fuchsias* were very popular in their day, and his *Gesnera exoniensis* was a plant of great beauty; but the *Rhododendrons* were his chief and greatest hobby, and some of his fine seedlings, as *Aurora*, *Agamemnon*, *Bellona*, *Countess of Devon*, *Countess Morley*, *Clio*, *Circe*, *Dione*, *Diana*, *Eva*, *fimbriata rosea*, *Galatea*, *Globosa rosea*, *Imperiale*, *Imogen*, *Juba*, *Mrs. Wood*, *Miss Charlotte Buller*, *Mrs. Parker*, *Miss Bosville Durant*, *Orlando*, *Othello*, *purpurea grandiflora*, *Rosamond*, *Rodanthe*, *Rosalind*, *Rosabella*, *Thetis*, *Titania*, *Talisman*, and *Vulcan*, are standard sorts to this day. Mr. Pince died in 1871, after a long and useful life, and was succeeded by his nephew, Dr. Woodman, who for many years carried on the once great Exeter nursery with much spirit and enterprise, and he, too, took more than ordinary interest in hybridisation, his most noteworthy seedling being *Begonia Woodmanii*, a cross between *B. Veitchii* and *B. Pearcei*, with the brilliant flowers of the former, and the beautiful foliage of the latter. Mr. S. Pope was our chief propagator then, and shortly after he left us, he entered the service of the firm who have since become so famous for their fine *Begonias*. Dr. Woodman's name is also closely associated with the *Cinerarias*, for it was during his régime that those fine varieties, known as the "Wonder of the West" strain, were raised. *W. Napper, Chelsea.*

GROWING PALMS FROM SEED.—In reply to your correspondent, "O. B. D.," who desires information on this matter, I herewith send for his consideration the methods which I have found most serviceable. In the first place, it should be understood that there is really no more difficulty in growing Palms of the *Kentia* and *Cocos Weddelliana* type from seeds than there is in perfecting a crop of kidney Beans, except that the Beans come quicker to maturity, and they are quite as fastidious as to treatment as the Palms; moreover, there are many plants more difficult to raise from seeds, for instance, many Australian pea-flowered plants, *Ericas*, and similar things. The great point is to secure fresh seeds, as many Palms lose their germinating power when kept for a long time, while some are difficult to import in good condition. Probably those are the chief reasons why ordinary seedsmen do not keep stocks of those seeds; but several traders make a specialty of such things, and from them they are frequently to be obtained at very low rates. Having obtained the seeds, there is some degree of choice as to the manner of sowing them. If only a few thousands are wanted, they may be planted singly in thumbs or small 60's, taking care not to do more than just cover the seeds. The pots may then be stood underneath the benches, or similar semi-dark and convenient place, where the temperature ranges somewhere between 60° and 80°, always taking care to keep the seeds only just moist. If the soil is soddened, then decay, instead of germination, will ensue, and if much bottom-heat accompanies a wet condition, a sort of fermentation takes place, which is also fatal. When the quantity required is large, then pots would be inconvenient and expensive, and seed-trays are then employed, and it is important that those trays be not deeper than, say, 2 inches, as much soil around the seeds is prejudicial to their well-being. Those seed-trays, which are used for market-work, answer admirably. The seeds should be sown just close enough to touch each other without crowding, and a light, open compost is best; it may be either sand, or some moisture-holding material—such as leaf mould or Cocoa fibre-refuse. Spread a thin layer over the bottom of the tray, then the seeds, with a thin layer to cover them; temperature and other conditions as

before advised. Another plan of sowing, or rather germinating the seeds, when the quantity is very large, and in which case special houses are constructed for the purpose, is to have one or more tray-like shelves under the ordinary benches, where of course further-advanced batches are growing on. In all cases the young plants should be potted up as soon as possible, for if delayed the growing roots are difficult to get into small pots. Young Palms are much better when grown on in a brisk and moist atmosphere. To maintain the requisite humidity, recourse must be had to frequent syringing as well as damping all available surfaces. As the plants progress and require repotting, use loam as the staple compost, and in lieu of using large pots, rather make the compost rich with some mild manure. In repotting, be careful not to bury the base of the plants. Many Palms are naturally tilted upon their roots, in similar fashion to the Pandanus, and they thrive best by moderately maintaining that character; moreover, to cut off the roots of such Palms would be little short of courting failure. When the specimens get very large, and are in pots or tubs, it is better to give them slight stimulants in the shape of a top-dressing or liquid manure, than to repot them. Heat and moisture are the two most potent factors in the growth of Palms; but they are an exceedingly accommodating class of plant, inasmuch as they can withstand great extremes of temperature for prolonged periods without suffering much change—indeed, after the seedling stage if they get a month or two of growing treatment in the year it is astonishing how well they will respond to it. From the seed, *Cocos Weddelliana* will begin to be of service in about six months; *Kentias* take longer—and *Latania*, *Phoenixes*, and *Arecas* still longer. Palms do without much shading, but, while growing it is essential to the maintenance of a steady humid atmosphere. *F. R.*

SEMI-DOUBLE EUCHARIS AMAZONICA.—In reply to Mr. McHardy, concerning the above, I may say that about seven years ago a plant under my charge bore six flowers, one of which was a double petalled one, and, like Mr. McHardy's, it had twelve petals; in fact, every part of the bloom was doubled. It was a fine flower, perfect in shape, and nearly 6 inches across. I cut all the other flowers off; the bloom ripened a seed-pod, but unfortunately it got lost. *W. P.*

TRITOMA CAULESCENS.—"J. P." asks in the *Gardeners' Chronicle* of last week, whether *Tritoma caulescens* has proved hardy in the Midlands? I have one plant which was put out as a seedling in the summer of last year, and which has come through the winter without any protection. The leaves were all blackened, but as soon as the frost left us, it started to grow again, and has made rapid growth right through the cold spring, so that the injured leaves are no longer seen. I cannot say what amount of frost it has endured, but certainly not less than 25°. I believe 30° were registered in the parish. After this, I think it may be accounted more hardy than most *Tritomas*—*T. nobilis* in the same garden is almost entirely killed; *T. corralina* is killed to the ground, but it is growing again. *J. S. Whall, Worksop, North Notts.*

SCOTLAND.

CABBAGES "BOLTING."

SOMETHING is seriously amiss with the spring Cabbage crop in Scotland this season. Instead of hearting plumply, the tendency of the bulk of the plants is to "bolt," with the dire result to the growers that the cow-feeder, not the general public, has been their customer. The tendency is all but universal in the Lothians and in other parts of Scotland; and in a spring like this, when everything in the shape of green crops is extremely scarce, it may be characterised as a trade disaster. Nor is it confined to Scotland alone; while I write, information received from the north of Ireland shows that the same unfortunate experience is causing trouble to both the growers and the seedsmen there. For a result so general, there must be a common cause. There are several causes assigned, according to the point of view of the indi-

vidual sufferers. The selection of unsuitable varieties for the earliest or spring crop, sowing too early, a too free use of nitrate of soda as a stimulant, and the effect of the severe winter upon the vitality of the plants—these are the principal reasons advanced for the deplorable general failure of the crop. The first, the second, and the last of these alleged causes may each have had a share in bringing about the disaster in the particular form in which it has occurred; but it is hardly credible that the third can have had anything to do with it, because the direct result of applications of nitrate of soda appears to be the production of leaves rather than flowers. The result of an overdose may indeed, by crippling the vital functions of the plants, lead to premature flowering, but it can hardly be assumed that hundreds of experienced men can have erred on this point in the spring of 1891, and yet escaped from ill results in former seasons when the use and potency of the stimulant were certainly not better understood by them. The too abundant use of nitrate of soda does not, I think, account for the wide-spread bolting of Cabbages this season.

It is rather to be inferred that the three other causes named above combined, are at the bottom of the mischief. Of late years, in the Lothians at least, there has been a tendency to sow earlier than well-established experience warranted as safe for the average of seasons. From July 15 to 20, the former date for late districts and heavy land, the latter for early districts and light land, is a period that has been fixed by the experience of generations in the north as the most suitable for sowing Cabbage for spring crop. But encouraged by a succession of mild winters, and eager to be first in the market, many enterprising growers have for some years back taken to sowing eight or ten days earlier than the period named. This is at least a probable cause of "bolting" in many cases in these parts. The by-gone winter was a severe one up to February, when we had about four weeks of genial growing weather, followed by a second winter, which may be said to have continued to the end of May. In February, the Cabbage crop looked well everywhere, but was checked by the sudden and protracted severity which was ushered in by March. The plants were too luxuriant at the end of February for the period of the year to go scathless except fine weather had continued. Arrested leaf-growth was the result, and the enfeebled energies of the plants endeavoured to meet the cry of Nature for reproduction by "bolting," to flower probably twelve months earlier than they would have done under ordinary conditions, supposing the varieties had been properly chosen.

But here the first-named cause calls for brief consideration. Till very recently, the only variety of Cabbage sown by market gardeners in the Lothians was the old typical McEwan, which does not, as a rule, bolt within twelve months of the date of sowing. If anyone questions this conclusion, I can, in proof of its accuracy, refer him to a plantation in the neighbourhood of Edinburgh which was made from plants reared in July, 1889, and planted for the purpose of producing seed in 1890, some of which even this year have, to the regret of the grower, declined to break for flowering. This is no extraordinary case in regard to this old type of Cabbage; it occurs year after year, and is one of the features in its character that renders the seed always scarce, and comparatively dear. But it is a small Cabbage, smaller and somewhat later than Pringle's Imperial and Worcester Early, which are of the same type, but less hardy; and in consequence of the craze for having the first and largest in the market, these varieties, and others similar, have been selected by market gardeners in the Lothians in preference to the older and hardier sorts, which could always be relied upon in the majority of seasons to yield a full crop.

In the north of Ireland, judging by our experience in the Lothians, and other parts of Scotland, they appear to err more seriously in the selection of varieties. They rely on Nonpareil, Ellam's Early, and Etampes for their spring Cabbage crop. In

ordinary seasons, in the comparatively milder climate of Ireland, these varieties may do well, but they are found to be decidedly too tender to endure even mild winters in Scotland, and it may be a reasonable inference that the past winter proved too severe for them even in Ireland, and hence the loss which has occurred there.

There is another opinion held by some market gardeners in Scotland, and which seems to be founded on experience, that Cabbage plants reared from seed of stocks of even approved types saved in England or in other more favourable climates, are not equal in hardiness to those reared from seed saved in Scotland. I here give the opinion for what it is worth, but must state that it is advanced by practical men, whose only interest is to obtain the best possible selection of kinds of Cabbage, or anything else in the shape of marketable vegetables, which climatal and other conditions enable them to grow. The practice of a large number of the most successful market gardeners in the North, of saving their own stocks of Cabbage and other Brassicæ is founded on the belief that they are hardier and better—particularly hardier—than any they can obtain from other sources. May there not be something in it? *W. S.*

FOREIGN CORRESPONDENCE.

VERSAILLES.

THE exhibition of the 27th ult. was a great success, to which the Anthuriums of M. de la Devansaye largely contributed. This gentleman carried off the four 1st prizes for seedlings and collections of these plants, in addition to a large Gold Medal and a 1st prize for a collection of new or recently-introduced plants.

NEW INVENTION.

TWIN WATER DISTRIBUTOR.

WE illustrate (fig. 148, p. 741) a hose spray of a useful pattern, one which is likely to find favour with gardeners. The figure is self-explanatory, showing the twin water jet in three positions, one when the flow is stopped, the other two giving a direct jet and a rose distribution respectively. Labour would be saved in many cases by the adoption of this device, which is made by Messrs. Hayward Tyler & Co., 90, Whitecross St., E.C.

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, June 9.—On the occasion of the meeting on the above date, at the Drill Hall, James Street, Westminster, the floral attractions were fairly numerous, and consisted of *Pæonies*, *Pyrethrums*, hardy flowers in much variety, *Rhododendrons*, *Roses*, &c., contributed by the trade, chiefly; and a few *Orchids*, *Melons*, *Strawberries*, &c., were likewise shown. The day was fine throughout, although not warm, and the attendance was about an average.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. J. O'Brien, S. Cortauld, J. B. Haywood, L. Castle, J. Douglas, E. Hill, C. Pilcher, H. Ballantine, H. M. Pollett, De B. Crawshaw, and A. H. Smee.

Forms of *Cattleya Mossiæ* of varying degrees of attractiveness, were shown by G. Fowler, Esq., Glebe-land, South Woodford (gr., Mr. Davies). Some were furnished with pale-coloured sepals and petals, and lips more or less frilled; and others were of the normal type, with some minor distinctions.

Messrs. F. Sander & Co., St. Albans, contributed the fine *Cattleya Mossiæ Reineckiana*, Sander's var., in which the flowers are large and white, lip also white, and throat interiorly of pale purple. A fine *Miltonia vexillaria*, var. Mrs. H. Ballantine, in which the lip is of a high colour, three upper segments of flowers white, contrasting with two which are light crimson; a bright and pleasing flower. *Lælia hybrida Arnoldiana*, from L. purpurata, seed parent, *Cattleya labiata*, pollen bearer, the seeds having been

sown in 1881. The bloom has pale purple coloured sepals and petals, and brilliant dark shade of crimson lip. An almost pure white form of *Cattleya Mendeli* came from R. B. White, Esq.'s garden, Arddarroch, N.B.

Some seedling Orchids in flower were contributed by Messrs. J. Veitch & Sons, Exotic Nursery, Chelsea. These consisted of *Disa Veitchi*, a plant twenty-one months old, obtained by crossing *D. racemosa* and *D. grandiflora*, and the colour of the bloom is much brighter—a rose-pink—and much larger than either parent; *Epiphronitis Veitchi*, another triumph of the hybridiser, out of *Epidendrum radicans* and *Sophranitis grandiflora*; the flower is brilliant scarlet, with a patch of yellow colour in the middle of it, and the plant consists of slender terete pseudobulbs, clothed with dark green leaves, $1\frac{1}{2}$ inch long by $\frac{1}{2}$ inch wide. *Odontoglossum excellens* was likewise shown by Messrs. Veitch, and goes to support the supposition held by botanists, that the imported plants were the products of natural hybridisation; *Thunia Veitchi* is between *T. Bensoniæ* and *T. Marshallianum*, a flower having white sepals and petals, and lip of a pale purple hue, and hairy on the edges.

A rich-coloured *Lælia purpurata*, Cullimore's var., came from M. S. Cooke, Esq., Kingston Hill (gr., Mr. Cullimore). The lip is deep crimson, with a velvety texture, and the other parts of the flower are white, with a faint purple suffusion.

Messrs. Hugh Low & Co., Clapton, showed a curiously spotted form of *Cattleya*, of tall growth,

Messrs. Paul & Son, Waltham Cross, staged a fine collection of *Rhododendrons* grown in loam; the colours were very good, and the trusses of average size. Among the best were Mrs. Standish, Gem, Lady Armstrong, Titian, Mrs. Russell Sturgis, Lord Palmerston, &c.; also a few hybrid perpetual and Tea Roses in Pots.

Messrs. Kelway, Langport, Somerset, showed a nice lot of hardy flowers, *Amaryllis*, &c., occupying nearly the whole of one side of the Hall. The *Pyrethrums* and *Iris* were especially worthy of note. Among the former was *Pyrethrum James Kelway*, a fine dark crimson (single); other very good varieties were *Ruth* (single), a very fine pink, *Ne Plus Ultra*, &c. The *Iris* nearly equalled the Orchids in delicate colouring and variety—*Iris pallida* Princess of Wales, a large white variety; *I. p. Queen of May*, a purplish-mauve with beautiful tints; and *Victorine*, were among the best. Tree *Pæony Louise Mouchelet*, a large double, flesh-colour; and *Pæony paradoxa* (herbaceous), a distinct and dark red, semi-double, were both meritorious varieties.

Messrs. T. S. Ware, Hale Farm Nurseries, staged a fine collection of hardy cut flowers and plants, among them was a fine group of *Lupinus polyphyllus albus*, intermixed with *Papaver orientalis*, var. *Prince of Orange*; a pot of the rare and pretty *Viola pedata* var. *alba*, and *Spiræa astylloides*, a variety of compact and dwarf habit; also several pots of *Lilium croceum*, var. *Prince of Orange*, &c.

Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, London, S.E., exhibited a group of herbaceous

Hill, showed a group of named seedling *Begonias* mixed with a few other plants; they were very fine, proving the firm to be still in the front with their culture. *Begonia Duchess of Leinster*, a large single yellowish-bronze variety; *Lady Grimthorpe*, and *Lady Wilson* were especially fine; also a new yellow scented variety, single. Mr. John Stacey, Farnham Royal, Slough, showed a *Pink*, *Princess Maud*, a large white variety, with traces of pink in the centre. Messrs. Cannell & Sons, Swanley, exhibited *Begonias* of good quality, *B. Lady Lawrence*, a large single yellow variety of good substance and very robust, and was well worthy of note. Mr. W. J. Fisher, 5, Eversdale Road, S.E., showed an appliance for cutting flowers and holding them when out of reach of the hand, which will, no doubt, prove itself a very useful article.

Fruit Committee.

Present: Philip Crowley, Esq., in the chair; and Messrs. J. Lee, R. D. Blackmore, Robert Hogg, G. Norman, J. H. Veitch, J. Cheal, G. W. Cummins, W. Warren, A. H. Pearson, A. Dean, G. Wythes, J. Hudson, H. Balderson, J. Smith, F. Q. Lane, and C. Penny.

A great number of Melons were shown, nice to look at, mostly, but only one gained the favour of the judges—one which will in future be known as *Wythes' Seedling*, a white-flesh fruit, with a thin rind, raised by Mr. G. Wythes, gr. to the Duke of Northumberland, Sion, Brentford. The same gardener showed fine *Brown Turkey Figs*, obtaining a Cultural Commendation.

Some of the finest Strawberries noted at any exhibition were seen in Sir Charles Napier, shown by Mr. Norman, gr. to the Marquis of Salisbury, Hatfield House. There were forty-five fruits shown, many of them having a weight of $1\frac{1}{2}$ oz., and every one of them without a blemish of any sort.

Mr. Miller, gr. to Lord Foley, Roxley Lodge, Esher, showed Peaches and Melons, and very good Lettuces in variety; and Mr. J. Hudson, Gunnersbury House, Acton, excellent Lord Napier Nectarines, he being awarded a Cultural Commendation.

A good Pea for the season was shown under the name of *Windsor Castle*, by Mr. A. Miller, gr. to H. Long, Esq., M.P., Rood Ashton; a similar award to the above being given.

One of the best of the late-keeping kitchen Apples, North End, a yellow-skinned fruit on some soils, but green in this case, was exhibited by Messrs. J. Veitch & Sons, Chelsea.

There were several dishes of Strawberries, in variety, from different growers, but placed, as they were, in proximity to Mr. Norman's fruit, they had a poor appearance.

List of Awards.

FLORAL COMMITTEE.

First-class Certificate.

To *Celmisia spectabilis*, Messrs. J. Veitch.

Awards of Merit.

To Tree *Pæony Louise Mouchelet*, Messrs. Kelway & Sons.

To Herbaceous *Pæony paradoxa*, Messrs. Kelway & Sons.

To *Pyrethrum* (single), James Kelway & Sons.

To *Iris pallida* Queen of May, Messrs. Kelway & Sons.

To *Iris pallida* Princess of Wales, James Kelway & Sons.

To *Carnation Selby*, Mr. Jennings.

To *Begonia Duchess of Leinster*, Messrs. Laing & Sons.

To *Begonia Lady Lawrence*, Messrs. J. Cannell & Sons.

To *Pink Princess Maud*, Mr. J. Stacey.

To *Spiræa multiflora compacta*, Messrs. Collins Brothers & Gabriel.

MEDALS.

Silver-Gilt Flora.

To Messrs. Kelway & Sons, for collection of *Pyrethrums*, *Pæonies*, &c.

Silver Banksian.

To Messrs. W. Paul & Sons for *Rhododendrons* as cut blooms.

To Messrs. Collins Brothers & Gabriel for a group of *Pæonies*.

To Mr. H. S. Ware for a collection of hardy flowers.

To Messrs. Barr & Sons for a collection of hardy flowers.

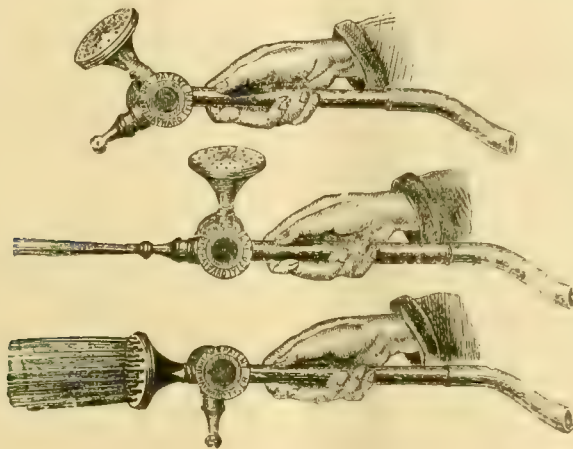


FIG. 148.—TWIN WATER DISTRIBUTOR (SEE P. 740).

the flowers having a certain resemblance to *C. amethystoglossa*.

From Sir Trevor Lawrence's garden at Burford Lodge, we noted the fine *Odontoglossum excellens*, a pretty, symmetrically-formed flower, white in the middle of the petals and sepals, and primrose-yellow at the margin; lip of same shade of yellow; over the whole surface of the petals and sepals are distributed brown spots, the outer ones larger than the others, and arranged in a circular manner. *Cattleya Lawrenceana* a pale form, with broad petals and narrow sepals; the lip white, with a pale purple suffusion. The plant bore four blooms. The pure white-flowered *Sobralia macrantha*, Keinast's var., came from Baron Schroder's garden, The Dell, Egham. The plant measured not more than $2\frac{1}{2}$ feet in height.

Some beautiful flowers of the old *Lælia purpurata* superbiens were exhibited by Mr. J. Hudson, gr. to Messrs. Rothschild, Gunnersbury House, Acton.

Several pretty forms of *Miltonia vexillaria* were shown by M. le Doux, Langton House, East Molesey (gr., Mr. Chapman); one was albo-marginata, another *M. v. le Doux* variety, the other *M. v. leucoglossa*, the last-named a weak small plant, with flowers of no great beauty.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. B. Wynne, H. Herbat, R. Dean, J. Laing, C. Dreury, H. B. May, H. H. D'Ombain, E. Mawley, Hy. Cannell, R. B. Lowe, J. Bennett, G. Phippen, T. Baines, C. Noble, J. Walker, F. Ross, G. Nicholson, G. Gordon, J. Fraser, and W. Goldring.

Pæonies in pots, well grown and flowered, with fine, healthy foliage; also a group of *Spiræa multiflora compacta*, a very desirable variety, with dense feathery plumes of creamy-white flowers.

Messrs. James Veitch & Sons showed a small collection of hardy flowers, including a beautiful strain of *Aquilegias*, cut blooms of *Wistaria sinensis*, fl.-pl., a double variety; a plant of *Hydrangea hortensis* var. *tricolor*, the foliage variegated with white and yellow. *Celmisia spectabilis*, a New Zealand plant, is a distinct and very striking little Composite, which well deserved the interest it excited.

Messrs. Pitcher & Manda exhibited a group of hardy *Cypripediums*, including *C. spectabile*, *C. pubescens*, *C. montana*, for which they received a vote of thanks. Leopold Rothschild, Esq., Ascott, Leighton Buzzard (gr., Mr. Jennings), showed a small group of *Carnations* in pots var. *Selby*, a beautiful yellow of good substance and form.

Messrs. Barr & Son, 12 and 13, King Street, Covent Garden, exhibited a nicely arranged collection of hardy flowers, conspicuous for their bright colours; among the above were several varieties of the Iceland Poppy, also nice blooms of *Anemone coronaria*, var. *Victoria Giant*, and *Iris* in many varieties and colours.

Mr. T. H. Crasp, gr. at Canford Manor, Dorset, sent blooms of *Rhododendrons*, large trusses of good quality; also *Pyrethrums* in twelve varieties, and *Gardenias* which were of very good quality. A nice group of alpine plants in pots was exhibited by O. T. Hodges, Esq., Lachin, Chislehurst, having signs of good cultivation, and including several varieties of *Saxifraga*, *Ajuga genevensis*, *Ramondia pyrenica*, and *R. pyrenica alba*. Messrs. J. Laing & Son, Forest

Bronze Banksian.

To Messrs. Laing & Sons for a group of Pæonies.
Messrs. J. Veitch & Sons Commended for a group of Aquilegias.

ORCHID COMMITTEE.

Silver-gilt Flora.

To Messrs. F. Sander & Co., St. Albans, for best seedling Orchid, *Lælia hybrida Arnoldiana*.
To Messrs. J. Veitch & Sons, for *Disa Veitchi*.

First-class Certificates.

To Messrs. F. Sander & Co., St. Albans, for *Miltonia vexillaria* Mrs. H. Ballantine; *Lælia hybrida Arnoldiana*.

To Messrs. J. Veitch & Sons, for *Disa Veitchi*.

To Baron Schroder, for *Sobralia macrantha* Keinstiana.

Awards of Merit.

To Sir T. Lawrence, for *Cattleya Mossiæ*.
To R. B. Cater, Westfield, Bath, for *Cattleya Mendeli*, Morgan's var.
To Malcolm S. Cook, for *Lælia elegans*, Cullimore's variety.

Cultural Commendation.

To M. le Doux, for *Odontoglossum vexillaria*, M. le Doux variety.

FRUIT COMMITTEE.

Bronze Medal.

To the Marquis of Salisbury, Hatfield, for Strawberry Sir C. Napier.

Award of Merit.

To the Duke of Northumberland, Sion House, Brentford, for Seedling Melon, Wythes' Seedling.

Cultural Commendation.

To W. H. Long, Esq., M.P., The Gardens, Rood Ashton Park, Trowbridge, for Windsor Castle Peas.
To the Duke of Northumberland, Sion House, Brentford, for Fig Brown Turkey.
To Messrs. de Rothschild, Acton, for Nectarine Lord Napier.

BATH, WEST OF ENGLAND, AND SOUTHERN COUNTIES.

BATH, June 3 to 8.—This beautiful display of flowering plants, foliage, and Ferns has been acknowledged the best ever held by the above Society's show. It was visited by upwards of 75,000 persons. The local stewards were the Rev. Canon Ellacombe, the Rev. E. Handley, Mr. R. B. Cater, and Mr. C. W. Radway. Mr. Handley, Mr. Cater, and Mr. Cypher vied with each other as regards the large collections of well-grown Orchids. Mr. Cater's (of West Gate House, gr., Mr. Tenner) Orchids occupied a space of 25 feet by 12 feet. We counted fifty-five distinct Orchids, some exceptionally large, *Cattleya Mendeli fimbriata* carrying twelve fine flowers; large specimens of *Anguloa Clowesii*, a lovely *Lælia purpurata*, with eleven remarkably good spikes; *Cattleya Mossiæ* and *C. grandiflora*, *Burlingtonia fragrans*, with twenty spikes; the lovely yellow-flowered *Miltonia vexillaria*, &c. This collection was tastefully made up with Ferns, Palms, Crotons, *Dracænas*, *Panicum variegata*, and *Isolepis gracilis*. Joining this was a very fine similar-sized collection, sent by the Rev. E. Handley (gr., Mr. S. Karslake), beautifully arranged amongst a grand work of *Adiantum*. It would be impossible to enumerate all the plants, amongst which the most notable were—*Anguloa Clowesii*, *Lælia pallida rosea*, a fine variety of *Cattleya Mendeli*, *Oncidium serratum*, *Cœlogyne Massangeana*, *Vanda tricolor insignis*, *V. Dennissoniana*, *Lælia purpurata alba*, splendid forms of *Cattleya Mossiæ*, *Aërides expansum Leonixæ*, *Oncidium divaricatum*, *Cattleya Warneri*, &c.

Mr. J. Cypher, of Cheltenham, had fifty-three distinct Orchids, the most notable being *Maxillaria Sanderiana*, *Masdevallias*, *Odontoglossums*, *Cypripediums*, and varieties of *Lælia purpurata*; these were interspersed with *Erica Cavendishiana*, &c., the old favourite *Leschenaultia biloba*, &c.; and rising above them, his well-known collection of Palms.

Sir Greville Smyth, of Long Ashton, had a large and interesting collection of tall Palms, and baskets of Ferns suspended from the roof, which added much to the beauty of the show, producing a good effect.

The taste displayed in the arrangement was the grand feature of the exhibition, and nowhere was it better seen than in the group from R. Smith & Co., of Worcester. After gazing on the splendour of several collections of fine Orchids, this cool, refresh-

ing collection was so great a relief that it was the admiration of everyone. The plants were in splendid health, starting from a back row of well-trained specimens of *Clematis* Mrs. George Jackman, *Sensation*, *Excelsior*, *Madame Van Houtte*, *Robert Hanbury*, *Lucie Lemoine*, *Barillet Deschamps*, and *purpurea elegans*; and fringed in front with their fine new variety, *Smithiana*, of *Pteris tremula* (one of the best exotic varieties of Ferns of recent years). Immediately in front were *Araucaria excelsa*, *Erica ventricosa*, *E. Cavendishiana*, *Statice Butcheri*, and *Boronia heterophylla*, &c.

Mr. MacKillop occupied a large space with fine specimens of *Azaleas*, *Ericas*, *Clerodendron Balfourianum*, *Darwinia fuchsoides*, interspersed with *Adiantums*, *Dracænas*, *Crotons*, &c. Messrs. Cole & Son had another fine collection, in which were *Eucharis amazonica*, *Erica Cavendishii* (very large), and some very fine Palms. Mr. W. Humphrey (gr., Mr. J. Tate) had a well-grown collection of *Anthuriums*, *Crotons*, *Caladiums*, *Dracænas*, Orchids, and Cacti.

Messrs. E. Paul & Son, Cheshunt, had an interesting and effective collection of herbaceous and alpine plants, nicely arranged, *Cypripediums*, *Caladiums*, and *Iris Susiana* being much admired. Mr. F. Hooper showed nine boxes of Pansies, in good condition. Colonel Coryton, of Pentillie Castle, Cornwall, sent trusses of an excellent scarlet *Rhododendron* that was raised from seed by the late Hon. and Rev. J. T. Boscawen, a name so well known to this Society. Mr. E. J. Lowe, F.R.S., staged a bank of varieties, specimen *Adiantum capillus-veneris*, amongst which was the golden *A. autumnale*, also a collection of varieties labelled "multiple parents" that were very attractive, another collection of split-prothalli, and a third of rare dwarf British species and varieties and hybrids, altogether numbering 200 varieties. Here was the true *Cyrtopteris regia*, a division of the plant now lost in this country. Messrs. Cooling & Sons arranged a bank of Roses, Orchids, *Pelargoniums*, Heaths, decorative Palms, &c., that were a great credit to them, from the excellence of the plants, and their arrangement.

Mr. Charles Turner, of Slough, had thirty-four large *Pelargoniums*, backed with handsome Palms, the former well bloomed and good varieties. Messrs. Laing & Son's (Forest Hill) grand collection of single and double-flowered *Begonias*, *Caladiums*, the beautiful *Sibthorpia europæa variegata*, *Pelargonium Black Vesuvius*, *Carnation Madame Arthur Waresque*, were deservedly admired.

The late J. T. Boscawen held that horticulture ought to take its share at all great agricultural shows, and he exerted himself for years to the making the flower shows of this important Society an interesting feature, and his successors in office are to be congratulated, not only in following worthily in his footsteps, but in producing the best and most important flower show that has yet taken place in the show-ground of the Bath and West of England and Southern Counties Society.

READING HORTICULTURAL: EARLY SUMMER SHOW.

JUNE 3.—Very bright and pleasant was this exhibition, the effect being heightened by the bright sunshine overhead—a very welcome occurrence on a flower show day in the biscuit town. The Forbury Gardens, also forming a kind of ante-chamber to the show, are in admirable condition, the late Tulips being still very bright and effective.

Stove and Greenhouse Plants are always a leading feature. The best six came from Mr. Finch, gr. to J. Marriott, Esq., Coventry, fine examples of *Ericas affinis* and *Lindleyana*, *Clerodendron Balfourianum*, a fine piece of *Lælia purpurata*, and *Ixora coccinea superba*. Mr. J. F. Mould, nurseryman, Pewsey, was a good 2nd, having a fine piece of *Erica Cavendishiana*, *Statice profusa*, *Aphelaxis spectabilis*, *Erica Exquisita* and two others.

In the class for four plants, Mr. J. Currey, gr. to Colonel Pepper, Salisbury, was 1st, having a fine plant of *Darwinia tulipifera* as his leading feature.

In the amateurs' class for the same number, Mr. Baskett, gr. to W. J. Palmer, Esq., was 1st, with *Clerodendron Balfourianum*, *Anthurium Andreanum*, *Hæmanthus puniceus*, with several heads of scarlet flowers, &c.

The best specimen plant was a fine example of *Clerodendron Balfourianum*, from Mr. Baskett; Mr. Mould being 2nd, with a good piece of *Erica Cavendishiana*.

Orchids were numerous, and, on the whole, highly

creditable. Mr. Pound, gr. to George May, Esq., Caversham, was placed 1st with three plants, having *Dendrobium suavisimum*, *D. thyrsiflorum*, and *Aërides Fieldingii*. Mr. Willis, gr. to H. J. Simmonds, Esq., Reading, was 2nd with *Cypripedium caudatum*, *Cattleya Skinneri*, and *Miltonia vexillaria*. Mr. Finch had the best specimen, a plant of a very fine white variety of *Lycaste Skinneri* with five superb flowers; this was also awarded the *Gardeners' Magazine* Medal for the best exhibit in any class; Mr. Pound was 2nd with *Dendrobium thyrsiflorum*.

Pelargoniums (Show), were a good feature; the best nine large, well-grown and bloomed plants came from Mr. Frost, gr. to Walter Palmer, Esq., Reading; Mr. Ashby, gr. to W. Fanning, Esq., Whitchurch, was 2nd.

Calceolarias were represented by fine strains, the plants of dwarf and vigorous growth, finely-bloomed. Mr. Butcher, gr. to G. Palmer, Esq., Reading, was 1st; and Mr. F. Lockie, gr. to the Hon. G. Fitz-Gerald, Oakley Court, Windsor, 2nd, with a fine strain only just inferior in finish.

In the amateurs' class for four plants, Mr. Butcher was again 1st; and Mr. Dockerill, gr. to G. W. Palmer, Esq., Reading, 2nd.

Gloxinias were more remarkable still, and the six plants which gained for Mr. Baskett the 1st prize, were of such large size and so finely grown and bloomed, that it might be difficult to find their match in the country. Mr. Bright, gr. to P. Karslake, Esq., White Knights, was 2nd, with plants bearing flowers of very fine quality.

Tuberous-rooted Begonias were shown in capital form by Mr. T. Lockie; Mr. Baskett received the 2nd prize.

Ericas.—The 1st prize for six specimens went to Mr. Mould; and Mr. Currey, 2nd, the most noticeable varieties were those of *E. ventricosa*.

Greenhouse Azaleas.—Mr. T. Lockie was the only exhibitor of nine varieties, admirable medium-sized pyramidal plants; and he was 1st with four specimens also.

Roses in Pots.—The best group came from Mr. Frost; Mr. Dockerill was 2nd, and Mr. Lockie had the best six specimens. In each case the plants were well grown and bloomed.

Groups of Plants arranged for effect were staged in two classes. In the class for those filling the space of 120 feet, Mr. Currey was 1st, with an arrangement showing great taste; and Mr. H. James, nurseryman, Lower Norwood was 2nd. Mr. Pound had the best of the small groups; and Mr. Butcher came 2nd.

Fine Foliaged Plants were very good. Mr. Currey had the best six, *Cycas undulata*, *C. circinalis*, and *Kentia Belmoreana* being very good. Mr. Finch came 2nd, with a fine lot also. Mr. Lockie had the best four; Mr. Dockerill taking the 2nd prize. Mr. Willis had the best six greenhouse Ferns; Mr. Fabry, gr. to J. O. Taylor, Esq., Reading, was 2nd. Three very fine Palms were shown by Mr. Currey, they were *Kentia australis*, *K. Fosteriana*, and *Latania borbonica*; Mr. Dockerill was 2nd, with smaller, but very healthy specimens. Table plants, *Lycopodiums*, groups of fifteen exotic Ferns, and mosses, were all good features.

Groups of Hardy Rhododendrons made a fine feature, forming bold masses of colour. Mr. Turton, gr. to John Hargreaves, Esq., Maiden Erleigh, took the 1st prize, and Mr. Willis was 2nd.

Cut Flowers were represented by Roses in sixes, show and fancy Pansies, the latter especially fine; twelve bunches of stove and greenhouse cut-flowers, and the same number of hardy flowers, &c., all were good features.

Table Decorations, &c.—Messrs. Perkins & Son, Nurserymen, Coventry, were placed 1st with a bridal bouquet, and also with three buttonholes. Miss Phillips had the best two vases of flowers; Miss M. Cole was 2nd. With two vases of wild flowers, Miss L. Phillips was 1st; and Miss S. Cole 2nd.

Fruit.—Capital black and white Grapes were staged. The best two bunches of black were finely finished Hamburgs from Mr. Osman, gr. to L. J. Baker, Esq., Ottershaw Park, Chertsey; and Mr. Ashby was 2nd. Mr. Ashby had the best white in Foster's seedlings, and Mr. Turton was a close 2nd. Laxton's Noble was the best Strawberry, from Mr. Lees, nurseryman, Reading; Mr. Brill, gr. to W. R. Palmer, Esq., Reading, was 2nd, with the same. The best six Peaches were fine Alexander, from Mr. Robins, gr. to Colonel Lee, Aylesbury; and Mr. Pound was 2nd with Harper's Early.

Some excellent vegetables were shown. Potatoes were very good, Sutton's Early White Kidney and

Sutton's Seedling taking the lead. The best Lettuce were All the Year Round and Stanstead Park, Cabbage varieties; Rhubarb Early Scarlet and Victoria—both very fine; French Beans Canadian Wonder, Cucumbers Lockie's Perfection, and Tomatoes Acquisition.

Messrs. Sutton & Sons offered prizes for Melons, Cucumbers, Peas, and Potatoes; and Messrs. James Carter & Co., for their Model Cucumber, finely shown by Mr. Lockie; and Melons. Mr. Lockie also had Sutton's A 1 Cucumber—very fine indeed; and he was awarded the 1st prize for a fine and varied collection of vegetables of high quality.

ROYAL NATIONAL TULIP SOCIETY.

JUNE 6.—Under leaden skies, with a low temperature that savoured more of blustering March than sunny June, the Annual Exhibition of this historic flower was held in the Old Trafford Botanical Gardens, Manchester. More flowers were staged than were expected, but, with few exceptions, they were small; and many expedients must have been resorted to in order to get them to open their petals, for there were blemishes and signs of immaturity which would not have appeared had the flowers enjoyed a week of warm sunshine. The growers did their best, but there is no doubt that the date of the show should have been postponed for seven days. Mr. Samuel Barlow's three beds of choice Tulips will be at their best about the third week in June; and the year 1891 is likely to be memorable as showing Tulips in bloom as late as July. The advantage gained by southern growers was conspicuously shown in the case of Mr. Thomas Haynes, of Warwick. This old grower, who has exhibited for many years, and generally on a date a week or ten days too late to compete with the northern growers, was enabled on this occasion to show his blooms at their best, easily winning the coveted cup for twelve varieties, besides taking the 1st prize for six blooms; his flowers were the largest, the brightest, best finished, and even in size. Two or three young growers made their mark on this occasion, and there are hopeful signs of a material addition to the number of Tulip growers in Lancashire; but when may we hope to see a Tulip revival commence in the south?

Broken Tulips.—Six stands of twelve varieties were staged in the Cup class—two feathered and two flamed in each of the three classes being required. Mr. Thomas Haynes, Free Library, Warwick, was placed 1st, with bizarres, feathered, Sir J. Paxton and Duke of Edinburgh (Haynes), deep yellow ground—very bright, and handsomely feathered with crimson-scarlet; flamed, Sir J. Paxton and Dr. Hardy; roses, Heroine and Dymock's Lizzie; flamed, Mabel and Aglaia; byblœmens, Violet Amiable and Bessie; flamed, Duchess of Sutherland and Talisman. Sir J. Paxton, flamed, was very fine; also Dr. Hardy, flamed; and Mabel was bright and correct. 2nd, Mr. John H. Wood, Royton, Oldham, with bizarres, feathered, Masterpiece and Sir J. Paxton; flamed, William Lea and Sir J. Paxton; roses, feathered, Aglaia and Mrs. Wood—a very correct flower, pure in the ground, and charmingly feathered with cherry-red; flamed, Mabel and Aglaia; byblœmens, feathered, Talisman and Adonis; flamed, William Lea and Sir J. Paxton. 3rd, Mr. Samuel Barlow, Stakehill House, Castleton, with small but well-marked blooms; 4th, Mr. C. W. Needham; 5th, Mr. J. W. Bentley.

There were nine stands of six varieties, and Mr. Thomas Haynes was again placed 1st with very fine blooms of bizarres, feathered, George Hayward; and flamed, Sir J. Paxton—both very fine; roses, Mabel, both feathered and flamed; byblœmens, feathered, Connorsby Castle, and flamed, Talisman. 2nd, Mr. C. W. Needham, Royton, Oldham, a young grower of considerable promise, with bizarres, feathered, Masterpiece; flamed, Sir J. Paxton; roses, Mabel, both feathered and flamed; byblœmen, feathered, unknown; and flamed, Duchess of Sutherland. 3rd, Mr. J. H. Wood. 4th, Mr. Samuel Barlow. 5th, Mr. Joseph Hague, Stockport.

Class 3 was similar in character, and the competition confined to half-guinea subscribers only, these being growers of small collections. Mr. John Haynes, Lowton, took the 1st prize with bizarre feathered, Sir J. Paxton; flamed, Orpheus; roses, feathered, Industry; and flamed, Mabel; byblœmens, feathered, Bessie; flamed, Adonis; 2nd, Mr. J. Housely, Stockport, with bizarre feathered, Royal Sovereign; flamed, Sir J. Paxton; roses, feathered, Mrs. Lea; flamed, Mabel; byblœmen, feathered,

Agnes; flamed, Chancellor. Mr. S. Johnson, Stafford, was 3rd; and Mr. W. Prescott, Lowton, 4th.

There were seven competitors in the class for three feathered Tulips; and Mr. J. H. Wood was placed 1st with bizarre, Sir J. Paxton; rose, Modesty; byblœmen, Violet Amiable. 2nd, Mr. S. Barlow, with bizarre, William Wilson; rose, Sarah Headly, very bright on the feathering; byblœmen, Mrs. Cooper. 3rd, Mr. C. W. Needham, with bizarre, Masterpiece; rose, Alice; byblœmen, Bessie. 4th, Mr. W. Kitchen.

There were seven stands of three flamed flowers, and Mr. T. Haynes took the 1st prize, with bizarre, Sir J. Paxton; rose, Aglaia; and byblœmen, Duchess of Sutherland. 2nd, Mr. John Haynes, with bizarre, Orpheus; rose, Mabel; byblœmen, Seedling. 3rd, Mr. Samuel Barlow, with bizarre, Ashmole's Seedling; rose, Aglaia; byblœmen, Adonis. 4th, Mr. J. Housely.

Classes 6 and 7 were for two Tulips, one feathered and one flamed, of any class; in the former the competition was confined to maiden growers, a maiden grower being one who has not previously taken the amount of his subscription at any one show. In addition, it is the custom for some growers of large collections of Tulips to make a present of bulbs to all who enter in this class, in order to encourage them to cultivate and exhibit. Mr. J. Housely was the only exhibitor, and was placed 1st with bizarre flamed Sir J. Paxton, and rose-feathered Mrs. Lea; and, as the stands in class 6 could compete in class 7 also, he was placed 2nd in the latter; Mr. T. Haynes being 1st in the two bizarres, viz., feathered, George Hayward; flamed, Sir J. Paxton. 3rd, Mr. John Haynes, with bizarre, flamed, Sir J. Paxton; and rose, feathered, Aglaia; 4th, Mr. W. Kitchen, Stockport.

Single Blooms.—In the classes for single blooms, a considerable number of flowers were staged:—Bizarre, feathered, 1st, Mr. Samuel Barlow, with William Wilson; 2nd, with Garibaldi; and 5th, with General Grant; Mr. J. H. Wood, 2nd, with Sir J. Paxton; and Mr. A. Moorhouse, 4th, with Masterpiece; John Ratcliffe, Ajax, and Lord Stanley, followed in the order of merit. Rose, feathered, 1st, Mr. W. Prescott, with Industry; 4th, with Aglaia; and 5th, with Miss Hindley. Mr. J. W. Bentley was 2nd, with Modesty; and Mr. Wood, 3rd, with Industry. Next in order of merit came Julia Farnese, Mrs. Bright, Sarah Headly, Mabel, and Heroine. Byblœmens, feathered, 1st, Mr. W. Prescott, with Guido; and 3rd, with Viollette Amiable; Mr. J. W. Bentley was 2nd, with Bessie; Mr. Wood, 4th, with Alice Grey; and Mr. A. Dymock, 5th, with Talisman. Other good flowers were William Parkinson, Lancashire Hero, and Lord Denman. Bizarres, flamed, 1st, Mr. T. Haynes, with Sir J. Paxton; 3rd, with Dr. Hardy; and 5th, with Prince of Wales. Mr. J. H. Wood was 2nd, with Sir J. Paxton; and Mr. J. Haynes 4th, with Orpheus. Next in order of merit came Masterpiece, William Lee, Pilot, and Ajax. Roses, flamed, 1st and 3rd, Mr. J. Haynes, with Mabel; Mr. T. Haynes was 2nd, with Sarah Headly; and Mr. J. Housely 4th and 5th, with Aglaia and Annie McGregor. There were also Lady Catherine Gordon, Triomphe Royale, Queen Henrietta, and Industry. Byblœmens, flamed, 1st, Mr. W. Dymock, with Chancellor; 2nd, Mr. T. Haynes, with Beauty of Litchwich; 3rd, Mr. S. Barlow, with Friar Tuck; 4th, Mr. S. Johnson, with Chancellor; and 5th, Mr. J. Haynes, with Lord Denman. Following these came Adonis, Bessie, and Duchess of Sutherland.

Premier Broken Tulips.—The premier feathered Tulip was rose, Mrs. Wood, a charming flower, of great promise, shown by Mr. J. H. Wood. The premier flamed flower was bizarre, Sir Joseph Paxton, shown by Mr. Thos. Haynes.

Breder Tulips.—As usual, the blooms in the following classes were very bright and pleasing, generally in good character, but smaller than we have been accustomed to see them. The best stand of six dissimilar blooms, two of each class, was furnished by Mr. Samuel Barlow, who had bizarres, Hepworth's Seedling 140 and Criterion; roses, Mrs. Barlow and Rose Hill; byblœmen, Glory of Stakehill and Maid of the Mill. 2nd, Mr. J. H. Wood, with bizarre, William Lea and Lord Delamere; roses, Mrs. Barlow and Mabel; byblœmen, Alice Grey and Surpasse le Grand. 3rd, Mr. J. W. Bentley; 4th, Mr. T. Haynes; 5th, Mr. A. Moorhouse. Five stands only competed.

In the class for three blooms, one of each class, Mr. S. Barlow was again 1st with bizarre, Sir J. Paxton; rose, Miss Burdett Coutts, and byblœmen, Glory of Stakehill; 2nd, Mr. S. Johnson, with

bizarre, unknown; rose, Miss Burdett Coutts; byblœmen, Maid of Orleans; 2nd, Mr. J. H. Wood, with bizarre, Sir J. Paxton; rose, Mabel; byblœmen, Alice Grey; 4th, Mr. John Haynes; 5th, Mr. J. W. Bentley.

Bizarre breeders.—1st, Mr. W. Prescott, with Sir J. Paxton; 2nd, Mr. J. H. Wood, with Storer's No. 4; and 3rd, with Lea's No. 1; 4th, Mr. S. Barlow, with Richard Yates; and 5th, with Pilot.

Rose Breeders.—The following six prizes were awarded to Mr. S. Barlow, with Hepworth's 127 (1863); 2nd, with Mabel; 3rd, with Mrs. Barlow; 4th, with Miss B. Coutts; 5th, with 127 (1863); 6th, with a Seedling.

Byblœmen Breeders.—1st, Mr. S. Barlow, with Ashmole's 126; 2nd, with Ashmole's 114; 3rd, with Hepworth Seedling; and 4th, with Adonis; and Mr. J. Haynes 5th, with a Seedling.

Premier Breeder Tulip.—The premier breeder was Ashmole's 126, byblœmen, one that breaks into fine character; it is also an early variety.

TRADE NOTICE.

Messrs. BACKHOUSE & SON, of York, have taken over as a branch business the Nursery formerly carried on at Harrogate, by Arthur Booty & Co.

Obituary.

MR. WILLIAM FARRANT, of Ballamore, near Ramsey, the eldest member of the Manx House of Keys, and Chairman of Justices of the Peace for the North of the Isle of Man, died suddenly at his residence recently. He was one of the most prominent members of the Manx Legislature, always officiating as Acting Speaker. Mr. Farrant took much interest in the "afforesting" now in progress in the Isle of Man, and possessed a fine collection of Conifers and other shrubs. He was an occasional correspondent of this Journal, and frequently forwarded specimens of interest.

LECTURE ON ALPINE PLANTS.—The paper on Alpine plants, read by the Rev. C. WOLLEY DOD at the meeting of the Royal Horticultural Society on the 9th inst., was crammed with practical suggestions of great value to all who cultivate these lovely mountain plants in their gardens. It was listened to by an attentive—albeit small—audience, and some little discussion ensued at the conclusion.

MARKETS.

COVENT GARDEN, June 11.

HEAVY supplies. Trade somewhat slow. James Webber, Wholesale Apple Market.

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Endive, per dozen ... 4 0-...
Asparagus, wholesale, bundle 1 0-1 6	Herbs, per bunch ... 0 4-...
Worcester, bundle 1 0-1 6	Lettuces, per dozen ... 3 0-...
Cambridge, bundle 1 0-1 6	Mushroom, punnet 2 0-...
Various, small, bundle 0 6-10	Mustard and Cress, punnet ... 0 4-...
Beans, French, lb. ... 1 6-2 0	Parsley, per bunch ... 0 4-...
Beet, red, per dozen 2 0-3 0	Seakale, per basket ... 0 8-1 6
Carrots, per bunch ... 0 6-...	Shallots, per lb. ... 0 6-...
Cauliflowers, each 0 6-...	Spinach, per bushel ... 7 0-...
Celery, per bundle ... 2 6-3 6	Tomatoes, per lb. ... 1 6-2 0
Cucumbers, each ... 0 6-1 0	Turnips, per bun. new 1 6-...

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Foliage plants, various, each ... 2 0-10 0
Aspidistra, doz. ... 18 0-42 0	Genista, per dozen ... 6 0-9 0
— specimen plants, each ... 7 6-10 6	Hedera, per doz. 4 0-8 0
Azalea, per dozen ... 12 0-30 0	Hydrangea, per doz. 9 0-18 0
Bedding plants, variety, per doz. ... 1 0-2 0	— paniculata, per plant ... 2 0-4 0
Bougainvillea, p. doz. ... 9 0-18 0	Ivy, Pelargoniums, per dozen ... 4 0-6 0
Calceolaria, p. doz. ... 5 0-9 0	Lilium, various, per dozen ... 18 0-30 0
Cineraria, per dozen 4 0-8 0	Lotelia, per dozen ... 6 0-6 0
Cyperus, per dozen ... 4 0-12 0	Marguerites, doz. ... 6 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Mignonette, per doz. 4 0-9 0
— viridis, per doz. 12 0-24 0	Musk, per doz. ... 2 0-4 0
Eunymus, in var., per dozen ... 6 0-18 0	Myrtle, per doz. pots 6 0-12 0
Eriosea, various, per dozen ... 8 0-24 0	Palm, in variety, each ... 2 6-31 0
Evergreens, in var., per dozen ... 6 0-24 0	Pelargoniums, doz. 9 0-15 0
Ferns, in variety, per dozen ... 4 0-18 0	— scarlet p. doz. 4 0-9 0
Ficus elastica, each 1 6-7 0	Roots for bedding, in boxes, each, from 1 0-2 0
	Sprea, per dozen ... 6 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemones, 12 bun...	2 0-4 0	Narcissus, double	
Arum Lilies, 12 blms.	2 0-6 0	white, 12 bunches.	4 0-6 0
Azalea, 12 sprays	0 6-1 0	Pansies, 12 bunches	0 6-1 0
Bouvardia, per bun.	1 0-1 6	Pelargoniums, scarlet,	
Carnations, 12 blms.	1 0-2 0	12 spr.	0 4-0 6
Cineraria, 12 bchs.	6 0-9 0	12 sprays	0 6-1 0
Cyclamens, per doz.	0 3-0 6	Polyanthus, 12 bun.	1 0-2 0
Eucharis, per dozen	3 0-6 0	Primulas, double, 12	
Gardenia, per doz.	1 6-3 0	sprays	0 6-1 0
Heliotropes, 12 spr.	0 6-1 0	Ranunculus 12 bun.	1 0-2 0
Lilac, best, p. bunch	4 0-6 0	Roses, Tea, per doz.	1 0-3 0
l. p. bunch	0 4-0 9	— coloured, dozen	2 0-4 0
Lilium Harrisi, doz.	3 0-4 0	— yellow (Maré-	
Lily of the Valley, 12		chals), per doz.	2 0-6 0
sprays	0 6-1 0	— red, per dozen	3 0-6 0
Maiden Hair Fern,		— do., French p. doz.	1 0-3 0
12 bunches	4 0-9 0	Spiræa, per bunch	0 4-0 6
Marguerites, 12 bun.	3 0-6 0	Tuberose, 12 blms.	0 6-1 0
Mignonette, Fr., bu.	0 4-0 6	Violets, 12 bun.	0 6-0 9
Myosotis, 12 bun.	2 0-4 0	— dark, Fr., bun	1 0-1 6
		Wallflower, 12 bun.	2 0-4 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 3-sieve	3 6-6 0	Lemons, per case	15 0 25 0
— Nova Scotia, brl.	15 0-25 0	Peaches, per dozen	6 0-18 0
— Tasmanian, case	12 0-14 0	Pine-apples, St. Mi-	
Cobs, Kent, 100 lb.	35 0-40 0	chael, each	2 0 8 0
Grapes	1 9-4 0	Strawberries, p. lb.	3 0-5 0

NEW POTATOS.—Very heavy arrivals of Jerseys, Cornish, and French are coming to hand, which daily increase. Prices have been subject to a continual decline. Jerseys and Cornish, 12s. to 14s.; French, 11s. to 13s.; Lisbon Rounds, 8s. to 7s. 6d.; Malta Rounds, 12s. to 11s.; Malta Kidneys, 10s. to 20s. The latter kind being particularly in demand, on account of quality.

OLD POTATOS.—Demand and prices about the same as the past fortnight.—J. B. Thomas.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.			
	ACCUMULATED.										
	Above (+) or below (—) the Mean for the week ending June 6.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.	More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 4, 1891.	
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.				
1) aver	57	0	+	26	76	6	—	97	18.6	58	31
2 3 —	51	0	—	84	97	5	—	63	8.1	28	32
3 2 —	60	0	—	106	95	1	—	70	7.4	47	30
4 1 +	94	0	—	92	128	3	+	75	8.0	32	32
5 2 +	99	0	—	69	116	6	+	70	9.2	33	30
6 2 +	109	0	—	97	149	1	—	65	9.1	50	34
7 2 +	88	0	—	1	48	4	—	72	12.6	31	32
8 2 +	94	0	—	24	37	6	+	63	8.6	29	29
9 1 +	94	0	—	63	118	7	+	67	11.9	27	37
10) aver	81	0	—	48	28	2	—	82	9.6	21	31
11 1 +	92	0	—	23	31	11	+	75	11.4	22	34
12 1 +	102	0	—	47	40	12	+	73	11.4	53	46

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts.—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts.—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending June 6, is furnished from the Meteorological Office:—

"The weather during the period has varied considerably. In the north of Scotland and the north-east of England it was fine and bright; in the south of England generally fair, but with some showers. In most parts of England, however, and over Ireland much cloud prevailed, and a good deal of rain fell. Thunder and lightning were experienced in many parts of the Kingdom, chiefly on the 2nd, 3rd, and 4th.

"The temperature has continued rather below the mean in 'Scotland, E.' and 'England, N.E.' and has just equalled it both in 'Scotland, N.' and 'Ireland, N.'; elsewhere, however, it has been 1° or 2° above the normal. The highest of the maxima, which

were recorded at most stations on June 1, ranged from 76° in 'England, S.' to 68° in 'Ireland, S.' The lowest of the minima were registered either at the beginning or end of the week, and varied from 31° in 'Scotland, N.' and 32° in 'England, N.W.' to 46° in 'Ireland, S.' and to 50° in the 'Channel Islands.' At the end of the period, temperature was decreasing very decidedly.

"The rainfall has been considerably more than the mean in most of the English districts, as well as in 'Ireland, S.' and the 'Channel Islands;' but, rather less in 'England, N.E.,' 'England, S.' and 'Ireland, S.' In Scotland the fall has been very trifling.

"The bright sunshine has varied greatly in different districts, but has on the whole been below the mean for the time of year. The percentage of the possible duration has ranged from 58 in 'Scotland, N.' 53 in the 'Channel Islands,' 50 in 'England, S.' and 47 in 'England, N.E.' to 28 in 'Scotland, E.' and 21 or 22 over Ireland."

NOTICES TO CORRESPONDENTS.

ANEMONES: T. D. M. Seedlings very good. Please send word if No. 1 shrub is a greenhouse plant; or any other particulars.

AZALEA MOLLIS SEEDLINGS: Roster & Co. Flowers sent large, of great substance, and more brilliant in some shades of colour than any that we have hitherto observed. The yellow ones would seem to have Azalea sinensis blood in them.

BETTER DESTROYING MAIDEN PEAR: D. Smith. The specimens sent are the clay-coloured Weevil, Otiorhynchus picipes. You might use the sticky bands on the trees, as for the winter moth. Find where the insects mostly harbour, or entice them to go under pieces of slate, tile, old sacks, &c., which they readily do, and then by examining these lurking places daily, great numbers may be killed. They are nimble fellows, and not easily caught when at feed, that is, during the night hours.

BUILDINGS ON LEASEHOLD PROPERTY: Frank. If no agreement to the contrary exists, all buildings erected by the tenant, the foundations of which are in the soil, fall to the landlord at the expiration of the tenancy. Trade fittings, so-called, and this would cover stages, hot-water apparatus, slate water-tanks, &c., belong to the tenant. In regard to living plants standing in the soil, a year or more can be demanded for their proper removal. Wooden or iron greenhouses standing on brick foundations, but not bolted or screwed down to them are removable.

CATERPILLARS ON FRUIT: Stangrove. Use some of those insecticides so often noted in these pages.

GIRL EATING PRIMROSES: Correspondent. This proves to have been the fiction of a hysterical girl. How it could be possible for any reasonable person to attach credence to such a statement it would be difficult to understand, but, that the Tichborne case proved that there are really no limits to credulity.

INSECT AND CATERPILLAR: W. Miller. See answer to "Stangrove" in this column.

INSECTS: D. Morrison. The short, thread-like object may be a shrivelled-up fragment of a Filaria. I. O. W.

MELONS: W. P. B. The culture pursued would appear to be at fault. There are no nematodes in the roots, or anywhere else, and no fungi; but there are small appearances as if of gumming.

NAMES OF PLANTS: Wreath. Prunus padus, Bird Cherry.—A. W. K. Salix cuprea.—Adolescence. 1, Lupinus, probably a variety of L. polyphyllus (Foxei is merely a garden name); 2, Iris Kamperli var.; 3, Specimen too imperfect; 4, Aquilegia vulgaris, double white; 5, A garden form of Aquilegia vulgaris.—Weir. 1, Ligustrum japonicum; 2, L. coriacea, Carr.—A. G. H. Hyoscyamus niger.—W. S. Anderson. 1, Polypodium phymatodes; 2, Scolopendrium vulgare, crested var.; 3, Prunus padus.—T. J. S. 17, Panicum sanguinale; 18, Trifolium sp.; 19, Lychnis githago; 21, Pollinia ciliata (?). The others we do not recognise.—M. W. D. 1, Odontoglossum Hallii; 2, Maxillaria tenuifolia; 3, Sibthorpia europæa variegata; 4, Tiarella cordifolia; 5, Sedum Sieboldi variegata; 6, Iberis gibraltarica.—C. K. G. 1, Iberis sempervirens; 2, Weigela rosea; 3, Spiræa ariæfolia; 4, Forsythia suspensa; 5, Cytisus species:

send when in bloom; 6, Calycanthus floridus.—H. B. 1, Aspasia variegata; 2, Ornithogalum umbellatum; 3, Salisburia adiantifolia (Ginkgo) biloba).

SMALL WORMS IN POTS OF CARNATIONS: J. K. Use lime-water in a clear state; the worms will either come to the surface or crawl away.

STANDARD GOOSEBERRIES AND CURRANTS: A. Beck. It is seldom that these are reared in nurseries; but, gardeners in private establishments sometimes indulge their or their employer's fancies in this way. Some will grow stocks from cuttings, choosing for the purpose some strong erect growing variety. Cuttings are put in just as the leaf begins to ripen; say, early in October, at about 1 foot apart, and when the cutting has made some little amount of growth the following year, a stick is put to each, and a leader trained up, the few side shoots made being kept to 2 or 3 inches in length, and as the leader increases in length it is tied up, but as a matter of good practice, the more liberty it is allowed the stronger and faster the cutting will grow. When the plant has reached, in the second year, the desired height, it may be grafted on the last year's wood, or budded in July or August on the more matured part of the young wood, or in that of the previous year, or inarching may be practiced if that be practicable. Where budding or grafting is not performed, cuttings or layers may be made from the best varieties of Currants and Gooseberries, treated as before advised, and in the winter of the third year topped at any desired height to form a crown. Where Gooseberries are grown in this manner, it is found good practice to secure the branches to a bell-shaped trellis of wire, the mouth of the bell being either upwards or downwards, according to fancy. Standard Gooseberries are excellent for training on walls, as the fruit is out of the reach of splashing by rain. Among red Currants, the best stocks are—La Versailles and Ruby Castle; and amongst Gooseberries, Dan's Mistake and Monarch. Pendulous-growing varieties of Gooseberries are better for standards than erect growers, and the following will be found very good ones to bud or graft on the above—Conquering Hero, Raspberry, Red Warrington, Wilmot's Early, among reds; Catherine, Garibaldi, Gipsy Queen, High Sheriff, yellows; Glendon Green, Hearts of Oak, Green Walnut, Keepsake, greens; Crystal, Careless, Princess Royal, whites.

THE EARLY RIVERS' NECTARINE: T. Rivers & Son. Excellent in size, flavour, and colour. A fine Nectarine for early supply in houses or open walls.

TOMATOS: J. R. The removal of the leaves or parts of the leaves is necessary where thick planting on walls or trellises, say, 12 inches from plant to plant, is practised to obtain earliness, and then this kind of mutilation, as well as rigid disbudding of the main stem must be performed. It may become desirable also during the late part of the summer or in cold seasons to denude the plants on open walls or in the open quarters of a part of their leaves, in order to let the sunshine reach the fruits. If disbudding be properly done at frequent intervals, the leaves seldom need removal from plants under glass, which have the proper amount of space for development.

WATERING ORCHIDS: J. R. It is not desirable to water the materials into which Orchids have been repotted directly after the latter operation has been performed, but to wait for a time, say from one week to four, before affording any. Care should always be taken to have the sphagnum moss, peat, &c., in a moist state when using it, and then if the newly-potted plant be placed in a moist house and properly shaded, no water will be needed before the roots start anew.

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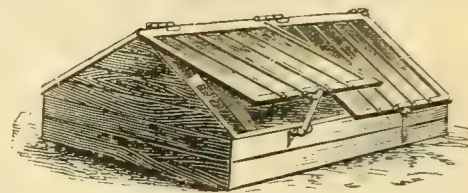
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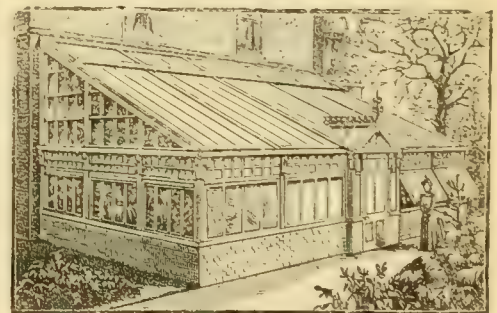
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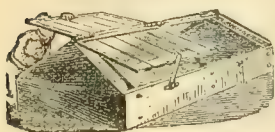
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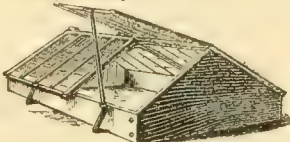


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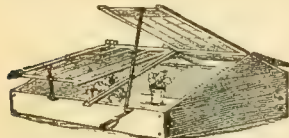
6 ft. by 3 ft. ... £2 0 0	6 ft. by 4 ft. ... £2 5 0
12 ft. by 3 ft. ... 3 2 0	12 ft. by 4 ft. ... 3 15 0

No. 73.
**NEW SPAN-ROOF
GARDEN FRAME.**



CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 14 0
8 ft. by 6 ft. ... 4 4 0	16 ft. by 6 ft. ... 7 4 0



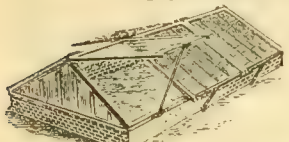
No. 74.
**THREE-QUARTER
SPAN
GARDEN FRAME.**

CASH PRICES. CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 17 0
8 ft. by 6 ft. ... 4 5 6	16 ft. by 6 ft. ... 7 8 6

No. 77.—Smaller size Frames, } 6 ft. by 4 ft. £1 15 0
similar to No. 75. } 9 ft. by 4 ft. 2 7 6
12 ft. by 4 ft. 3 0 0

GLAZED LIGHTS 6 feet by 4 feet ... 14s. each.
UNGLAZED LIGHTS ... 5s. 6d. each.
Carriage paid on Orders of 40s. value.

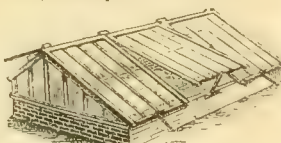


No. 64.
**PATENT PLANT
PRESERVER.**

CASH PRICES. CARRIAGE PAID.

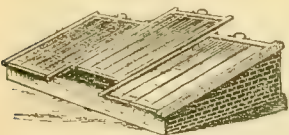
12 ft. by 5 ft. ... £5 0 0	12 ft. by 6 ft. ... £6 0 0
24 ft. by 5 ft. ... £9 0 0	24 ft. by 6 ft. ... £11 0 0

No. 72.
**THREE-QUARTER
SPAN-ROOF
FORCING FRAME.**



CASH PRICES. CARRIAGE PAID.

10 ft. by 6 ft. ... £5 0 0	10 ft. by 7 ft. ... £6 0 0
20 ft. by 6 ft. ... £8 10 0	20 ft. by 7 ft. ... £10 0 0



No. 76.
**FORCING PIT
WITH SLIDING
LIGHTS.**

CASH PRICES. CARRIAGE PAID.

12 ft. by 6 ft. ... £3 11 0	12 ft. by 7 ft. 6 in. ... £4 4 0
20 ft. by 6 ft. ... £5 13 0	20 ft. by 7 ft. 6 in. ... £6 12 0

All Frames made of Selected Red Deal, painted three times, and Lights glazed with 21-oz. sheet glass.

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BOULTON & PAUL, NORWICH.



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HORTICULTURAL
POTTERY.

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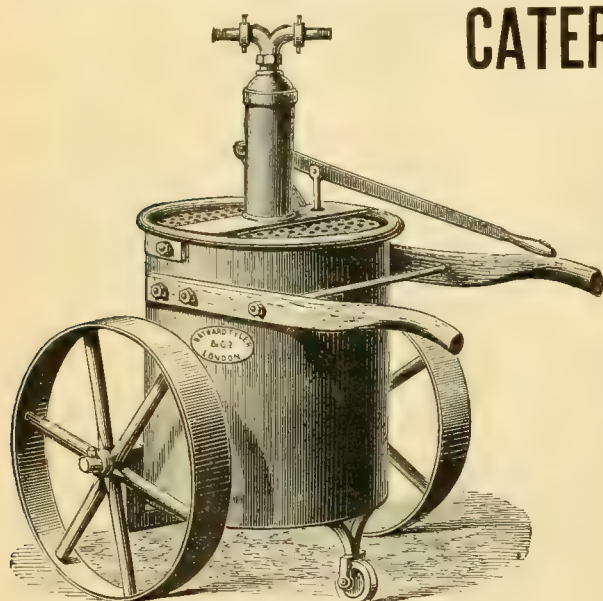
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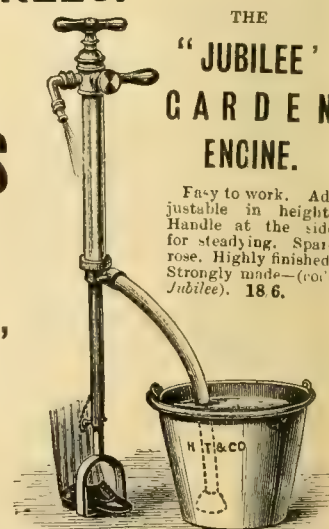
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SALES BY AUCTION.

Thursday Next.

A choice COLLECTION of ESTABLISHED ORCHIDS, chiefly in flower.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on **THURSDAY NEXT**, June 25, at half past 12 o'clock precisely, a choice COLLECTION of ESTABLISHED ORCHIDS, chiefly in flower, comprising some fine *Masdevallias*, rare *Cypripediums*, many fine forms of *Odontoglossum Alexandrinum*, *O. vexillarium*, *O. citrosum*, *O. Pescatorei*, *Dendrobium* in quantity, *Cattleyas*, *Laelias*, *Oncidium*, *Epidendrum*, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

By order of Messrs. Walter Kemsley & Co., 147, Leadenhall Street, E.C., on **TUESDAY**, June 23, 1891, a magnificent importation of **EAST INDIAN ORCHIDS**, all in the best possible condition, including a new *Cypripedium* in the way of *bellatulum*, a drawing of one of the plants will be exhibited at the Sale. *Cypripedium Stonei*, *Renanthra Lowii*, a beautiful piece of *Coleogyne asperata*, with over 100 bulbs; *Aerides* in five distinct species, and a further consignment of the magnificent strain of *Vanda suavis* and *tricolor*, from which such fine blooms have been obtained of previous shipments.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, June 23, at half past 12 o'clock.

On view morning of Sale, and Catalogues had.

Tuesday next.

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Also about 200 lots of ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of ORCHIDS, on **TUESDAY NEXT**, June 23, at half past 12 o'clock.

On view morning of Sale, and Catalogues had.

Thursday Next.—Lee, S.E.—By Order of the Executors.

Highly important **UNRESERVED CLEARANCE SALE** of the valuable collection of SPECIMEN and other STOVE and GREENHOUSE PLANTS. By order of the Executors of the late J. W. Larkin, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to **SELL by AUCTION**, on the Premises, The Firs, Old Road, Lee, ten minutes' walk from Lewisham or Blackheath Stations, on **THURSDAY**, June 25, at 12 o'clock precisely, without reserve, the valuable collection of SPECIMEN STOVE and GREENHOUSE PLANTS, being the contents of 12 Greenhouses, and the extensive Winter Garden, including several noble specimen Palms, embracing *Kentia Belmoreana*, *Seafartha elegans*, *Chamaerops Fortunei*, and others; splendid Tree and other Ferns, comprising immense trunks of *Dicksonia antarctica*, two magnificent examples of *Philodendron bipinnatifidum*, *Lastrea decomposita*; Orange and Lemon trees, *Azaleas*, *Camelias*, *Crotons*; Stove and Decoration Plants in great variety, *Gardenias*, a quantity of well-grown Orchids, consisting of *Cattleyas*, *Dendrobium*, and others; 1000 Bedding Plants; *Pelargoniums*; a quantity of Rockwork, &c.

May be viewed two days prior to the Sale. Catalogues may be had of Mr. TROLLOPE, the Head Gardener, at the Lodge; and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Friday Next.

HOULETTIA, new species in flower.
ODONTOGLOSSUM POLYXANTHUM.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, and 213, Park Road, Clapham, S.W., to **SELL by AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY**, June 26, at half past 12 o'clock, a large and varied collection of ORCHIDS, just to hand in excellent condition, consisting of *Houlettia* species, new, in bud or flower, discovered recently by one of our collectors, and said to be of great beauty, the erect spike carrying from 8 to 12 large flowers; *Zygopetalum graminifolium*, a pretty dwarf species growing on stem of a *Lomaria*; flowers deep green, with chestnut and white; figured in the *Botanical Magazine*, t. 5048; *Odontoglossum polyxanthum*, well-grown plants in spike—out of the same batch we have flowered some of the most beautiful varieties ever seen; *Cattleya aurea*, a small but healthy lot of this most desirable Orchid, the plants having come from the same district whence we had those fine varieties the two previous years; they are in healthy condition, and well-leaved. *C. Schofieldiana*, a very beautiful-coloured *Cattleya*, the plants offered being in specially fine condition. *Odontoglossum ramosissimum*, a pretty winter-blooming Orchid; these are a grand lot. *Oncidium Weltoni*, well-established plant, in full vigour; *Cattleya Schilleriana*, in fine condition; *C. Harrisoni*; *Laelia Dayana*, a few truly magnificent plants, well-leaved, and in every respect perfect; *Oncidium Sacodes*, *Colax jugosus*, well-grown plants; *Oncidium phymatocilium*, *Cattleya lobata*, in good condition, &c.

The Sale will also include a plant of *VANDA BATEMANII*, with six pairs of leaves and a grand spike; and *VANDA LOWII*, with two pairs of leaves and spike, and other property.

On view morning of Sale, and Catalogues had.

Orchids in Flower.—Special Sale, Tuesday, June 30.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to RECEIVE NOTICE of ENTRIES by **THURSDAY NEXT**.

Unreserved Sale.—Preston Hall, Aylesford.
About $\frac{1}{4}$ of a mile from South Eastern Railway Station, and same distance from Barming Station, London, Chatham, and Dover Railway, and 3 miles from Maidstone.
HIGHLY IMPORTANT SALE of VALUABLE ORCHIDS, STOVE, and GREENHOUSE PLANTS.

MESSRS. R. WATERMAN AND SONS are favoured with instructions from H. L. C. Brassey, Esq., to **SELL by AUCTION**, in the Gardens, Preston Hall, on **MONDAY**, June 29, 1891, commencing at 10 o'clock precisely, the Excellent Collection of 270 well-established and CHOICE ORCHIDS, some being in flower and bud, consisting of *Odontoglossum*, *Dendrobium*, *Cattleyas*, *Oncidium*, *Aerides*, *Vandas*, *Saccolabium*, and various other kinds. Exceedingly well-grown Stove and Greenhouse Plants, comprising 60 Indian *Azaleas*, Exotic and Hardy Ferns, *Crotons*, *Ericas*, *Euphorbias*, and others; 25 magnificent *Marguerites*, from 3 to 6 feet; 40 Hybrid Perpetual Roses; choice collection of 270 *Chrysanthemums* of the newest and best varieties, *Camelias*, *Gloxinias*, *Palms*, *Fuchsias*, *Arum Lilies*, *Fruiting Pines*, &c.

May be viewed on Friday and Saturday prior to the Sale.
Catalogues may be obtained of the Head Gardener on the premises, and of the Auctioneers, 20, Week Street, Maidstone.

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9 " 11 " " " 50s. " £22 "

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AND SHORT HILLS, N.J., U.S.A.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

52ND ANNIVERSARY FESTIVAL, JULY 8, 1891,

AT WHICH
The Right Hon. JOSEPH CHAMBERLAIN, M.P.,
WILL PRESIDE.

The following SUBSCRIPTIONS & DONATIONS have been Paid or Promised:—

The Right Hon. JOSEPH CHAMBERLAIN, M.P.	£52 10 0
His Grace The Duke of WESTMINSTER	20 0 0
Messrs. ROTHCHILD and SONS	105 0 0
Sir W. H. SALT, Bart.	50 0 0
The Baron SCHROEDER	31 10 0
The Right Hon. Lord CREWE	1 0 0
Messrs. JAMES VEITCH and SONS, Chelsea	21 0 0
F. D. GODMAN, Esq., Horsham	10 10 0
Executors of the late JOHN DOMINY, Esq., Southampton	10 10 0
H. C. LEE, Esq., Upper Tulse Hill, S.W.	10 10 0
Mr. A. BENTLEY, Eshwood Hall, Durham	10 10 0
Mr. A. BORTHWICK, Sherborne Ho., Cheltenham	10 10 0
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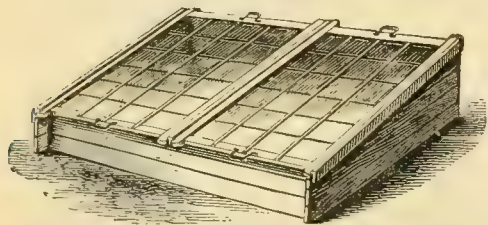
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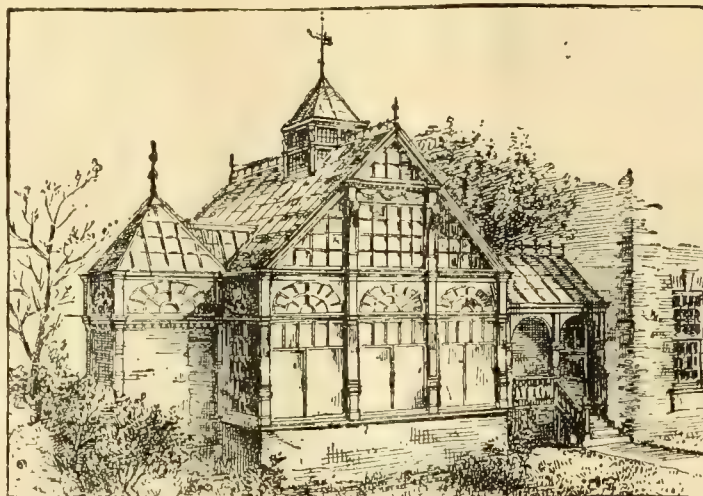
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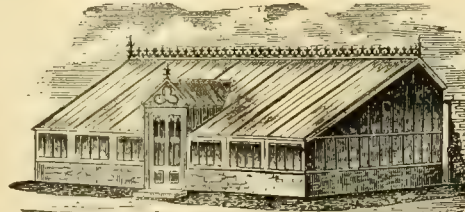
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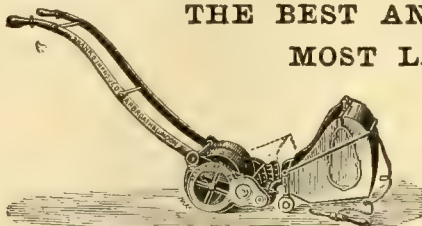
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 20, 1891.

THE COLOUR, FLOWERING PERIOD, AND CONSTITUTIONAL VIGOUR OF HYBRIDS.

THOUGH I have not yet been able to peruse the extended account given by Professor George Henslow (*Gardeners' Chronicle*, p. 618) of his interesting observations on the colour of hybrid Rhododendrons, I may be permitted to make a few remarks on the same subject. Reference will also be made to the flowering period and constitutional vigour of hybrids, as of equal or even greater importance.

The results of Professor Henslow's examination might lead one to consider that colour-production is in some cases fickle and variable, and while, in the present state of our knowledge, this may have to be granted, I feel that it will eventually be possible, in the great majority of cases, to predict the exact colour which the hybrid will show, especially if the colour in each parent be due to the presence of one pigment only. The examples chosen by Professor Henslow, however, are rather complicated by the frequent presence of two pigments—a dissolved red, and a granular yellow, in at least one of the parents. If we compare parents which each develop one pigment, or one of which only is white, i.e., devoid of colour, it may be laid down as a broad general rule, that the hybrid will be intermediate between the two, having regard to the size of the floral parts of each. If a deeply-coloured, small-flowered form, be crossed with a pale or colourless form, bearing large floral parts, the hybrid will appear to lean to the light-flowered parent, since half the amount of colour of the former has been distributed over the larger surface of the hybrid.

To cite examples of well-known Rhododendrons, *R. præcox* is intermediate between the purple-crimson-flowered parent, *R. atrovirens*, and the pink-white parent, *R. ciliatum*; the rich cerise-coloured *R. Nobleanum*, between the scarlet-flowered *R. arboreum* and the white-flowered *R. caucasicum*; *R. Greivei*, with pale whitish-pink blossoms, between *R. ciliatum* and the dull pink *R. glaucum*. The allied hybrid, *Bryanthus erectus*, is neatly intermediate between the pale pink *R. Chamæcistus* and the rose-pink *Menziesia empetrifolia* var. *Drummondii* (not *M. cœrulea*, as is generally stated); so also is *Erica Watsoni*, between *E. tetralix* and *E. ciliaris*.

From every order in which hybrids have appeared, illustrations might be given, as anyone can readily gather from the perusal of your pages, or of Focke's *Pflanzen Mischlinge*.

Seldom is it better exemplified than when tints of yellow, or yellow and white, are crossed, if the colour be due wholly to yellow chromoplasts in the cell-protoplasm. During the last week or two I have gathered a large number of hybrid Oxlips alongside their parents, the Primrose and Cowslip. One has merely to pluck a blossom of each, and place these in row, to see how closely the hybrid is the mean between the parents. A set of hybrid *Hedychium*s, raised at the Royal Botanic Garden, gives additional confirmation. Thus, the orange-coloured *H. Gardnerianum*, crossed by the white *H. coronarium*, gave *H. Sadlerianum* with a tint exactly intermediate; this, recrossed by the latter parent, gave *H. Lindsayi*, the blossoms of which are of a pale maize-white in bud, becoming white in blossom. Crosses between *H. Gardnerianum* and *H. angustifolium* also verified what one might have predicted.

Hybrids of *Dianthus*, *Geum*, *Saxifraga*, *Gesnera*, *Gloxinia*, *Digitalis*,* *Orchids*, *Montbretia*, &c., might all be noted for their floral parts, as might pitchers of *Sarracenia* and *Nepenthes* for their vegetative leaf-parts.

But knotty points often arise in the study of hybrids, whose parents—one or both—have two or more pigments in their cells. A comparatively simple case of such is *Masdevallia Chelsoni*, in which, as in both parents, we have a dense background of yellow cells, while from the surface arise layer sacs filled with a purple pigment. But when yellow, red, or blue occur in the same or neighbouring cells of a tissue, the hybrid product may take after one or other of the parents in an apparently arbitrary way. Even in such cases, however, I think that the appearances can be explained in a manner that clears away many of the apparent difficulties which beset one when a minute study of hybrids is first entered upon. The full explanation—which cannot be given in a short paper like this—I hope to publish shortly; suffice it to say, that I regard many of the unequal blendings in hybrid colour and structure to be due to incompatibility in chemical or molecular union, and the resulting predominance of that colour which is the more stable or readily evolved of the two.

Study of the period of flowering of plants is still in its infancy, but I venture to think that a comparison of the flowering period of hybrids with that of their parents will yield in the end the most valuable phenological harvest, for we deal then with a connected series of three. During the last twenty years a record of the flowering periods of a few has been kept at the Edinburgh Botanic Garden, and since 1880 a similar record, for fully 800 plants in the rock garden (including several hybrids and their parents) has been kept; while in the *Transactions of the Edinburgh Botanical Society*, vol. xvii., part 2, Mr. Lindsay has recorded the time of flowering of 1408 species during 1887. These, supplemented by limited observations of my own, all point distinctly to a flowering period in hybrids closely intermediate between the parents. To give only one or two examples verified during the present season, *Rhododendron atrovirens* first opened on January 21, and was in full bloom by the 27th; *R. præcox* opened on March 1, but was immediately after destroyed by frost; judging, however, from previous years, it would have blossomed well by March 10; while *R. ciliatum* opened on April 25, and was in full blossom by May 4.

I was rather puzzled for a time to account for the early flowering of *R. Nobleanum*, which from an average of twenty years opens on March 1, while *R. caucasicum* opens from April 25 to 30. I could scarcely imagine that the other parent, *R. arborescens*, would start, even in a milder climate than our own, in the early part of January; but on going over references in Hooker's *Himalayan Journals*, it appeared that in 1848 he saw it flowering on

December 7, for he says (vol. i., p. 274):—"The descent from the Talloong ridge was very steep, and in some places almost precipitous, first through dense woods of Silver Fir, with *Rhododendron Falconeri* and *Hodgsoni*, then through *Abies Brunoniana* with Yew (now covered with red berries), to the region of *Magnolias* and *Rhododendron arboreum* and *barbatum*. One bush of the former was in flower, making a gorgeous show." And he mentions it again and again, up till the end of May. It must be difficult to compare a Himalayan winter climate at 8000 to 10,000 feet with that of our country, but correspondents of this paper might aid towards a satisfactory solution. Great accuracy and copious data have still to be reached, and the inquiry can afford the aid of many workers, while for gardeners there is the possibility of obtaining many crosses which might adorn our cool and hot-houses during winter.

On the constitutional vigour of hybrids I should greatly desire information, rather than attempt to give it, but the behaviour of *Montbretia Pottii*, *Tritonia aurea*, and *M. crocosmæflora*, in the Edinburgh Garden during the past winter seems suggestive. The corms of the first appear scarcely to have been injured. Those of the hybrid have been largely killed off—at least, to the extent of 60 per cent.; while *Tritonia*—never hardy in exposed ground—has survived only where it is planted against, and can creep along, the outer side of a hot-house wall. *J. M. Macfarlane*.

NEW OR NOTEWORTHY PLANTS.

ODONTOGLOSSUM × EXCELLENS, *Rehb. f.*

ONE of the most interesting exhibits at the recent Temple show, was a plant of the above well-known *Odontoglossum*, exhibited by Messrs. J. Veitch & Sons, of Chelsea. It was a seedling raised in their establishment by Mr. Seden, and was produced by crossing *O. Pescatorei*, with the pollen of *O. triumphans*. There are two or three points of interest about this particular plant which deserve to be placed on record. It proves the origin of a very handsome *Odontoglossum* which has now become fairly common in gardens, and which has long been thought to be a natural hybrid, though *O. tripudians* was suggested by Reichenbach as one of the parents, not *O. triumphans*. Mr. Rolfe also believes it to be the first hybrid *Odontoglossum* which has been raised in this country, and successfully grown to the flowering stage. Others have appeared, but have unfortunately died in their infancy. In France, however, there is an earlier record, namely *O. × Leroyanum*, raised by M. Leroy, gardener to Baron Edmond de Rothschild, of Armanvilliers, near Paris, an equally interesting plant, as it proved what has always been supposed to be the parentage of *O. × Wilckeanum*, of which it can only be considered a variety. It was obtained by crossing *O. crispum* with the pollen of *O. luteo-purpureum*. Now that the initial difficulties in the way of raising hybrid *Odontoglossum*s have been surmounted under cultivation, it is to be hoped that further successes may be attained, as it would be extremely interesting to know what the insects of that interesting Andine region have been doing in the past. Speculation has now been changed to certainty in two highly interesting cases. There are several others, in which no reasonable doubt can exist, and hybridists could not possibly choose a more interesting field of research than this.

PLANT NOTES.

SENECILLIS CARPATICA.

AFTER two years' residence in my garden, this coarse plant began to flower the first week in the present month. It makes a stout loose spike, 5 or 6 feet high, with rather sparse pale yellow flowers, about an inch and a half across, rather like those of *Senecio*

japonicus. The form and growth, size and colour of the leaf so exactly resemble those of *Senecio* (*Ligularia*) *macrophylla*, that until it flowered I had confidently set it down as identical with that plant; but it flowers a month earlier, and the spike of the *Senecio* is like a giant Golden-rod. It can hardly be called an ornamental plant, being more fitted for a botanical garden than to decorate a border. In shape the leaf resembles that of the Horse-radish, in size, texture, and colour that of a large Cabbage. *C. Wolley Dod*.

MANTISIA SALTATORIA (*The Dancing Girl*.)

The flowers of this plant make their appearance previous to the leaves, or at least, before they are far advanced in growth. The scapes generally grow about a foot in height, bearing numerous flowers, arranged in panicles; the colour of them, as well as the bracts, is a pale violet, with a conspicuous yellow lip. Very rarely, indeed, do we meet with this plant in cultivation, even in good collections of tropical plants, and its home in this country seems to be chiefly in botanical gardens, to which institutions many a choice plant, popular at one time with bygone cultivators, owes its preservation. It lasts in flower for, at least, one month, and the individual flowers are produced at short intervals. The name *Dancing Girl* is not particularly suggestive, at any rate, to the ordinary observer, and perhaps, requires some stretch of imagination to realise it from merely looking for its likeness to a dancing girl of our generation. The generic name bears reference to the insect Mantis, to which the flowers are said to bear a resemblance, while the specific name implies dancing, so that the name may be taken in either sense.

It is not a plant difficult to cultivate, and the following account of its treatment will suffice. After flowering, turn the plants out of their pots, and remove the old soil from their roots, and repot in a mixture of loam, fibrous peat, and leaf-soil, with enough coarse sand to make the whole sandy and porous. Encourage it to make a good crop of leaves in a warm pit or stove, keeping it as close to the glass as practicable, in order to get the plant well-ripened up for flowering the following year; a little artificial or liquid manure given occasionally will add to its vigour when the pots are getting somewhat filled with roots. Towards autumn, the leaves will commence to decay; it may then be removed, and placed beneath the stage, turned over upon its side, and kept dry until the following March, when it will be noticed to be pushing up its scape. Propagation is best effected by division at the time of repotting. Its habitat is the East Indies; it is figured in the *Botanical Magazine*, t. 1320. *W. Harrow, Botanic Garden, Cambridge*.

ORCHID NOTES AND GLEANINGS.

UROPEDIUM LINDENI, *Lindl.*

THAT *Uropedium Lindenii* is only an abnormal state of *Selenipedium caudatum*, which has become fixed or permanent, may be considered proved, since the very interesting record by Dr. Masters of a plant of the latter, in the collection of Mr. Bull of Chelsea, which produced an abnormal flower, with the flattened lip and the column of *Uropedium*; yet it may be of interest to record a somewhat similar phenomenon which has appeared in the collection of Sir Trevor Lawrence, Bart., M.P., during the present year, especially as Reichenbach on two separate occasions wrote an article to prove the generic distinctness of the two forms. The case now to be recorded is that of a large specimen of the very distinct *S. caudatum*, var. *Wallisii*. One of the racemes produced, together with the normal ones, an abnormal flower, which to all intents and purposes was *Uropedium*, as the median stamen of the inner whorl was perfectly developed and absolutely identical in character and position, while the lip was much flatter

* The late Professor Henslow's paper in the *Cambridge Philosophical Transactions* (for 1843, leaves nothing to be desired) further in the present connection.

than in the one figured in these columns (vol. xxvi., pp. 268, 269, fig. 54; also *Journ. Linn. Soc.*, xxii., p. 419, t. 20), though not prolonged into a long tail like the two petals, as in typical *Uropedium Lindenii*. The lateral sepals are free, as in the case of Mr. Bull's plant, not united, as in *Uropedium*. It would be of great interest, though perhaps of greater difficulty, to carry this matter a step further, and ascertain under what particular conditions such an undoubtedly abnormal condition of the species should have been able to increase in its native habitat, to the extent we now believe it to have done, as a distinct race. It would be of interest to experiment to see if it comes true from seed. Since the above was written, a flower of *Uropedium* has, we learn, been sent to Mr. Rolfe by Messrs. Linden, of Brussels, identical in colour with the pale *Selenipedium caudatum* var. *Wallisii*. As the original *Uropedium Lindenii* had rosy petals, like the variety *Warszewiczii*, this circumstance sheds further light on the origin of this singular plant.

CATTLEYA MOSSIE, SUNNYHILL VAR.

This remarkable variety, which has flowered several years in succession in Mr. Joseph Broom's collection at Sunnyhill, Llandudno, has large, well-shaped flowers, and an almost wholly rich orange-coloured labellum—its most attractive feature. The only other colour which is present is a white area of small size at the base of the lip, which is not perceptible unless the tube be inspected, and from this white field there radiate a few lines of a purple colour. The orange-colour on the front lobe deepens almost to a brown in a few small patches, and at the edge it fades off to pale buff. *Cattleya Mendeli rubicunda* is another fine *Cattleya* in the Sunnyhill collection. The sepals and petals are pink; the outside of the tube of the labellum is lilac in various shades. The base of the labellum is white, with a most beautiful tracery of crimson thereon, and the front lobe is of rich mauve, with a pink border, which is prettily fringed. It differs greatly from the usual forms of *Mendeli*, that many would fail to recognise it for its colouring, this being more like that of *C. Warszewiczii* (gigas). *J. O.B.*

CYPRIPEDIUM NIVEUM ALBUM.

A pure white and unspotted form of *C. niveum* is flowering among a quantity of the ordinary form of *niveum* at the Clapton Nurseries of Messrs. Hugh Low & Co. The only colour appears in the form of two small primrose-yellow spots on the staminode, and which lend additional attractiveness to the flower. The leaves of this rare novelty are darker than those of an ordinary *niveum*, and not marbled with silver.

DENDROBIUMS AT CLAPTON.

In Messrs. Hugh Low & Co.'s nurseries, *Dendrobiums* are largely grown, and their culture appears to be well understood. A walk through the houses in which these plants grow showed that they are kept in a warm moist atmosphere throughout the summer, i.e., whilst the growth is active. The want of a house in which the conditions of a tropical swamp are, to some degree, imitated in summer is sadly detrimental to the successful treatment of many species of *Dendrobiums*. Too often it is the practice to keep the plants in a high temperature during the winter, and comparatively cool and airy in summer. In the latter season these plants require a closer and moister air than is usually afforded, and a very high temperature in winter is as bad for them as a too low one in summer. *D. Parishii albens*, a number of *D. Bensonæ*, *D. crystallinum*, and many other *Dendrobiums*; *Vanda cœrulea* and many *Phalænopsis*, &c., are now in bloom in the Clapton nurseries.

DENDROBIUM PARISHII ALBENS.

Out of the large quantities of *D. Parishii* which have been imported, this, which recently flowered with Messrs. Hugh Low & Co., of Clapton, is the first white variety to be recorded. Its flowers are in every respect similar to those of the type, but

they are white with the exception of a few rose-coloured lines on each side of the lip.

TWO FINE SPECIMENS OF LÆLIA PURPURATA.

Flowers of two very dissimilar and beautiful forms of the showy *Lælia purpurata* come from a rising and enthusiastic Orchidist—J. W. Taylor, Esq., Thorn Hill Tower, Sunderland. The one has sepals and petals of pale lilac, veined with rosy-purple, and with a very finely-expanded and richly-coloured maroon-crimson labellum. The other has white sepals and petals, the latter very broad, and with eight or ten lines of rosy-crimson down each. The lip has yellow on the side-lobes, the front rich dark purple, changing to light purple at the tip.

ODONTOGLOSSUM CRISPUM VAR. VENUS.

This is one of the very finest and best shaped of the unspotted forms of *O. crispum*, its segments broad, and the petals beautifully fringed. Its flowers are white, with a faint lilac tinge on the sepals, a brownish-crimson blotch at the upper surface of the column, and a clear yellow base to the lip. It flowered in the collection of De B. Crawshaw, Esq., at Rosefield, Seven-oaks, where also *O. hystrix*, Rosefield var., has again bloomed. It has flowers nearly 4 inches across, sepals almost wholly yellowish-brown; and petals yellow, blotched with brown. One very attractive feature in this very fine form of *O. luteo-purpureum* is its very broad primrose-coloured front lobe to the lip, which has a large brown blotch at the base.

CYPRIPEDIUM PORPHYROCHLAMYS.

This should be grown in a pot, and raised somewhat above the rim, the soil being a mixture of light turfy loam, good peat-fibre, some small nodules of charcoal, and a little sharp sand, the whole well mixed together. Before potting, let the drainage be arranged in good working order, as the plant requires a liberal supply of water during the whole season. *Orchid Album*, vol. ix., p. 107.

ZYGOPETALUM MACKAYII.

We are of opinion that *Zygopetalum Mackayi* is a plant which, to flower freely, requires to be slightly pot-bound, and therefore, although willing to admit that a good-sized pot is necessary for its sustenance, and to accommodate its large roots, frequent repotting should not be resorted to; therefore, see that the drainage material is properly adjusted, and every season the old soil should be taken out, and it must be replaced with new. The soil in which to grow this plant should be a mixture of good peat-fibre and sphagnum moss, to which may be added a little light turfy loam, from which all the fine particles have been shaken; this must be packed in very tightly. During the summer season a good heat is necessary, the *Cattleya*-house being about the right temperature; it also requires a moist atmosphere, and a liberal supply of water to its roots. *Orchid Album*, vol. ix., p. 107.

CYPRIPEDIUM LOWII.

Although growing naturally as an epiphyte upon the branches of trees, we yet find it to succeed best under cultivation when grown in a pot; this should be well-drained. We have found it thrive best in a mixture composed of one part good light turfy loam, the same of peat and leaf-mould, to which may be added a little chopped sphagnum moss, and a few moderate-sized nodules of charcoal, the whole to be well mixed and incorporated. In potting, the plant should be a little elevated, so that the water may the more readily pass away from the crown and young growths. This plant, like all the rest of the genus, has no pseudobulbs, and therefore requires attention in watering all the year round. In the summer months a liberal supply is requisite, and during the winter sufficient will be necessary to maintain the specimen in perfect health. The warmth of the East India-house suits this species best; it will thrive, however, in the Brazilian-house during summer, but in winter more heat is neces-

sary than is accorded to *Cattleyas*, where these plants are properly rested. *Orchid Album*, vol. ix., p. 107.

MANURES FOR THE GARDEN.

WE gather the following important and interesting facts from a recently-delivered lecture by Mr. Joseph Harris, at the Western New York Horticultural Society.

One of the most important facts in regard to fertilisers, was briefly and tersely stated by Sir J. B. Lawes, in a letter to Mr. Harris last summer, in which he says, "Where the food is, there are the roots."

"At equal prices for nitrogen," Sir John wrote, "I certainly prefer nitrate of soda to salts of ammonia. The superiority on pasture grasses is most decided, and in dry seasons when the grass upon the ammonia plots is quite burned up, there is always plenty of grass where the nitrate is used. We had a great drought in 1870, and we had no grass anywhere, except on the nitrate plots. We found roots 4 feet deep from the surface, evidently following the nitrate, and, of course, getting water from the subsoil." "Where the food is, there are the roots."

Soluble phosphoric acid and soluble potash and ammonia salts do not move about in the soil. They remain pretty much where we put them. But nitrates will move about in the water of the soil. During a drought the soil near the surface is dry, and moist at a lower depth. The nitrates follow the moisture, and the roots follow the nitrates. It may be said that the roots follow the moisture; but this will not explain the fact mentioned by Sir John Lawes that, "in dry seasons, when the grass upon the ammonia plots is quite burned up, there is always plenty of grass when the nitrate is used. In the Rothamsted experiments on grass, manures of all kinds are used on different plots, and yet during the drought of 1870 there was no grass anywhere except on the nitrate plots. The moisture of the subsoil, without food, would not draw the roots, or if it did, they could not live and thrive without appropriate food."

While the farmer has to deal with only half-a-dozen different crops, the horticulturist, florist, nurseryman, and fruit-grower, have scores and hundreds of different plants to feed. All plants are composed of the same elements, but there is a great difference in the amount of heat, moisture, and food best suited to their healthy growth.

Professor Voorhees, of the New Jersey Experiment Station, found that two applications of nitrate of soda to Tomatos; one, when the plants were set out, and one a month later, when the fruit was beginning to set, produced a larger crop than the same amount of nitrate applied at once at the time of planting. Tomatos require plenty of heat, and it may be desirable to apply the nitrate while the plants are growing, in order to attract the roots into the warm soil near the surface. The same may be true in regard to Melons. For outdoor Roses in permanent beds, the author's experience leads him to think that it is desirable to get the subsoil rich in nitrates. He has used nitrate of soda for several years, and the longer he uses it on a bed of Roses, the more vigorous are the plants, and the more luxuriant and glossy are the leaves. He gives them a heavy dressing every spring, and presumes that the subsoil is rich in nitrates, and that the roots follow the food.

Many letters from florists and fruit-growers have been received asking about nitrate of soda. The florists ask especially in regard to its effect on Roses in the greenhouse. Because nitrate has a wonderful effect on Roses out-of-doors during the bright sunny weather of summer, it does not follow that it will be equally beneficial on Roses in the greenhouse. The compost used is probably rich in plant-food. When a plant has all the food it can use, applying more will do no good. In such a case the measure of growth is determined by the amount of sunshine, and during the winter months it is not probable that nitrate of soda would have much effect on flowers in the greenhouse. It may well be, how-

ever, that a shallower trench and more concentrated food, such as superphosphate and nitrate, might give more Roses.

That Grape growers can use concentrated fertilisers on their steep side hills, there can be no doubt. On vineyards where stable manure has been used for some years, it is not probable that the soil needs an additional supply of potash. An excess of potash might produce an unnecessary growth of Vines and "kites." (?) What is wanted is superphosphate and nitrate of soda, and possibly on some soils, lime. The characteristic effect of superphosphate is to produce a rapid, early growth, which in the absence of sufficient quantity of nitrates, will not continue long enough to mature or ripen the fruit.

Gardeners say it "burns up" the crop. This is not the case. It produces in two months as much growth as, without it, would be produced in three or four months, and then for lack of other food, the growth stops and the plants are "burnt up." It is not the superphosphate that dries up the plants, but the lack of other food. The food needed is nitrogen, and in some cases potash.

It must be remembered that if nitrogen is applied in the form of ammonia salts, dried blood, fish scrap, stable manure, cake manures, sea-weed, bran, dried grains, or any other form of organic nitrogen, it must be converted into nitrate before the plants can use it. *J. J. Willis, Harpenden.*

(To be continued.)

FLORISTS' FLOWERS.

THE TULIP.

It is difficult to characterise the present season in regard to the flowering of Tulips. Mr. Horner, writing to me about the third week in May, thought his flowers would be in good form for exhibiting on the 30th of that month at the "National," the date fixed by vote of the members some time in the same month. The date was again altered to June 6 "for several good reasons." These continual alterations of date within a week or two of the exhibition must have been very irritating to exhibitors. It placed the Rev. F. D. Horner outside the exhibition; indeed, he seldom has a chance to exhibit Tulips at the National Society's exhibition, owing to the lateness of the date. Our Tulips at Ilford, which were not in any way protected, were quite over on June 6; whereas, Mr. B. Simonite, writing on June 5, told me that his Tulips would not be in bloom for a fortnight. The question arises, why is this great difference in the time of blooming? I have not the least doubt that it is owing to the manner of treatment, and, to a certain extent, the locality. The old system of erecting canvas tents over the beds is bad, and ought to be abolished forthwith. The leading growers live in the neighbourhood of Manchester, and if the exhibition is fixed to suit them, the growers at a distance [to the south. Ed.] are kept out of the competition, owing to their inability to retard their blooms to so late a date, and the exhibition then becomes local rather than national. In warm dry seasons, nothing need be said against the use of canvas coverings; but the seasons in recent years have been the reverse of warm and dry. Some growers have adopted some kind of cheap glass covering for the beds, and the quality of the Tulips has been much improved thereby; that those who still adhere to the unprotected system that was in vogue when a heavy tax was levied on glass, have no chance in competing with those who are abreast of the times, and make use of all modern aids to culture. On one occasion Mr. Horner, who resides many miles north of Manchester, was digging up his bulbs on the day of the Manchester exhibition. It is the late bird who catches the worm at the Tulip exhibition. About ten years ago, I wrote in the *Gardeners' Chronicle* concerning a cheap method of protecting Tulip-beds with a glass covering. I put in a row of slight posts on each side of the bed; on the north, or east side,

the posts were four feet out of the ground, and on the south or west side about three feet; a light rail was nailed on the top of each to support some frame lights. Canvas was also nailed to the posts, from the ground upwards nearly to the top to prevent driving rain or hail doing any harm, and mitigate the force of the winds which is injurious to the blooms, even when not accompanied by rain; it is well to leave an opening all round above the canvas of about six inches in width for ventilation; it may also be found necessary in bright weather to put shading on the glass, if the Tulips are in bloom. This arrangement is simple, and much less costly than the clumsy canvas tents, with their strings, pulleys, and rollers. Mr. Horner has a more expensive and altogether different system; he has built a span-roofed house with glass sides down to the surface of the ground. The house is large enough to admit of his having one Tulip bed on each side of seven rows of Tulips each, a sunken path running up the centre; air is admitted freely when the weather is favourable. The beauty of the Tulip foliage in this house is only equalled by the delicate purity of the blooms. Some persons may say that it is not worth while to build a glass-house for Tulips; but growers must face the fact that some sort of protection is necessary in the flowering period, and a glass-house of the kind mentioned does not cost much more than a heavy canvas tent—so that in first cost there is but little difference, and the advantage of glass over canvas is all in favour of the former. Moreover, the house may be utilised for growing Tomatos and Peach trees in pots, which ripen their fruit admirably in such a place.

The Tulips may be lifted in a month or less after the blooming period is over, and the house made available for something else. I noticed in Mr. Barlow's garden at Stakehill House, that the Tulip beds were planted with Asters. The Tulip growers take considerable pains to prepare the ground for planting, and where sometimes the soil is too light and sandy, I have known marl to be incorporated with it—a sticky substance when first it is dug up; but when it has been spread out and left to dry in the sun for a week or two, the first shower of rain causes it to crumble to a powder, when it may be thrown into a heap, wheeled on to the ground, and dug in at once. It may not be generally known that the early-flowering Tulips, grown so extensively in Holland for exportation, do not succeed so well on the fields of light sandy soil so admirably adapted for the culture of the Hyacinth as they do on the heavier loams of the higher ground. Those who can dig their Tulip beds in the summer and leave the surface in a rough state and exposed to the weather, have a great advantage over those who cannot do this; for in this way lies success. It is not possible that ground dug up, or, may-be, trenched a week or so before planting out, can be in good condition for the bulbs, as it is usually wet, and when the surface is exposed, there is but little chance of its drying.

I shall lift my Tulip bulbs in about ten days from the present time, it being neither necessary nor desirable to wait till the leaves are quite decayed; but as soon as the flower stems can be bent round the finger without breaking, then the bulbs may be dug up on a dry day. The bulbs when out of the ground should not be exposed to hot sunshine, but the old flower stems removed from them, and the bulbs, each variety by itself, placed in a dry flower pot, without removing the roots. These pots may be arranged on the shelves of an airy fruit room, or placed in an open shed till the bulbs are dry, and the first opportunity taken afterwards to clean, and to place them in paper bags. The old Tulip growers prepared trays with divisions for the bulbs, and these trays fitted into cases made for the purpose. This, of course, is an expense, but it was not considered extravagant when a single bulb might be valued at ten to fifty guineas. The grower might well say they were his own dear bulbs, and worth a mahogany case, well made and polished, to put them in. There seems to be a decided revival

of the fancy again; but in this matter-of-fact age, with such a wealth of beautiful flowers, of many species, that were undreamt of by the Tulip fanciers of years ago, we are not likely to lose our heads over Tulips—albeit they have attained a much higher degree of excellence than formerly. Those who intend to take up Tulip growing would do well to consider the relative merits of glass over canvas, and I am quite sure that Mr. Horner would be glad to answer any questions asked by intending cultivators through the editor. If we are to have a revival, it would be well to consider the best means of arriving at the highest point of excellence. *J. Douglas.*

VIOLAS.

In the *Gardeners' Chronicle*, May 23, p. 642, your correspondent, "J.," writes of some distinct Violas, and in reading the reports of the spring gardening in the London parks, I have wondered how it is that those lovely plants are not much more grown for spring and early summer decoration. For years I have striven hard to obtain for the Viola a much more prominent place than it yet has, in our spring and summer decorative work, but it is so hard to get many to move out of the beaten track. I think I recognise in your correspondent, "J.," a very successful cultivator in the Hampton district of London, and I was astonished by a display in this nursery some six years or so ago in the hottest summer weather. "J." speaks highly of Bullion, truly a grand yellow, and I saw a bed of it in bloom in February, when we had at Birmingham some lovely spring weather, and it has been bright ever since, notwithstanding the recent frosts. "True Blue" and "Mrs. Charles Turner" are two of my seedlings, of which I am very proud. The former is very early and floriferous, and is unquestionably our best blue. Mrs. Charles Turner is truly a fine thing of very dwarf habit, and of a blue-violet colour. Countess of Hopetoun is a gem amongst whites, having a very dwarf compact habit; and for a stronger grower, Marchioness of Tweeddale is a very fine variety, snow-white, without any marking whatever. Countess of Kintore, a beautiful blotched variety, light purple, with a large distinct light blotch in each petal, is a great favourite. But there is a great beauty, sent out by Mr. Downie, Edinburgh, three years since, named "The Mearns," which, I understand, is the local vernacular for the "The Meadows." This is a grand variety, of rich violet colour, and with clear light-coloured almost white top petals, and a wonderful bloomer; and at the same time, Mr. Downie introduced "Lady Amory," similar in colour and marking, but the body colour has a rich rosy carmine shade in it. Both should be in every collection.

There are now a great number of varieties, of which many are deserving of cultivation by everyone. Of course one has to know "how not to grow them" as well as how to grow them well. Cuttings should be taken early in the summer, and struck under a north wall without glass protection. These make strong, sturdy well-rooted plants, either for planting out in their blooming quarters early in November or before, to get well established before winter sets in; or, the plants kept in protected places for planting out early in spring. The Violas (and the Pansies) are very hardy plants, if grown hardy, but not shut up in frames, for the damp steps in, and away go the plants. I think a great misconception has prevailed as to Violas being difficult to grow, and hot summers have certainly been very destructive to them at times, but we want the Viola for very early work, especially from March onwards, and a batch of spring-struck cuttings, kept under a north wall or shady place, will ensure a supply of stock, in case of a slaughter in the beds.

I do not intend giving any further list of varieties, my object being to supplement "J.'s" seasonable remarks on Violas, and to draw further attention to them. An effort is being made in some quarters to call Violas "tufted Pansies," a designation I em-

phatically protest against, and it is also misleading to the public, who are led to suppose they are buying a new race of Pansies. One advertiser rushes into a poetic strain in their resemblance to "A spray of Western Pine." I shall continue to call them Violas and bedding Pansies, for they are getting very much mixed, and the Pansy blood is getting very much infused with the ordinary bedding Viola.

One of the most interesting corners in my garden contains a batch of the wild Pansy, which my good friend, Mr. Harry Turner of Slough, sent, and had collected for me from plants growing in the fields at Iwer, near Uxbridge, and in these we have the original type of Pansy found by Lord Gambier in the fields adjoining his mansion at Iwer, and handed to his gardener, Mr. Thompson, for cultivation about

slender pilose growths forming quite dense masses, smothered with corymbose spikes of pinkish-purple flowers. This species, like the other vernal Phloxes, succeeds best when elevated above the level of the ground, or planted on the rockery. They thrive well enough on the flat, but they are rather liable to damp off in winter, otherwise they are quite hardy. However, they amply repay any little extra trouble they may require, as during May, and the earlier part of June, few things surpass them in beauty, and at that early part of the season, tender bedding-out plants cannot be compared with them. From the shaggy character of this plant, it is frequently found in gardens under the name of pilosa. Another rather similar-flowered species, but with a different habit, and less fastidious

has from reptans. However, there can be no mistaking *P. subulata*, with its rigid awl-shaped leaves, and dense and prostrate habit, each branchlet terminating in corymbs of brilliantly coloured flowers—they vary in colour from pure white to deep rosy-pink. The late Mr. Nelson, of Aldborough, raised several fine varieties, including Nelsoni, Model, Vivid, Perfection, The Bride, &c. In the variety *P. t. frondosa*, we have a vigorous plant, with lilac-rose flowers, rather smaller than in the type; but the habit is very diffuse, and well adapted for hanging down the face of rock-work.

During summer, these Phloxes should not be allowed to suffer for want of water, and they are much benefited by judicious sprinkling with the garden hose. A moderately light gritty and somewhat peaty soil suits them best. They do not seed very freely, but are easily propagated from cuttings put in during early summer, just as the wood is beginning to get firm; they will root by autumn. Of course, it is presumed that they can be accommodated with a cool frame, in which they had better remain until early the following spring, when they should be planted out. These vernal Phloxes come from North America, where they grow upon rocky hills and similar situations, and they are amongst the most beautiful of early-flowering hardy plants. *F. R.*, June 12.

ASPARAGUS DECUMBENS (PLUMOSUS).

Our illustration (fig. 149) exhibits in good form a climbing species of Asparagus, which has rapidly grown into favour with gardeners and makers of bouquets. It is a plant of easy culture, provided a few points are studied. It delights in a rather light sandy loam, moderately enriched with leaf-mould, or well-decayed manure, and the drainage must be good; for, although it likes much moisture at the root, a soured soil quickly renders it unhealthy. It does best if it be partially shaded from bright sunshine, and is equally at home either planted out or grown in a pot. It is a plant which, like the esculent species, can be increased by division of the root, and does not suffer by the use of the knife. Greenhouse treatment is best for it. We are indebted to the kindness of Mr. Cundy, nurseryman, Sudbury, Suffolk, for the opportunity of illustrating it, from a well-grown plant in his collection.

FROST ON EARLY PEAS.

THAT sharp frosts in May seriously affect early Peas when in bloom, the plants being apparently much more vulnerable through their blossoms than through their stalks and leaves, has been demonstrated in many instances of late. When at Chelmsford, a few days ago, I saw how the frost had seriously affected the blooms of some Peas that had been sown very early, in order to test their earliness and hardiness. The experiment was made on the trial-grounds of Messrs. Hurst & Son, of Houndsditch, and seeds of the following varieties were sown in the open during the first week in February, as soon as the January frost broke up. The sorts selected form a batch of the first earliest varieties:—Improved Sangster's No. 1, Extra Early, also of the Sangster No. 1 type; First and Best, Improved William the First, and Eclipse. The position is an open one, but slightly sheltered on the north by a low hedge, and the rows run north to south, or nearly so. All the samples are supported by sticks. All have made robust growth in the fairly light, somewhat stony soil, and all may be set down as constitutionally strong, as there was scarcely a vacancy in the ranks to be noticed. But in regard to blooming, William the First certainly led the way, some two or three days in advance of the others; while the remaining four, being much of a type, were in bloom about the same time. It was, however, distressing to note how many of the early blossoms had been destroyed by frost, and not on one row merely, but on all, and on both sides of the row, and even in the



FIG. 149.—*ASPARAGUS DECUMBENS* (PLUMOSUS).

the year 1813. These were the parents of the fine race of show Pansies so popular for a long number of years, and the late Mr. Thompson was well known in conjunction with the Pansy for many years. The plants Mr. Harry Turner sent me are Violas, pure and simple, and show no visible improvement on sorts existing before the battle of Waterloo. I have now growing in my garden the original form of the wild Pansy, and the "up to date" new varieties of our grand fancy Pansies. *W. Dean, Sparkhill, Birmingham.*

PHLOX AMENA.

FOR the past fortnight, this species has been very bright and telling in an elevated position on the rockery, where it grows about 6 inches high, its

as to position, is *Phlox reptans*; it has a lax, creeping, stoloniferous habit, which under favourable conditions soon enables the plant to cover a large space. The flowers are larger, but fewer, than those of *P. amœna*—it is also later in flowering than that species; except in the flowers, the plants have scarcely any other points in common—the leaves in *P. reptans* being twice as large, nearly glabrous, in spatulate obovate pairs, with long internodes. It is often called *stolonifera verna*, sometimes *procumbens*; but the latter is a different plant, rather similar, but more robust, and hardly so good as *P. reptans*. *P. subulata*, the moss pink, has quite an array of synonyms, through the varietal names having in many cases been applied as if of specific rank; whereas the only doubtful specific distinction lies in *P. setacea*, which we think for garden purposes, at least, has about the same differences as *procumbens*

middle of the plants, where one might have supposed they would be sheltered, and what might have proved the earliest pods, are destroyed. So our late frosts at the end of April and through May are, when very sharp, as hurtful to Peas as to fruit blossom. The gardener who sows early in the open, with a view of obtaining an advance crop, has to run the risk of seeing his crop destroyed by frost, and that is the reason why some sort of protection should be provided. The gardener can do this in an enclosed kitchen garden, and when his plantations of Peas cover only a limited space of ground. But the market gardener, who sows acres of ground, and who is naturally anxious to get his Peas into the market as early as possible, must take his chance of the weather.

It must not be thought that in every particular case the Pea-blossom earliest expanded is the first to produce pods fit to pick. I think, so far as my own experience goes, small-podded varieties fill quicker than large ones. But I do think that for a Pea that combines hardihood, earliness, prolificacy, size of pod, and quality, Messrs. Hurst & Son's Selected strain of William the First holds the field, as I have noticed in comprehensive summer trials during the past five or six years. *R. D.*

NURSERY NOTES.

MR. W. BULL'S ORCHID SHOW.

AGAIN Mr. Bull treats the Orchid-loving public to his accustomed display of rare and old species of these beautiful plants. On this occasion the large low show-house in the main range of glass-houses at the King's Road establishment is not the only repository of the plant, and it is less crowded in consequence; but the chief beauties amongst *Odontoglossum crispum* and a few others that are amenable to cool treatment, find a place by themselves in the group of glass-houses on the opposite side of the road. The same holds good of *Miltonia vexillaria* and some others. The main display, on a recent visit, consisted of the showiest examples of each genus which blooms at this season, *Cattleyas* having the predominance, perhaps, in numbers, as they certainly have in colour. Among those of the *gigas* section was *C. g. Sanderiana*, and amongst *C. Mendeli gigantea*, *C. M. ornata*, and *C. M. princeps*. These were grand flowers, with glowing colour and richly decorated labellum. Of *C. Mossie* mention may be made of the high-coloured *flammea*, *C. M. princeps*, and *C. M. rubra*. The delicately-coloured *C. Schroderæ* was observed in bloom in several examples, as also many *C. Warneri* (*labiata*).

Some nice bits of *Cœlogyne speciosa major*, cream and buff, were found in hanging-pots. *Cypripediums* of the *barbatum* type, consisting of improved forms generally, were numerously represented; *C. b. grandiflorum*, *C. b. purpureum*, and *C. b. Warneri* being especially pretty forms, in which the lip is large, and richly-coloured. *Cypripediums Hookeri*, *Curtisi*, and forms of *caudatum*, *bellatulum*, *niveum*, *selligerum*, and the large variety of it, *Stonei*, and *superciliare*, were numerous, forming good foils to the more glowing-coloured Orchids.

Dendrobiums with yellow flowers are generally considered pleasing complements to the rich purples, the mauves, and whites of other species. We may mention *chrysotoxum*, the bright orange-coloured *clavatum*, the beautifully-fringed *Brymerianum*, and the lemon-coloured *Dalhousieanum*. *D. Dearei*, a most enduring flower, was observed in several examples, with very fine white flowers, some quite 3 inches across, the fine summer bloomer, whose flowers are also white, except the lip, which is of a cinnamon-red tint; and *D. transparens*, were likewise noted. Here and there were placed small groups of *Epidendrum vitellinum* and *E. v. majus*, bright, free, and glowing; *E. Wallisi*, tall of stem, and with racemes of flowers of rich golden colour, spotted with carmine, the lip white, with radiating lines of red-purple. A very strong piece of *Lycaste Skinneri alba* was observed. Many *Aërides*, including *crispum*, *Fiel-*

dingi, *Houlettianum*, *suavissimum*, and *Lobbi*; and the modest *Angræcum Leonis*, and *A. Scottianum* from Comoro Island. The new introductions from *Zambesia*, *Ansellia humilis*, and *A. h. pallida* were in bloom. The habit of these plants is dwarf and compact, and they are very floriferous, the flowers 2 inches in diameter, lemon - yellow blotched and barred with brownish-crimson; the ground-colour in the variety is French white. *Anguloas* were many, and nicely flowered. The singular-looking *Brassia Keiliana*, with sepals and petals of yellow, which turn with age to a brownish orange, and a white lip, was seen in its many-flowered racemes. It is a good thing, and will grow in the *Cattleya*-house. Other *Brassias* were noted, amongst them *verrucosa*. A plant of *Brassavola Digbyana* had several open blossoms; as also *Calanthe Textorei*, with white and rose-coloured blooms. *Cymbidium*s, always well-done at Mr. Bull's, had many of *C. eburneum* to show in good bloom.

Of fine varieties of *Lælia purpurata*, note should be taken of such as *alba gloriosa*, *L. atropurpurea*, *L. atrosanguinea*, and the light-coloured *L. Russeliana*.

Masdevallias are well grown, and they mostly stand in the houses in which they have been growing—an instructive manner of showing these plants. Numbers of the *Harryana* varieties, with their large glowing flowers and tall scapes, were arranged by themselves—a goodly number, and well in bloom. Opposite to these were the smaller curiously-formed *M. Chimera*, *M. C. Wallisi*, *M. C. gigantea*, and *M. demissa*. The finest *M. Harryana* were *cœrulescens* and its varieties, of superb colour and size; *M. H. regalis*, *M. H. rosacea*, *M. H. sanguinea*, *M. H. violacea*. *M. ionocharis*, *rosea*, *Shuttleworthi*, and *Wagneriana* are minute-flowered *Masdevallias* that were in all cases full of their curiously-formed flowers.

The *Odontoglossum crispum* previously mentioned as occupying their growing quarters, are alone worth going a long way to see; poor-flowered varieties are excluded, so that the visitor sees only the best. Besides these, are the following:—*O. Andersonianum*, *O. aspersum*, *O. baphicanthum*, and *O. Chestertoni*, hybrids; numerous *O. citrosmums*, including some with decided buff sepals and petals; *O. Conradinei*, *O. cordatum*, *O. c. Kienastianum*, *O. cristatellum*, &c. *O. maculatum* and its variety triumphans, are well done here, and many plants in bud and flower were noted. The *Miltonia vexillaria*, some of great beauty, and in much variety, were placed by themselves, thus affording ready means of comparing them.

From the above it will be perceived that at this nursery the Orchid fancier has a great treat afforded him, in the numerous species and varieties brought under his notice within a small area.

THE BULB GARDEN.

THE COTTAGER'S GARDENIA.

THE cottager in the country has a very good substitute for the more expensive and exclusive *Gardenia floribunda* in *Narcissus poeticus flore pleno*, the flowers of which closely resemble those of the *Gardenia* in form, size, and fragrance; and not only is this variety of *Narcissus* a valued plant in his garden, but it is one that the best gardens can hardly do without. The only difficulty that is found with it is in getting the flowers to open, for although these may look well up to a certain stage, many of them, from some unknown cause or other, refuse to open—become blind, in garden parlance. It is quite likely, however, that the frost has a good deal to do with the matter; as every one knows that the frost of May 17 was one of unusual severity for so late a period of the year, and this year I have a larger percentage of blind blooms than I ever remember to have had before. My own opinion, however, hitherto has been that dryness at the root was the cause, as I have always noticed that the flowers never open so well as they do when we have warm showery weather, and that if we get strong sun with aridity for a day

or two, they fade away at once. Our soil is light and favourable to the *Narcissus*, and in some seasons they are very fine, but we never lift or disturb the bulbs or allow the tops to be interfered with till they die away naturally. This, I consider, is one of the most important matters in connection with this kind of *Narcissus*, and not only with it, but all other bulbous plants, as the longer the foliage is healthy and remains on, the better they grow and mature.

LILIUM LONGIFLORUM VAR. HARRISII.

As yet I have no experience outdoors with this, the most lovely of all white Lilies, and shall be glad to hear if it is sufficiently hardy for planting out and leaving during the winter, for if so it will be an acquisition in gardens. As a pot plant it is invaluable, and being imported from different countries, and coming at different months, it may be had in bloom very early and late. Its one and only great drawback is its liability to be infested with aphids. *J. Sheppard, Woolverstone Park, Ipswich.* [We tried a few bulbs out-of-doors one autumn: we saw a few leaves in spring, and then—*Ed.*]

FORESTRY.

SEASONABLE WORK.

ABOUT the second week of June, the seeds of the Scotch or Wych Elm (*Ulmus montana*) are generally matured, and should then be collected and sown at once on light friable soil formed into nursery beds about 4 feet wide. The ground should be in good order, and well worked with the spade and rake to render it friable and free from clods. The seed should be sown broadcast, and in such a thickness as is consistent with its quality, which varies, sometimes to a large extent, according to the season and the locality where it has been produced. As the seed, however, is not expensive, it is best to err on the safe side, and sow rather thickly, and should the plants be crowded, they can be easily thinned in the course of weeding the beds. As a general rule, the plants should stand in the seed-bed about 2 inches apart, which will give space necessary for the formation of stout stocky plants. The seed should be covered with fine sandy soil to the depth of half an inch, and should dry weather continue for a time the beds should be occasionally watered, and shaded with evergreen boughs. In the course of some six or eight days the plants begin to appear generally, when the shading must be removed. When the plants have matured their growth in autumn, and where they are too crowded in the seed-bed, they may be thinned by loosening them with a steel fork, and pulling up the largest plants and planting them in nursery lines about 6 inches apart, and some 16 or 18 inches between the lines. By this method, the smaller plants left in the seed-bed will have plenty of space to grow, and may therefore be allowed to remain another summer before removal to the nursery lines. After the plants have been two years in the nursery lines, they are then generally in good condition for planting out where they are to remain, but if allowed to remain in the nursery for a longer period of time without being moved, they are apt to produce long bare roots, which is against their success when planted out. During the nursery career of the plants, the beds should be kept free of weeds, and the surface of the ground occasionally broken up with a hoe and rake, to admit air and promote their growth. The plants are sometimes apt to produce strong rambling side branches; these should be stopped or cut back as may seem desirable, and double leaders reduced to one, in order to form a well-balanced head and a single stem. Sometimes the seed of the Scotch Elm is collected in fine dry weather, and when thoroughly dry it is stowed away in a dry airy loft till early spring, when it is sown in nursery seed-beds.

When the fruit of *Berberis japonica* is ripe, collect the berries, extract the seed, and sow at once on soft friable soil, rich in organic matter; cover lightly

with fine sandy soil, and finish by slightly pressing the soil on the surface of the seed-bed with the back of a spade. Should dry weather set in after the seed is sown, an occasional watering will prove beneficial. When the plants appear above-ground, they should be kept free of weeds, and the hard crust between the plants broken up with a wooden peg. During the first winter, the plants in the seed-bed should be covered with evergreen branches, as a protection against the inclemency of the weather. In the month of April they may then be removed from the seed bed, and planted in nursery rows, a few inches apart, and from 12 to 14 inches between the rows. When bushy plants are wanted for game covert, or other purposes, the young plants should be cut over with a sharp pruning knife a little above the base of the stem, by which means they will be induced to throw up several stems from the base, and form bushes. When this precaution is neglected, the plants are apt to grow up with long bare stems, which lessens their value to a large extent, both for covert purposes and for ornament. *Berberis Darwini* may be treated in a similar manner, with this exception, that on soft boggy ground, it reproduces itself on the spot without any trouble whatever, further than protecting the young plants from the risk of being eaten by hares and rabbits. My plan has been to plant a group of these plants in soft mossy ground, and have them fenced with wire-netting, and when they become established and produce flowers and fruit, the berries when they become ripe fall to the ground of their own accord and get mixed with the surface soil, and in due time vegetate and produce fine plants; the largest sizes of which I have generally lifted in the month of April, and planted in nursery lines, and treated them in a similar manner to *B. japonica*. In order to produce sturdy plants, both kinds should be frequently transplanted during their nursery career to promote the formation of stems and fibrous roots, which enhances the value of the plants very much when finally planted out. After this propagating-ground was established for *Berberis Darwini*, I found that I could get a large supply of plants from the same patch every spring for a series of years. Both kinds throw up the strongest suckers from the base of the stem after being one year in the nursery lines, and before being cut down. *J. B. Webster.*

SANDRINGHAM.

[SEE SUPPLEMENTARY ILLUSTRATIONS.]

NORFOLK can boast of some of the best preserved and most typical old English houses, such as the moated granges of Hunstanton and Oxburgh, the mediæval Blickling, and the Tudor Felbrigg. It contains also three "show-places" in Holkham, perhaps the finest place for trees in England; Houghton, so famous for its associations with the Walpoles; and the subject of our present sketch. The name of Sandringham is Danish, and is a living tangible proof of an old-time Viking settlement there. Is it not in accordance, therefore, with the eternal fitness of things, that it should be the scene of another, most different, and welcome, Danish invasion and conquest? The Laureate's words, in his poem of welcome, published in 1863, to the Viking's daughter, as happy as fair—

"Bride of the heir of the kings of the sea,
Oh, joy to the people, and joy to the throne,
Come to us, love us, and make us your own,"

have been fulfilled. For the conquest of the hearts of all English folk was speedy, and the bondage, aye, endures.

The purchase of Sandringham by "Pam" for £220,000 was very much criticised at the time. It was generally thought it was not a suitable place for a royal residence. The detractors have been proved wrong, but it has only been so by an enormous additional expenditure of capital. The original idea was probably to use the place only as a sporting estate, and so the first building erected was the Bachelor's Cottage, a house for the sleeping accommodation of visitors. This necessitated cutting a drive to con-

nect it with the mansion, and the draining of a stagnant pond. The broad walk thus made has now become one of the features of the precincts. It is lined on one side by a line of *Abies nobilis* at regular distances, while the intervening spaces are filled up with choice shrubs. In a low-lying meadow, in front of the cottage, were planted a row of Wellingtonias, which have grown up to be magnificent trees, and the old stream, a whilom haunt of scarce wild flowers, has been metamorphosed into a rock-girt ruinel, meandering between mossy sloping lawns. This transformation of the stream has been very prettily done, as has all the landscape water-work. Indeed were it not for the beauty of the outline of the lake, the grounds would be commonplace. Close by are the kennels, which are extremely well appointed.

The next thing that required to be done, when His Royal Highness bought the estate, was the setting in order of the woods, which had been very much neglected, and the planting of the waste ground. The woods are about 800 acres in extent. To get everything in a good state quickly was the main object, therefore 150 men were set to work, and as the then bailiff, forester, and gardener, Mr. Carmichael, anticipated the times that be, by giving 12s. a week wages, when the farmers were only giving 9s., his name still remains a pass-word in the local labourer's parlance. The former plantations and covers were cleared, and a huge quantity of *Rhododendrons*, *Laurels*, *Yews*, *Box*, and *Privet* were planted, and the rides, where there was any exposure to the sun, were lined with *Berberis aquifolia*, the berries of which the pheasants enjoy. The 400 acres of waste land covered with heather and gorse, were next studded with plantations. For this purpose the ground was trenched 2 feet deep, and planted with clumps of Scotch, Larch, and Spruce, with a row of Austrian Pines outside for shelter, and a great number of Douglas Firs at fixed distances. The pheasants are very partial to the latter tree to roost in, as it is very dense and not so prickly as many others of the same tribe. Long belts of the Corsican Pine, *Pinus Laricio*, were also planted. It is a more rapid growing tree than the Scotch Fir, and the rabbits will not touch it if they can get anything else. The fencing to keep these voracious rodents from the new plantations was, of course, a great undertaking, but it was successfully done by an inexpensive and simple fence of Larch poles. The results which have attended all the planting that has been done on the estate are, perhaps, best seen during the drive from Wolverton station to the house. Mr. Carmichael seems to have been endued with a prescience with regard to what would succeed on the estate, for in addition to Corsican and Austrian Pines, and the Larch, he planted an enormous number of Birch, which have grown even as rapidly as the Larch. The plantations are in a most thriving state, and the different hues of the foliage give a most enthralling effect, especially in the merry month of May. Twenty-five years ago the ground was nothing more than a bare wind-swept upland, a waste of warrens and swamps, and it must be a great pleasure to the Prince every time he makes the drive to reflect how well spent the money has been. Indeed, the great charm of Sandringham to him and the Princess, and it undoubtedly has a great hold upon them, must be the fact that it has grown up to its present beauty entirely under their own eyes and fostering care. Having entered so fully into the matter of the plantations, the belts for partridge driving must not be left unnoticed, adding as they do a great attraction to the outlying portions of the property. They were planned by the late General Hall, and extend for miles. The breadth of each belt is 8 feet, and four rows of trees were planted, principally Scotch Fir. These are also in a most thriving condition, and their long darkling serried line looms grandly against the sky. The long grass growing between the trees is a very favourite nesting ground for the birds.

In the month of February, 1864, the Princess of Wales, who already was beginning to look upon Sandringham as a home, desired that a kitchen garden

should be formed, for as yet there was no such thing. A fifteen-acre field of Swedes, at a convenient distance from the house, was chosen as a site. The tenant was immediately given notice to quit, and to remove his Turnips. A great number of men were set to work, and in the following November the Prince returned to find a fully-cropped and flourishing kitchen garden. Seven acres were enclosed by a wall, 14 feet high, coped with Arbroath paving-stone, and the remaining 8 acres outside were also put under cultivation. The fruit trees were not planted by the sides of the walks, but in rows from north to south, 60 feet apart, an 8-feet border being allowed for the trees. A carriage-drive, 15 feet wide, was made inside the walls, by the Princess's wish, in order that she might drive her greys round. At the further end of the garden was a piece of ground, on a higher level, composed of red marl over a substratum of chalk. By the advice of Canon Kingsley, the red marl was carted into the garden to mix with the sandy soil there, while the chalk was used to form a bottom for the drives. As a layer of flints was also rolled in, the roads are always in splendid condition, the soil of the garden at the same time being greatly benefited. The vineries, greenhouses, and the other glasshouses, are now undergoing such great alterations, that any detailed notice of them had best be postponed. The old Pine pits, for which Sandringham was formerly famous, have been, however, turned into houses for the growth of cut flowers and decorative plants, the demand for which, owing to the modern craze for floral decoration, is insatiable in such a place as Sandringham. Near the gardener's cottage, under the lee of a high wood, are growing some very promising specimen Conifers; *Pinus excelsa* and the *Deodar* particularly seem to revel in the soil and situation.

The hall is built on the site of a previous building. The situation is a low one, and was most probably chosen because of the short avenue of old Limes, which serves as an approach. The gates at the lodge are the gift of the county, and were exhibited at the 1862 exhibition. They are of wrought-iron, and acknowledged to be a masterpiece of delicate execution and craftsmanship. Running parallel with the avenue is a broad walk—a continuation of the terrace-walk—with lawn on either side, and a series of Conifers planted by distinguished visitors. At the head of it is a Chinese Joss House, idol and all complete, which was presented to the Prince by Admiral Keppel. The park wall is hidden by a dense shrubbery, and other shrubberies incurve gracefully into the lawn, and furnish a charming *tout ensemble*. Great forethought is shown in the planting and designing. The paths here all circle round to a shaded walk, leading to the handsome church in perpendicular style, where many leading divines, guests of His Royal Highness, have preached, and which is but a short distance away in the park. In front of the main entrance is a wide gravelled expanse, bounded by a strip of park-land, supporting some fine old trees. On the south side, is a broad terrace walk the whole length of the house, from which a view of the undulating grounds and the lovely lake can be obtained. As most of the undulations are artificial, and the lake is almost entirely so, one naturally scans the scene rather critically. A longer view of the lake only confirms the first impression—that nothing could have been planned more in unison with the place, or prettier in general effect. The mistake made at Studley Royal and other places, of following any definite curve, has been avoided. In fact, considering how limited the ground at the disposal of the landscape gardener was, the lake is quite worthy to be mentioned in the same breath with the beautiful lake in the Parc des Buttes Chaumont, at Paris, than which no prettier piece of artificial ornamental water-work is to be seen anywhere.

The Italian flower garden, although some may regard it as an attempt to snatch a grace beyond the rules of art, gives a glow of colour in the summer and autumn that harmonises well with the serene of

trimness given by the sloping shaven grassy banks of the terrace. The plan was originally furnished by the Duchess of Teck, and is very like the design at Kensington Palace. A stroll round the lake will reveal all the various details that go to make up its picturesque *ensemble*. Rock-work has been arranged, so as to seem to be outcropping naturally from the soil; and a cavernous grotto, made to look as if cut out by the water, serves as a boat-house. Groups of shrubs and water-loving trees are placed for effect at the salient angles and at the foot, while a small woody islet looks like a tangled thicket. There is also a plashing cascade, and a rock garden. At the end furthest from the house the water seems to enter by a rock-hindered stream. The grounds about the park, which, notwithstanding its comparatively small acreage, seems to stretch away indefinitely. In it there is excellent grazing-ground for fallow and red deer, with cozy dells shaded by old Oaks and Scotch Firs to shelter them.

Although the grounds are so pretty and so interesting, because formed under conditions unpossessing and limited in area, yet the great charm of the estate lies in the thoughtful beneficent care that is shown for the housing and welfare of the employes. The three villages on the estate—Babingley, West Newton, and Dersingham—when the Prince acquired the property, were types of the primitive Norfolk village, so well described in Dr. Jessop's *Arcadia*. The houses were tumble-down hovels, and the farm labourers, who only received, as aforesaid, 9s. a week, could not read or write, and had all sense of self-respect crushed out of them. Now everything has suffered a change, and West Newton will challenge comparison with any model village in this or any other country. The cottages are so substantial and nice, and set amid such bright gardens, that anyone of moderate means quite envies the occupiers their happy lot. The church has been elaborately restored, a canteen, reading-room, and library erected, many miles of new road opened, and the common stretching towards Babingley has been entirely changed in appearance, and made beautiful by extensive plantations. A tall tower for the supply of water has been erected, and also a cottage hospital at Babingley. It is small wonder that whenever the Princess drives her ponies through the village, that a cordial "God bless her" is murmured with every deep curtsy from the mothers and the red-cloaked school-girls. The village folk all believe that the psalmist wrote in his haste, like another oft-quoted aphorism, "Put not your trust in princes." Wolverton Church and village also are extremely well ordered, as, indeed, a village ought to be where the Convallaria is found wild. A hackney stud has been established here for the benefit of the tenants, to which every one will wish success. If socialists like Tom Mann, and theorists like Mr. Dyke Acland, had seen, like the present writer, the changes for the better that have been wrought from pure good will in these villages, they would be less sure of their cry, "Perish the land system." The Prince of Wales' example in this matter has been, and is being followed by a great number of other landowners. What better system forsooth that will work in this world, where self-interest is such an abiding principle, can they put in its place? Fundamentally the problem resembles a great many other moral and social questions; if people were more moral, a great many things might be possible. *Vagabond*.

ROSES.

INDOOR CLIMBING ROSES.

THERE are many plants of *Maréchal Niel* to be found in greenhouses, but not always in the best position there. Although it is a most valuable flower to the gardener, I think that for general usefulness none exceed *Niphetos* and *Gloire de Dijon*, when well established in a good position, a buoyant,

kinds flower nearly the whole year, whereas *Maréchal Niel* flowers really well but once. We have an example of *Niphetos* which commenced to flower at Christmas, and from which we have cut 500 blooms (I kept a record last season), and it is still blooming abundantly. *Gloire de Dijon* has also been in flower for about the same period, and continues to grow and flower. There are no other Roses which flower so continuously as these two, when planted so that they may ramble over the roof or end of a greenhouse. We have them so planted, and *Maréchal* in one corner. Catherine Mermet is another beautiful Rose, which, planted out, flowers profusely for a long time. W. A. Richardson is a pretty Rose in the bud, but when planted out it makes too much growth, and too few flowers; on outside walls it does better. *W. A. Cook*, *Compton Gardens*.

TREES AND SHRUBS.

CRINODENDRON HOOKERIANUM.

THIS is a very pretty flowering shrub, introduced by Messrs. Veitch & Son. An inmate of the cool greenhouse, it is evergreen, and bears a quantity of stout waxy flowers from the axils of the leaves. The flowers droop gracefully, and are of the same colour as those of *Lapageria rosea*. Like the *Eucryphia pinnatifolia*, it is a native of a somewhat warmer part of Chili, hence its need of a little greenhouse protection to secure healthy growth. The soil required for it is a mixture of peat and loam, with some sharp sand to keep the whole porous. *A. P.*

WEIGELA ABEL CARRIÈRE.

Weigelas are among the handsomest of early summer-flowering shrubs, and none that we have seen can compare with the above for its bold, numerous, deep carmine-coloured blooms. A short row of this variety growing at Mr. Bull's nursery at the foot of a fence puts all the neighbouring plants of other varieties completely in the shade.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

CUCUMBERS.—Some amount of hard firing during the dull days was rendered necessary, and close attention must be paid the plants to destroy aphides, thrips, &c., and old plants which have borne fruit for a long time may be replaced with new ones, in case they are badly infested. Where the plants cannot be spared, a large portion of the old foliage should be removed, and the remainder washed with some kind of insecticide, afterwards syringing them with tepid water, in which flowers-of-sulphur have been mixed, top-dressing the beds with loam and spent Mushroom manure. Fasten to the trellis all strong young wood; maintain in the house a moist atmosphere, and shade the plants when the thermometer reaches 90° to 95°. Ventilate with care in dull weather. Pits and frames containing Cucumber plants should be covered at night, so as to maintain warmth. If canker appears on the stems, apply fresh slaked lime and wood-ashes to the affected parts; crop lightly, thin out the superabundant foliage, and be careful not to water too freely. Seeds of Cucumbers should be sown at intervals of three or four weeks, if a large supply is required.

TOMATOS.—My early plants have got badly mildewed of late, and it has been found necessary to go over them and remove what mildewed foliage could be spared, and dusting the remainder with flowers-of-sulphur; and in the case of plants badly attacked, I have used finely-powdered charcoal and sulphur with advantage freely dusted over the parts, and keeping the plants rather dry. Tomato plants are afforded generally too much water, and when that is the case, it is impossible to check mildew, especially if the house is kept moist for the sake of other plants that may be in it. I have not yet used any of the remedies lately recommended, our plants only suffering from mildew; but I would not hesitate if the *Peronospora* set in badly—but in the case of mildew, a buoyant,

warm air with less moisture afforded soon gets rid of it. Cordons in pots should have the shoots stopped, and be freely exposed to the light, and those for late fruiting should be repotted. Seed may be sown for autumn crops, and to keep up the supply till the early part of the winter. The seeds may be sown in cold frames, and the plants thus raised not forced on rapidly, but given free exposure.

BANANAS.—These fruits, although not commonly grown, are valued for the dessert when they are fully ripe and freshly gathered. Any plants which grew freely last season should be showing fruit. If the plants are far away from the light, they will need to have the bunch of fruit as freely exposed to the sun as possible, even if some of the leaves have to be removed to do this. The Banana at this stage wants much water and some manure at the root, the kind of manure being changed occasionally. I find fish manure and guano excellent for them, a good watering being afforded after applying the manure—a mulch of fresh cow-dung, with a little fine dry loam sprinkled over it to remove the odour. All suckers not needed for stock should be removed from plants in bearing. No young plants should be planted in soured soil. *G. Wythes*, *Syon House, Brentford*.

THE KITCHEN GARDEN.

CELERY.—The trenches being now in readiness for planting the main crop, if the plants are large enough, they may be put out, choosing showery weather for the job. The plants should be well watered previous to being planted, unless the weather is showery, and as much soil as possible kept about the roots. The best time to plant is the afternoon, and the trenches should be watered soon after planting. If the plants are likely to flag, shade may be afforded them. The work should be well done; no more plants lifted at one time than the men can plant and water in half an hour. After planting, dust over the plants lightly with soot and fine wood-ashes. Pea-sticks laid across the trenches will give sufficient shade, and they are no hindrance to watering. Freshly-made trenches should have the manure and soil well trodden before being planted.

LEeks.—The main crop may be planted out on the flat in well-tilled land, but where the land is light, the crop should be grown in trenches prepared as for Celery. To grow large Leeks in strong ground, they should be quite 1 foot apart in the rows, and the rows 3 feet apart; but for small useful roots, 6 inches apart will suffice if the plants are to be lifted from the seed-beds. Give these beds a thorough watering before taking up the plants unless the soil is already moistened by rain, when it may be omitted. Shorten the leaves a little, and, as with all other transplanted, pricked-out plants keep as much soil about them as possible, and put the plant in as deep as the base of the leaves, and close the earth in carefully without pressure; water liberally in dry weather, and occasionally hoe between the rows. Where the soil is heavy, work into it a quantity of good leaf-mould, road-grit, or burnt earth, and put in the plants on the level, moulding up the stems as growth advances.

ONIONS.—The spring-sown beds should receive the final thinning. The best Onions to keep are those of moderate size if perfectly ripened, and to obtain such the thinning should not be too severe; but if large bulbs are required, 9 inches apart in the rows is not too much, and the land should have frequent applications of manure-water in dry weather. Those Onions which were early planted may be mulched with a layer one inch thick of rotted cow-stable manure, or spent Mushroom-bed stuff, affording water, and occasionally liquid manure water, in dry times. Autumn-sown Onions, Shallots, and Garlic will be greatly benefited if well supplied with manure-water, or guano in fine powder sprinkled between the rows, and hoed in during showery weather, or well watered in if the weather be dry before drawing the plants, and well watered after they are planted.

KALES, SPROUTING BROCCOLI, ETC., should be planted in open quarters by themselves where ground can be spared, or they may be planted between the rows of Potatoes, planting between each alternate row, so that the haulm of the Potatoes may be laid in the unplanted row; by planting thus the plants receive more light and air, and make a more sturdy growth. After the Potatoes are dug, the

space between each two rows of plants may be filled up with Cabbage or Colewort plants. If the ground produces clubbing, wood ashes will be found of great service, putting a good portion round the roots of each plant when withdrawing the dibber, or the plants may have their roots dipped in a puddle made of soot, wood-ashes, and cow-manure. The Early Elm and Gilbert's Universal needs not more than 15 inches from plant to plant each way, but the Drumhead Savoy should be allowed as much as 2 feet if the sand is rich where they are planted.

BROAD BEANS.—To assist them in podding, should have their tops cut off when the earlier flowers have set, and the pods are commencing to swell. In light soils a mulch may be put on alongside the row. This will greatly improve the crop.

FRENCH BEANS.—Sow more seed, and earth-up early-sown plants, supporting them, if tall, with twigs or strands of soft string stretched along the rows, supported at intervals. *C. J. Waite, Glenhurst, Esher.*

THE ORCHID HOUSES.

THE COOL-HOUSES.—Some difficulty will be experienced in keeping aphids in check on flowers and spikes of *Odontoglossum crispum*, but if a careful watch be kept no harm will be done. The best way to remove aphids is to get a bucketful of strong soapy water, and hold the spike of flowers above the surface of the water and gently brush off the insects into it; any with buds not much advanced will be the better if the whole spike is dipped, the fingers being passed along from base to point so as to more effectually clear off the insects—always rinse the plants in clear soft water soon afterwards. Plants which are throwing up growths are sure now to become a prey to aphids, and these plants should be examined every morning; my own practice is to pass the young foliage between the thumb and finger, crushing the aphids—the plants being syringed afterwards. *Oncidium Marshallianum* is very subject to attacks of thrips unless grown in a cool-house, as it should be. I have in a previous Calendar mentioned the best mode of growing this plant; it only remains to say that it should at this season be kept clean, and syringed overhead at least three times a day whilst warm weather continues. Should the plants be allowed to get dry, new growth is apt to start away again at the base of the imperfectly-finished growth of the present year, to the injury of the plant for an indefinite period. *Oncidium macranthum* is, perhaps, for all purposes, the pick of the whole genus; the plant is handsome in leaf and flower, and a free grower, but it must be kept in the coolest part of the house, and if possible near the door, which may be left open when the thermometer outside registers 40°. Thrips are its worst enemies, and when it is grown too warm, they are sure to make their presence apparent by the discoloration of the foliage; the plants, too, soon lose the green colour so characteristic of them when in health.

INTERMEDIATE-HOUSE.—*Coelogyne cristata* is, perhaps, the best amateurs' Orchid for winter flowering. The plants are now making growth, and the grower's endeavour should be to make that growth strong, as on this will depend the number of flowers on a spike. *Coelogyne* require nutritious soil, and if they are potted in the compost given in a previous Calendar, they may safely have manure afforded in liquid form twice a week, guano being one of the best forms of it. Inexperienced growers of the white var., *C. hololeuca* may feel distressed at the manner in which the bulbs shrivel up after flowering, but they need not be apprehensive, and no water must be given. The appearance is quite natural, and the plant does not really suffer, and it is, perhaps, the best grower of the genus. *A. G. Catt, Parkfield, Hallow.*

THE FLOWER GARDEN.

THE MANAGEMENT OF BEDDING PLANTS.—In order to induce the plants to make growth, and thereby cover the space allotted to them quickly, all flowers showing for the next few weeks should be persistently removed, and with the same object in view, the surface of the soil in which the plants are growing should be deeply stirred a few times with the Dutch hoe during the next three or four weeks, which will, in addition to accelerating the growth of the plants, destroy weeds. Trailing plants,

and those of straggling habit of growth, as *Verbenas*, *Petunias*, *Heliotropes*, and *Calceolaria amplexicaulis*, should be spread out and pegged down to prevent their getting broken by the wind. Put supports to *Dahlias* and *Hollyhocks*, allowing sufficient space in the ties for growth, and at the same time reduce the number of stems of the last-named plants to two only, in the case of strong well-established plants, and to one stem in the case of weaker plants, retaining the strongest, as a matter of course. If not already done, plant a groundwork of silvery-leaved *Sedum* in beds planted with tuberous-rooted *Begonias*. Small tufts put in at 3 inches apart will soon cover the ground, and thereby prevent the flowers being splashed by heavy rain. The *Sedum* also contrasts most effectively with the large green foliage and bright and various coloured flowers of the *Begonias*.

HERBACEOUS BORDERS.—*Aquilegias*, *Hemerocallis*, *Pyrethrums*, *Pæonies*, *Delphiniums*, &c., are now rendering a good account of themselves in many out-of-the-way borders and beds, as well as in the borders on either side the central walks in kitchen gardens usually devoted to the culture of these and other showy and useful flowers of the same class. The only attention required in this department during the next two weeks will be to keep the beds and borders clean, and the plants needing support tied up as occasion arises, and to remove all decayed flowers and leaves at short intervals.

ROSES.—The present is a busy and anxious month with rosarians. Where fine solid blooms are aimed at, all but one—the leading or crown bud—on each shoot should be removed as soon as fairly well formed, so as to throw the strength of the plant into those which are left, and all shoots and suckers springing from the stems and roots of standard trees should be rubbed off and pulled up as soon as they appear. In the case of limited collections, the flowering period may be considerably extended by leaving two or three sizes of buds to form the crop in thinning, doing this at intervals of a few days. Climbing Roses should be attended to in the way of thinning out weak or superfluous shoots, and securing those left in position on walls, rustic poles, arches, &c.

RHODODENDRONS.—As these showy shrubs go out of flower, the seed-pods should be cut off, to enable the plants to make free growth, which would hardly occur if they were exhausted by great seed production. Cut into shape any straggling or overgrown plants, which may usually be performed in such a way as not to spoil the appearance of the plants, the young growths soon hiding the wounded branches. The same remark applies to such shrubs as *Weigelas*, *Syringas*, *Brooms*, *Berberries*, *Laburnums*, and *Lauristinus*.

GENERAL WORK.—Mowing, cutting the edges of turf, brushing, weeding and rolling the walks, are the order of the day; and grass-mowing having usually got somewhat behind, owing to the pressure involved in bedding-out, may now be got well in hand again. *H. W. Ward, Longford Castle, Salisbury.*

THE HARDY FRUIT GARDEN.

PEACH AND NECTARINE TREES.—These trees will be growing fast, and the shoots must be laid in that are wanted for the proper furnishing of the trees from top to bottom with fruiting wood, and laid in thinly. Employ the garden engine daily, so as to keep the foliage clear of the green and black-fly, which the cold winds and chilly nights favoured in development, and which could not be got rid of till the bloom was set. Where the engine cannot be employed, a few washings with *Quassia*-water and the syringe will destroy them. Red-spider may be got rid of by the free use of water driven against the foliage from opposite directions. The fruit has set very plentifully, and thinning has to be timely carried out. In thinning the fruits, do so more freely over weak trees and on parts of trees that are deficient in vigour, and always leave the best-placed and finest fruits. Young trees, when they are making unsatisfactory growth, should not be allowed to carry more than one or two fruits.

STRAWBERRIES.—Where forced plants are planted out after fruiting, no time should be lost in getting this work performed, first dipping the foliage in a weak solution of Gishurst compound soap, or soft-soap and sulphur, as a means of stopping mildew and

red-spider. Reduce the balls slightly, moisten them, and plant firmly, but not ramming the soil about them if it be heavy. On light land, a mulch is of benefit.

GOOSEBERRIES.—Bushes of dessert kinds should be mulched with strawy manure; also red and white Currants, placing the mulch close up to the stems. Dessert fruits should always be kept in a quarter by themselves, so that they may be netted up from the birds. Those fastened to trellises should be neatly tied in, and suckers not required for training up must be grubbed out. *H. Markham, Mereworth Castle, Maidstone.*

PLANTS UNDER GLASS.

WINTER-FLOWERING STOVE PLANTS.—Most of the different kinds of winter-flowering stove plants should at this date be put into the pots in which they are intended to flower, as, by potting the plants at this time, the wood will become perfectly matured before autumn arrives, and without which it is impossible for the plants to bloom satisfactorily. Guard against giving larger shifts than are necessary to carry the plants well on to the flowering season, any assistance at the proper time being afforded by the use of liquid manure. Avoid the application of manures, except to very gross-feeding plants, before the soil has become full of roots, and then as a top-dressing only.

SCUTELLARIA MOCINIANA.—Plants struck in the spring should be shifted into 48's or 32's according to strength, making use of a compost consisting of fibrous loam, leaf mould, a small quantity of rotten manure, and sufficient sand to keep the mass porous. As the plant is a free bloomer, it should not be stinted for root space, but shifted as soon as the roots have fairly well filled the soil; also stop the shoots occasionally, to induce the formation of laterals.

THYSANOCANTHUS RUTILANS.—Spring-struck plants, now in small pots, may be shifted into large or small 32's, making use of the above compost. Cut back old plants, if in a vigorous state, may require pots of 12 inches in diameter. Drain the pots well, and see that the soil is free from worms. Do not stop the plants too often, as they will not form good bushes under this kind of manipulation.

ERANTHEMUM PULCHELLUM.—Young stock of this useful plant, which may be standing in 32's, should be shifted into 24's, and if a portion of this stock of plants be required to bloom late, these may have their shoots stopped once more. Plants which bloomed last year, and were cut back, are those that will be found the most suitable for producing early blooms, and if they are vigorous, they may be shifted into 10 or 12-inch pots.

PLUMBAGO ROSEA.—Plants which may have been struck this season will require to be shifted into 32's, and should the plants not be sufficiently well furnished with stems, they may be stopped once more. Allow them as much light as possible from the time the cuttings are struck until they come into flower. All of the above-mentioned plants will do better in low, heated pits than in the stove proper, and they should be well syringed morning and afternoon, shutting up the structure about 3.30 P.M.

WINTER-FLOWERING BEGONIAS.—Supposing that the younger portion of the stock of these plants is still in small pots, it is now time to afford them a shift into 6 and 7-inch pots, according to their strength, which should be the final one. A good compost for these fibrous-rooted species is one that consists of three-parts good fibrous loam, one of leaf-mould and sharp sand; and be careful in making the drainage good, and making the soil firm when repotting the plants. Should the shoots be few in number, it will be advisable to pinch them back once more after they have become established—but this should not be done later than the end of July. A low pit or frame, with a trifling amount of bottom-heat, and standing the plants on a coal-ash floor, wide enough apart for the sun to reach every part of the plant, is a very suitable place for these *Begonias*. Shade in the hottest part of the day, only for two or three hours, and only during bright sunshine. *Begonia* leaves do not burn readily, but full exposure makes them of an unpleasant red colour sometimes. *R. Milner, Penrice Castle, Swansea.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, and sent as early in the week as possible.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

PLANTS, &c., TO BE NAMED.—Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JUNE 23.—Royal Horticultural Society: Committee, and Lecture on Tea Roses, and Annual Dinner.
SATURDAY, JUNE 27.—Royal Botanic Society: General.

SHOWS.

TUESDAY, JUNE 23.—National Rose Society' Show of Tea Roses.
WEDNESDAY, JUNE 24.—Royal Aquarium: National Pink Society (two days).
Torquay (two days).
Richmond.
THURSDAY, JUNE 25.—Winchester.
SATURDAY, JUNE 27.—Eltham.
Reigate.

SALES.

TUESDAY, JUNE 23.—Established and Imported Orchids, at Protheroe & Morris' Rooms.
THURSDAY, JUNE 25.—Important Sale of Stove and Greenhouse Plants, at The Firs, Lee, by Protheroe & Morris.
Established Orchids at Stevens' Rooms.
FRIDAY, JUNE 26.—Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—62°.

A VERY interesting and valuable paper has just been published by Dr. L. L. VAN SLYKE, Chemist of the New York Agricultural Experiment Station, Geneva, on "Fruits, from a Chemist's standpoint," of which the following is an abstract. Although this paper is not intended to be one capable of direct application to daily practice in fruit growing, yet it supplies many facts deserving of careful consideration. The topics under discussion by the author are:—

1. The proximate or general composition of fruits.
2. Some of the unsolved problems relating to the chemistry of fruits.

Proximate Composition of Fruits.—Fruits, in general, contain the following chemical compounds and classes of compounds:—1, water; 2, albuminoids or nitrogenous bodies; 3, ash or mineral matter; 4, vegetable acids; 5, fatty oils; 6, ethers, or ethereal oils; 7, carbo-hydrates.

1. Water.—The following figures will serve to give a general idea as to how much water some of our common fruits contain. Grapes, 78 per cent.; Cherries, 80 per cent.; Peaches, 80 per cent.; Plums, 81 per cent.; Pears, 84 per cent.; Apples, 85 per cent.; Raspberries, 88 per cent.; Strawberries, 88 per cent.

2. Albuminoids or Nitrogenous Compounds.—These embrace a number of different compounds, all of which are alike in containing the element nitrogen, in addition to carbon, oxygen,

and hydrogen; they also contain sulphur and, sometimes, phosphorus. Taking the same eight fruits as before, the quantity of albuminoids contained in them is as follows:—Apples, 0.4 per cent.; Pears, 0.4 per cent.; Raspberries, 0.4 per cent.; Plums, 0.5 per cent.; Strawberries, 0.5 per cent.; Grapes, 0.6 per cent.; Peaches, 0.7 per cent.; Cherries, 0.7 per cent.

3. Ash or Mineral Matter.—When any fruit is burned as completely as possible there remains a small amount of ash, representing for the most part the so-called mineral matter in the fruit, the average quantities are:—Pears, 0.3 per cent.; Grapes, 0.5 per cent.; Raspberries, 0.5 per cent.; Apples, 0.6 per cent.; Plums, 0.6 per cent.; Cherries, 0.7 per cent.; Peaches, 0.7 per cent.; Strawberries, 0.8 per cent.

4. Vegetable acids.—The acids which occur most commonly in fruits are:—

Malic acid, generally regarded as the one most frequently causing acidity in our common fruits.

Citric acid, familiar to us in the juice of Lemons.

Tartaric acid, abundant in Grapes.

Acids may be present in fruits in two forms. First, in the form of free acid; second, in the form of salts. The sourness of fruit to the taste is not necessarily an indication of the relative amount of free acid, since, of two fruits, the one containing the larger amount of acid may taste the less sour, the acidity being masked by the presence of a larger amount of sugar, pectin, &c. To the physiological action of the vegetable acids, and their salts in the body, is mainly attributed the healthfulness of fruits as an article of diet.

5. Fatty oils.—These substances are familiar under the name of vegetable oils, their amount in fruits is not large.

6. Ether or ethereal oils.—To the presence of these compounds fruits owe their characteristic flavours. Their quantity is very minute.

7. Carbo-hydrates.—Under this general term is grouped (1) cellulose, (2) starch, (3) sugars, (4) pectin substances.

(1.) Cellulose constitutes the framework of the cells of which vegetable organisms are made up. Those parts of fruits, such as outside covering or skin, seed-coverings, stones, &c., and portions of the fruit pulp which are insoluble in water, consist mostly of cellulose.

(2.) Starch does not appear to be present in ripe fruit—at least, not to any extent.

(3.) Sugars.—The sweet portion of fruits consists mainly of two kinds of sugar: glucose, or Grape-sugar; and fruit-sugar. The average amount of sugars in fruits is as follows:—Plums, 4 per cent.; Raspberries, 4 per cent.; Peaches, 4.5 per cent.; Strawberries, 6 per cent.; Apples, 7 per cent.; Pears, 8 per cent.; Cherries, 10 per cent.; Grapes, 14 per cent.

As is well known, the proportion of sugar in fruits can be increased by cultivation. For example, cultivated Strawberries contain nearly twice as much sugar as the wild Strawberries.

(4.) Pectin substances include several compounds. The principal ones of these are called pectose and pectin. The former causes the hardness of unripe fruits. The amount in ripe fruit is small, being as follows:—Strawberries, 0.5 per cent.; Raspberries, 0.7 per cent.; Cherries, 2 per cent.; Grapes, 2 per cent.; Pears, 4 per cent.; Apples, 6 per cent.; Peaches, 7 per cent.; Plums, 8 per cent.

The Relation between the Chemical Composition of Fruits and the value of Fruits as Articles of Diet.—The value of a fruit as an article of diet depends on its agreeable taste, and on its refreshing character, due to the physiological action of

the free acids and alkaline salts contained in the fruit. The agreeable taste of fruit depends on the following things: 1st, on its aroma or flavour; 2nd, on a due proportion between the acid, sugar, pectin, &c.; and 3rd, on a due proportion between the soluble and insoluble constituents. This latter determines, to a considerable extent, their nutrient value as food.

Taking the dry matter of fruits, that is, the amount of substance left after all the water is removed, the relative proportions of soluble and insoluble substances are as follow:—

Varieties.	Per cent. of Soluble Constituents.	Per cent. of Insoluble Constituents.
Apples	88	12
Cherries	67	33
Grapes	81	19
Peaches	66	34
Pears	73	27
Plums	72	28
Raspberries	46	54
Strawberries	67	33

The soluble portion consists mainly of sugar, pectin, and acids, with small amounts of albuminoids and ash. The insoluble portion consists mainly of cellulose or woody fibre. What we call luscious fruits are those which contain a very large proportion of soluble substances; such fruits seem to melt in the mouth.

Unsolved Problems relating to the Chemistry of Fruits.—In regard to this point, the author says practical experience proves, in a general way, that the use of fertilisers does influence the composition of fruits. The goal to be striven for should be such a control of conditions as to produce colour, flavour, texture, sweetness, &c., at will, in fruits. That we are very far from attaining such an end is evident. How nearly we can approach to such an ideal, remains to be seen. *J. J. Willis, Harpenden.*

GARDENERS' ORPHAN FUND.—A Rose fair in aid of this Fund will be held at the Royal Aquarium, Westminster, in connection with the Rose and Begonia Exhibition, announced for the 24th and 25th inst. Contributions of Roses for sale will be gladly accepted by Mr. R. DEAN, the Superintendent of the show, and the same may be sent to him at the Royal Aquarium, so as to arrive on the morning of either of the above-mentioned days.

LADY HORTICULTURISTS.—A ladies' branch is about to be added to the Swanley Horticultural College in Kent, and a house is to be opened for the reception of lady students. Several ladies have already entered their names.

BUTLEY TULIP SHOW.—The sixty-sixth annual exhibition took place as usual at the Orange Tree Inn, Butley, near Macclesfield, where the show has been held uninterruptedly since its establishment. The hostess, Miss KITCHEN, is the Treasurer of the Society, and some member of the family has been connected with the show from the time of its commencement. It was in all respects an excellent exhibition, the time suiting the flowers; and Mr. JAMES W. BENTLEY, the Hon. Secretary of the Royal National Tulip Society, must be congratulated upon winning the Silver Cup offered for six flowers, one feathered and one flamed of each of the three classes. Mr. BENTLEY is a young grower of great promise, and maintains the floral traditions of his family, his father having been a successful cultivator and judge in his day. Eight stands of flowers competed for the Cup, and as only one prize was offered and awarded, the exhibitors who were unsuccessful were allowed the privilege of breaking up their stands, and placing them in the other classes. There was a large attendance of visitors to the show, but they were not admitted



VIEWS AT SANDRINGHAM.

until the whole of the flowers were arranged, terrace-fashion, in the dining-room—a custom at the old-fashioned Tulip exhibitions. A large party sat down to dinner, Mr. SAMUEL BARLOW, J.P., of Manchester, President of the Society, occupying the chair.

EAST ANGLIAN HORTICULTURAL CLUB.—We learn from the *Eastern Daily Press* that it was unanimously resolved at the usual monthly meeting of the above club on Wednesday, June 10, that the members should unitedly pay a visit to the Crystal Palace on the occasion of the Great Floral Fête, which is fixed for Wednesday, July 15—the pecuniary outcome of which is to go to benefit the Gardeners' Orphan Fund, and in this manner associate themselves in brotherly fashion with that larger body of philanthropists.

STRIKES AND TIMBER.—It may be pertinent here to ask if strikes have any influence on the growth or maturing of timber? Possibly they may have such. It has been known for some time that the carpenters and joiners intended to take extreme measures if their demand for an eight-hours' day—and an increase in the pay therefore—were not conceded; and most certainly wise employers of labour cast about long ago for means by which to minimise their losses, provided a strike came to pass. One means was to reduce orders for the shipment of timber from foreign parts. This has been done, as shown in the Board of Trade returns for May, where one item alone—sawn timber—shows a reduction of 131,700 loads, of the value of £347,070. Taking up the returns for March last, we find an increase in sawn timber of 8605 loads over the same month in 1890; in hewn timber there is also an increase of 2117 loads. In April there is but one increase under the head "wood," viz., in hewn timber, of 4853 loads. The figures for May are as follow:—hewn, decrease 24,742 loads; sawn, decrease 131,700 loads; mahogany, decrease 701 tons. The total value of these three items alone is £468,872; a very serious fact, if we may attribute this decrease to the action of the Union. The following short tabulated statement is given for ready comparison:—

Imports of Wood and Timber.

	1889.	1890.	1891.
Hewn—loads	208,416	208,963	184,221
Sawn „	327,653	339,885	208,185
Mahogany, tons	3,834	3,914	3,213

Possibly the timber, in whatever condition it may be, will not be one whit the worse for the delay in transit, considering the season of the year; but this will prove but a poor set-off against idle capital, furling sails, and idle seamen. How far-reaching the action of man is may be found well illustrated here, when we find it staying the lumbermen in Honduras, in Canada—and, nearer home—in Sweden and Norway. Though with the strike of the London carpenters and joiners we may have nothing whatever to do, we may yet be excused for placing on record the figures above quoted.

“**HEARTH AND HOME**” is the title of a new weekly magazine for women, published by Messrs. BEETON & Co., of Regent Street. To quote from the first number, the paper does “not at all aim at representing the ‘advanced’ or ‘emancipated’ school of womankind, or, the pretensions of small and noisy cliques;” but treats of such feminine interests and employments as are connected with the duties and pleasures of hearth and home. It is well got up as to type and paper, and appropriately illustrated.

BULBS AND THE WINTER OF 1890-91.—On April 20, writes a correspondent, we visited Messrs. VAN HOUTTE'S Hyacinth grounds at Gend-brugge, to take notes of the ravages made by the terrible winter among bulbs. The Hyacinths looked better than might have been expected; the blooms were apparently not quite so fine nor so brilliant as usual, but the general effect was very good. We talked with the fore-

men, MM. J. ANDRIES and DE MUNTER, on their experiences this year, and we here detail some of the facts with which they furnished us. The following species and varieties of Narcissus were planted in September and October; they were well-rooted, and planted at a depth of from 4 to 5 inches; they were covered over for a depth of from 2 to 2½ inches with a mulch, they got through the winter well, and grew to a good size: bicolor fl.-pleno, Emperor, albus odoratus, albus plenus odoratus, albus odoratus præcox, Empress, Horsfieldii, Incomparabilis flore-albo, Incomparabilis giganteus (Sir Watkin), Mac-leaii (Diomedes minor), major flore-pleno, princeps, Rip van Winkle, Sulter Kroon. The following species and varieties, planted in the same way at the beginning of November, were similarly covered up and were frozen through, this proves that early planting and the use of well-developed bulbs constitute the best means of resisting the ravages of frost. Another advantage of this method of cultivation is, that the ground above them is deeper and keeps off the frost. Narcissus (Tazetta), dubius, Constantinople double, Narcissus bifrons, biflorus, Nelsoni majus, Queltia fœtida, rugulosa, stellatus, and most of the Sparaxis were frozen, although they were planted early, 4 inches deep and covered over to a depth of 2½ to 2¾ inches. The Babianas and Tritomas fared better, but still they suffered considerably. The Ixias did better than the Sparaxis, which were treated similarly. Agapanthus umbellatus were covered over with horse-dung to a depth of about 6 inches, nevertheless, they were frozen through. Agapanthus minor Mooreanus was similarly treated, and was not injured. The following species of Allium were planted at a depth of 3 or 4 inches, but lightly covered over, and were not hurt: acuminatum, album, Cydni, descendens, fragrans, magicum, Moly, Murrayanum, narcissiflorum, neapolitanum, pedemontanum, roseum. Alstroemerias aurantiaca, flava, chilensis, planted 1 foot deep, and covered to a depth of 4 or 5 inches, stood the weather perfectly. Alstroemeria brasiliensis, which was treated in the same way, was frozen. Amaryllis belladonna planted at a depth of 6 inches, with a covering 4½ to 6 inches deep, were almost all frozen. Arums planted 4¾ inches deep, kept in the ground 4 inches below the surface, were quite uninjured; the species were:—albi-apatium, alpinum, Arisarum canariense, italicum, maculatum, marmoratum, orientale, and ternatum; but crinitum, dracunculul, Dioscoridis, and spectabile were all frost-bitten. The Botryanthus, planted 3 to 3¾ inches deep, lightly covered, all did well. The Brodiaea, at a depth of 3¼ to 3¾ inches, covered with 2 to 2½ inches of soil, all did well, and resisted the winter perfectly. The Camassias, treated as were the Brodiaeas, also did well. The Montbretias, about 6 inches below ground, were mostly frozen; the most hardy variety Pottsi were unharmed. The Ornithogalum, treated as were the Montbretias, and planted 4¾ inches deep, survived; the species were atticum, juncum, narbonne, nutans, pyramidalis, sulphureum, umbellatum; while the following varieties were frozen: arabicum, aureum, longibracteatum. The following genera and species resisted the weather without any covering, Tulips, Erythronium, Colchicum, Fritillaria meleagroides, Crown imperials, sanguinaria, Trillium, Corydalis, Dodecatheon, Scilla sibirica, S. nutans, S. campanulata, S. biflora, Chionodoxa, Puschkinia, Ficaria, Thalictrum, Cyclamen europeum, Bellevallia, Milla uniflora, Lilium tigrinum splendens, L. tigrinum, L. tigrinum flore pleno, all the varieties of L. Thunbergianum, candidum, as well as all the other species except Lilium speciosum album Krætzleri, which does not seem very hardy. The Hyacinths, which were covered with horse-dung to a depth of 1½ to 2 inches, successfully resisted everything. The greatest havoc which was made among bulbous plants was attributed to the thaw, which was felt at a depth of 4 to 6 inches, and which lasted a long time; the bulbs were thus soaked in mud, which froze again at a temperature of from 32° to 0° Fahr., the ground which had at first thawed, froze again until it was like a sheet of glass. B.

STOCK-TAKING: MAY.—Interneine struggles, so-called “protective” tariffs, and “misunderstandings” with foreign governments—not to mention ready-made “Boarse news”—interfere sadly with the general symmetry of Trade Returns. Thus we have the sad state of affairs in South America, the still recent alterations in the French and American tariffs, the Portuguese difficulty, and the “full, true, and particular account” of a new agreement between England and Italy. And so it comes to pass that we are always expecting disparities in our “stock-takings,” and being but seldom disappointed. The present record is an illustration. From the “summary” of the imports from the Colonies and foreign countries for the past month we take the following:—

	1890.	1891.	Difference.
	£.	£.	£.
Total value of imports	£33,341,005	£34,377,698	£+1,036,693
§ II.—(A.) Articles of food and drink—duty free	11,419,046	11,249,544	—169,502
(B.) — do., dutiable	1,636,428	1,643,490	+7,062
§ VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)	5,907,126	8,545,364	+2,638,238
§ VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	3,395,146	2,899,859	—495,287
§ IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,056,243	1,000,599	—55,644
(B.)—Parcel Post ...	31,565	44,262	+9,697

Here there is shown an increase of £1,036,693 although there is a decrease in three items—animals, food and drink, and metals, of about £1,000,000 sterling. The imports for the five months show an increase of £1,403,453.

Turning now to the exports for May, we find a decrease under every item—the total being £3,196,306—and here our preliminary notes are of assistance. There is the American tariff to make a memorandum of, and the sad state of affairs in South America. The five months' record shows a decrease of £3,391,295. The “acute” stage would appear to be the past month—it is to be hoped that stage is quite past. It may not be quite out of place to remark that the tariffs appear to be exercising the minds of statesmen in both the United States and France. In the latter country the free admission of raw silk is being seriously recommended; the industry affected by the tariff is a most important one, considering what we are more than attempting to do at home. There remains now but to notice those matters most especially affecting growers of fruits and vegetables, the imports of which, during the past month, are here appended:—

	1890.	1891.	Difference
§ II. Fruit:—			
Apples, raw bush.	29,148	71,181	+42,033
Unenumerated, raw	31,574	43,910	+12,336
Onions	317,186	269,082	—48,104
Potatoes cwt	209,864	313,005	+103,160
Vegetables, raw, unenumerated value	£69,857	76,111	+6,254

DRYING APPLES.—The following account of an Australian method of drying Apples is not without its lessons to English fruit growers:—“There is no doubt that the artificial process of drying Apples is the most expeditious, and makes the best colour (where a little sulphur is used), but at the same time the sun-dried Apples have the best flavour, and are the best for home use on that account. The apparatus is simply an ordinary table 12 feet long (but it can be made of any size) and 4 feet wide. The side boards are put out nearly flush with the top, and from the ends you can draw out two long trays the whole length of the table, with legs at the end to

support them, thus increasing the surface to nearly three times. Round the top of each drawer is a small ledge, tacked on to keep the slices from falling off. The top has a few light moveable rafters and a ridge pole, and there is a light drill cover which fits over them and ties round the table under the drawers, so as to cover all up secure at night, or if a shower comes on. Two other drawers could be made if required, to pull out sideways. With the aid of an American corer, parer, and slicer, you can get through a great many Apples in a short time, and the cores and skins can be dropped into a bucket and given to the pigs; or they will make excellent jelly if you are so disposed. The slices must be stirred pretty often, and when quite dry hung up in scrim bags for a month or more, when you can press them into dry casks or boxes, and you have then a good store of wholesome food for home use. Stewed and eaten with rice, they form as wholesome and nice a dish for a family as need be wished for, and they make excellent pies in winter; and what is more for those who have plenty of Apples, they cost little more than trouble, as the green fruit seldom fetches much over expenses in some months, and it is in those months of course, one would dry the Apples. Care must be taken against rain or damp, as in hot weather drying fruit is more apt to spoil than in the cooler and more breezy atmosphere of the following months, and you will find the morning the best time to gather and slice the Apples, as those cut in the afternoon are much more apt to spoil. Apples should not be too green when sliced, or they are apt to be very acid, and require more sugar as well; and they should not be too ripe, or they will spoil—nor should they have any bruises on them. Perfect Apples, just approaching ripe, are the best, but I have made very fair samples even out of windfalls."

THE POTATO CROP IN CORNWALL.—The market gardeners, writes a correspondent, are now busy lifting the Potato crop, which is a heavy one. The largest tubers it has been noticed have been found under the smallest stems; and generally the growth is rank, owing to much rain. The prices rule rather low, owing to the large quantity which is coming to the English markets from the Channel Islands and the Continent. The days for high prices seem to have fled never to return.

THE FRUIT OF THE SESSION.—Under this heading our Jubilee brother, *Punch*, if we may so call one born in the same year (1841) as ourselves, gives a cartoon and an amusing article in which the Strawberry is made to typify the Irish Land Purchase Bill, which has lately passed the Commons. The point, however, is quite blunted to those who know that the "head gardener and prize exhibitor" in the case in question was not "Mr. W. H. SMITH," the Leader of the House of Commons, but Mr. J. SMITH, the highly capable leader of the gardens of Lord ROSEBURY, at Mentmore, and who has had nothing to do with the Land Bill.

PUBLIC PARK FOR STOCKTON-ON-TEES.—The Corporation of Stockton-on-Tees were presented some months ago by Major ROPNER, of Preston Hall, with 40 acres of valuable ground adjoining the borough, for the purpose of providing a public Park for the inhabitants. The Park Committee instructed the borough engineer to prepare a suitable plan, and tenders having been invited for the various works of building lodges, bridges, forming lakes, and laying out the grounds, one of these contracts, viz., the supplying and planting ornamental trees and shrubs, has been entrusted to Messrs. LITTLE & BALLANTYNE, Carlisle, the well-known firm of nurserymen.

PUBLICATIONS RECEIVED.—*Atlas der Officinelten Pflanzen.* VERLAG VON ARTHUR FELIX, Leipzig.—*Manual of Forestry.* Vol. II. By W. SCHLICH. Publishers, BRADBURY, AGNEW & Co. Ltd., 8, 9, 10, Bouverie Street.—*Trade List of Florists, Fruiterers' and Nurserymen's Sundries.* FRANCIS HENDERSON, 43 and 45, South Albion Street, Glasgow.

BOOK NOTICE.

FLORAL DECORATIONS A LA MODE. SUGGESTIONS AND DESCRIPTIONS. By Mrs. De Salis. (London: Longmans, Green & Co.)

In this little book, Mrs. De Salis has left her special subject—cookery—and has turned her attention to floral decorations of all kinds. Nowadays, when such a wealth of flowers is used on festive occasions, and often in such a childish and tasteless manner, there should be ample room for a book of this kind; but, for our part, we question whether the average reader would be able to make use of such very slight hints as those given by the authoress. Take, for instance, the following description of a ball made of flowers, such as is used at many fashionable weddings:—"The ball should be of pure white blooms, and round the centre a belt made to represent a pendent fringe of white rosebuds, the belt not adhering, but placed so that the ball can be seen between." To say nothing of the bad taste and absurdity of the whole thing, this would convey no idea to an amateur decorator, who would require to be told the exact measurements, how to make the foundation of the ball, how to insert the flowers and make the fringe, and many other practical details. By-the-bye, *apropos* of weddings, what can be meant by "centrifugal sugar," with which one cake in particular is supposed to be decorated? Mrs. De Salis is more conscientious than many compilers, for she tells her readers at once that few of the ideas given are original, and that she is mostly indebted for them to Miss Sherson, a well-known lady decorator, the rest being collected from descriptions she has herself read in the various society journals. We regret that Mrs. De Salis has not added a protest against the tasteless designs, the vulgar profusion and the childish misuse of flowers now so common.

HOME CORRESPONDENCE.

CRYSTAL PALACE, GARDENERS' ORPHAN FUND FÊTE.—Owing to the promptness with which all matters relating to charitable institutions are made public in your columns, I venture to ask your kind insertion of this note on behalf of the Gardeners' Orphan Fund, in connection with the *fête* to be held at the Crystal Palace on July 15. As already announced in the horticultural press, one of the items in the programme is a cricket match—The Seedsmen v. The Gardeners of the United Kingdom. Having the honour to be chosen as captain of the latter team, and with a view of creating a widespread interest in the project, thereby adding to the attractions of the *fête*, and increasing its funds, I should be glad if those players who may wish to take part in the match would transmit their nominations as early as possible to Mr. C. H. Sharman, 69, Houston Road, Forest Hill, London, S.E., captain of the seedsmen's team, or to myself for the gardener's team, so that we may be enabled to select the players on each side. We hope to receive nominations from as wide an area as possible, as this would add considerably to the interest of the match, and benefit the fund. *E. Molyneux, Swanmore Gardens, Bishop's Waltham, Hants.*

MELON FLAVOURING EXTRAORDINARY.—Innumerable varieties of Melons have come and gone during my recollection, many of which were as good as could be, but one variety may be mentioned that is still good, Eastnor Castle, which is one of the best Melons now in cultivation. Now, with regard to the flavour of Melons, most of us, no doubt, have tried various ways of increasing it, and with more or less success; some keep them in a hot place, others in one that is very cold. I remember, several years ago, putting a fruit of Victory of Bath into an oven on four successive nights before a show came on, the oven being made just warm enough to allow of the fruit being put into it with safety; this fruit bore off the 1st prize against a dozen exhibitors. I do not know if any of your readers ever practised a mode of Melon-flavouring which reaches me from a trustworthy(?) source in America. A gentleman, who is a great connoisseur of Melons, and I am afraid

somewhat presumptuous, will have his Melons flavoured to suit his particular fancy. For instance, he prefers scarlet-flesh Melons flavoured with sherry, and a green-flesh with port wine, which is managed in this way: when the fruit is ripe, a good length of stem is cut with it, the end is placed in a tumbler partly filled with the wine. In about three days the wine being absorbed, the Melon is fit for use, and can easily be told which wine has been used in the flavouring process. Although the efficacy of this extraordinary method of giving flavour to the fruits seems to me to be very problematical, my informant assures me it is a fact, and that the same rule holds good if spirits and sugar or peppermint be used instead of wine. *G. B. Claydon, Holbeck's Park.* [The big Gooseberry season is not yet. Ed.]

EXOTIC SHRUBS IN SOUTH DEVON.—Some people have an idea that any tender shrub or tree will live out-of-doors in Devonshire; but this is not the case, for in this garden Veronicas in a sheltered spot were cut down nearly to the ground, and any that were in more exposed places were killed. *Hydrangea hortensis* were crippled, and some almost killed, and what new growth springs from the branches is weak, but they are shooting strong from the base. *H. paniculata grandiflora* is not injured. The Mexican *Choisya ternata*, described at one time as a stove plant, is unharmed, not a leaf being discoloured with the 22° of frost that were registered on one occasion in January. The plant has been a picture of health and beauty, being covered with its white orange-like blossoms. The soil in which the plant is growing is of a retentive clayey nature. *Cistus algarvensis* is dead, and so to all appearance is *C. crispus*, the leaves being brown, and the bark peeling off; but when the inner bark is scraped, sap flows, so perhaps it will survive; *C. purpurea* is not damaged at all. *Garrya elliptica* is discoloured, but it has borne a splendid lot of catkins. A good many flowers are opening on *Viburnum plicatum*, the foliage of which has not been injured very much by the frost. *Desfontainia spinosa* has proved to be tolerably hardy, out of several bushes not one being killed, and only a few of the leaves are nipped. *Chamaerops Fortunei*, standing in front of a west wall, sheltered from the east wind, was not injured in the least by the frost, but when the snow-storm of March 9 passed over the south-west of England, it bruised and broke a few of the leaves; it is a grand specimen, about 13 feet in height, and it now has nine flower-spikes showing. It flowers every year, and its age is about forty years. One Myrtle bush is dead, and another has begun to push forth shoots from the stems just above the ground-level, its branches being killed to within a few inches of the ground. All the leaves of the New Zealand Flax have turned of a brown colour, but growths are shooting from the crowns; it will take the plants some time to recover. *Yuccas* were not cut by the frost, but were blown almost to pieces by the gale of March 9. A few of the outside leaves of *Euonymus radicans* were nipped, and have since turned brown. Those shrubs which were replanted in the autumn felt the effects of the frost much more than established plants. About half of the *Dahlia* roots left in the ground all the winter were killed. About 60 per cent. of the Raspberry canes were killed during the winter, owing, I believe, to the wood not having been thoroughly ripened last autumn. Many of the shrubs which withstood 22° of frost in January, succumbed to the cutting north-east winds of March, and less than half as many degrees of cold. *H. Grillage, Ridgeway, Plympton.*

THE PAST WINTER AT COLWYN BAY.—I append a list of the exotic shrubs which have been killed, injured, or which have survived the past winter unhurt. Our lowest temperature occurred on the night of Dec. 19-20, when 17° was recorded, or 15° of frost. Snow had fallen the previous night and morning, and lay thick on trees and shrubs. The next hard frost was on Jan. 18, when we had 12½°, but no snow. The weather from Feb. 19 to March 7 was magnificent, the shade maximum temperature ranging from 49° to 64°6". Indeed, the whole of February was remarkably warm, the lowest temperature recorded being 30° on February 21. March was by no means a cold month, and the snowstorm of the 9th was not felt here. April and May were cold months, but we had not the violent extremes experienced elsewhere in the latter month, the highest temperature being 67°6" on the 12th, and 67°8" on the 31st. These were the only occasions when the maximum exceeded that of March 1. The lowest in May was 30°4", on the 18th. Of the shrubs in the

last-mentioned as uninjured, I would call attention to *Grevillea rosmarinifolia*. The bright red buds of this charming shrub begin to be showy in November, and it is still (June 13) covered with its curious and pretty flowers. It grows on a rockery, with a south aspect. *Veronica Hulkeana*, in my opinion the prettiest of the shrubby species, has also proved hardier than any of the *V. Andersoni* section, which are all killed. Shrubs uninjured:—*Pittosporum tenuifolium* and *P. Mayi*; *Eucalyptus coriacea*; *E. coccifera*; *E. viminalis* (one killed, one unhurt); *E. sp.*; *Berberis nepalensis*; *Fabiana imbricata*; *Veronica Hulkeana*; *V. Traversi*; *V. formosa*; *V. chathamica minor*; *V. Lyalli*; *V. epacridea*, and *V. pinguifolia*; *Habrothamnus scaber* (on a wall, and matted up); *Eucryphia pinnatifolia*; *Olearia macrodonta*; *O. Haastii*; *O. Gunnii* (on a wall); *Convolvulus cneorum* (on a wall); *Clematis indivisa*; *Rhododendron Hodgsoni* (bloomed this spring); *R. eximium*, *R. Falconeri*, *R. barbatum*, *R. cinnamomeum*; *Azalea amena*, *A. rosiflora*, *A. obtusa*; *Cistus crispus*, *C. salicifolius*, *C. obtusifolius*, *C. laurifolius*, *C. albidus*, and others; *Choisya ternata*, on a wall; *Cerasus ilicifolia*; *Desfontainea spinosa*; *Passiflora cœrulea*, on a wall; *Raphiolepis ovata*; *Photinia serrulata*; *Skimmia japonica* (true); *Ceanothus rigidus*, on a wall; *Staphylea colchica*; *Grevillea rosmarinifolia*; *Akebia quinata*, on a wall; *Colletia horrida*, *Adenandra flexuosa*, *Caryopteris mastacanthis*, *Clerodendron trichotomum*, *Benthamia fragifera*, *Euonymus japonicus* var., *Aloysia citrodora* on a wall, *Aristotelia racemosa*, *Solanum jasminoides*, *Chamarops Fortunei*, Yellow Banksian Rose.

The subjects that were killed are *Cytisus racemosus*, *Veronica hybr. various* (*Andersoni* section), *Eucalyptus globulus*, *Myrtles*, *Veronica ligustifolia*, *Cordylina australis*, *Embothrium coccineum* (a young plant), *Cistus ladaniferus*, *C. purpureus*, *Fremontia californica* (a plant that was in bad health), *Clethra alnifolia*. The following were injured by frost:—*Veronica elliptica*, *Rhododendron argenteum*, and *Eugenia apiculata*. Alfred O. Walker, Nant-y-Glyn.

CABBAGES BOLTING.—I have to lament, like "W. S." in your last issue, the loss of at least one-half of my early Cabbages, and in an exactly similar manner. They grew away till the snow-storm early in March, and then, as the weather again became milder, they began to run up for flower. The varieties are Enfield Market and King of the Cabbages. I put it down to old seed being mixed with new. If the seed had been all of one age, or all new, we should not have had one part of the crop bolting and flowering, and the other not. J. M., Marazion, Cornwall.

FROST-PROOF LETTUCES.—It may interest some of your readers to hear that in our proofs of Lettuces sown last autumn, the only variety which does not appear to have suffered from the late severe winter is that known as Lee's Immense Cabbage Lettuce, as the whole row remained intact and formed fine heads, which are now ready. Jacob Wrench & Sons, Limited.

DAMAGE CAUSED BY THE PAST WINTER.—Considering the severe frost we had here on January 17, when the thermometer stood at 0° for several hours, we did not suffer so severely as might have been expected, which may have been due to several causes, among which I include the following. The severest frosts occurred when vegetation was completely at rest. We had exceptionally bright and dry weather in September and October, which ripened the growth made during the dull wet summer; and, when winter commenced, the cold steadily increased in severity without intervals of mildness to disturb the rest of the vegetable kingdom. We had only a small quantity of snow on the ground here on January 17, and, therefore, received little benefit from that source. The following shrubs and plants were killed:—*Jasminum revolutum*, *Tecoma* (*Bignonia*) *grandiflora* on south wall, at least ten years old; *Passiflora cœrulea* on south wall, Banksian Rose, Fortune's white variety, on south wall—this had been growing there about fifteen years; Rosemary, several plants; *Berberis Darwinii*, two plants in a wet soil on the banks of a pond—other specimens in better positions were only slightly injured. The old plants of border Carnations were killed; and a large collection of layered plants survived. Brompton Stocks, Broccoli, some *Campanula media*, *Calycanthema*, Brussels Sprouts, Spring Cabbage, Lettuce, and Wallflowers were killed in numbers, but about 75 per cent. of all these escaped. Seriously injured were *Cedrus Deodara*, *Abies Nordmanniana*, two specimens on a thin soil, and in bad health; others, near to them, but more



FIG. 150.—GOOSEBERRY DISEASE (*ECIDIUM GROSSULARIE*). Affected Leaves and Fruit. Natural size.

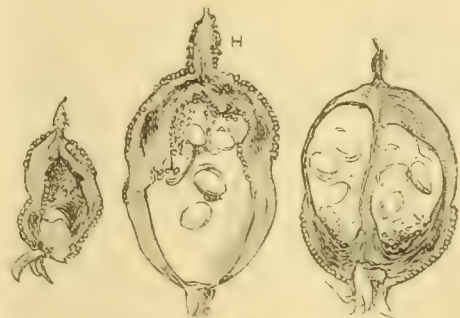


FIG. 151.—GOOSEBERRY DISEASE. Section through Diseased Fruit. Natural size.

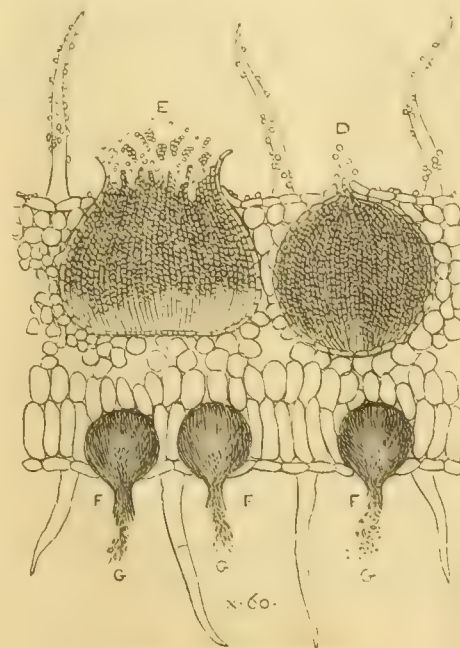


FIG. 152.—GOOSEBERRY DISEASE. Section through Blotch on Leaf, showing deeply-seated Fungus Growth. Enlarged 60 diam. (Referred to in our "Notices to Correspondents.")

vigorous, escaped; *Leycesteria formosa* and *Azara microphylla* killed to the ground; *Escallonia macrantha* on a south wall killed to the ground; Sweet Bay killed to the ground. The following have only received slight injuries:—*Cupressus Lawsoniana*, only one specimen was damaged; Common Laurel, and the variety *obtusifolia*. Myrtles on south wall covered with bracken. Figs on south wall covered with bracken, Tea Roses in the open borders covered with bracken, old plants of *Aloysia citrodora*, in a bed in the open, protected with coal-ashes, and dry leaves, were killed to within 3 inches of the surface of the soil as usual. *Eccremocarpus scaber*, in a warm corner, protected with ashes and bracken, was killed to within 1 inch below the surface of the ashes as usual. *Richardia aethiopica*, in running water, was killed to the water-level as usual; *Tropæolum speciosum*, on a south wall, was killed to the ground as usual; also *Diplopappus chrysophyllus*. Among plants which escaped unhurt are the following:—*Ramondia pyrenaica*, *Heuchera sanguinea*, and *H. Richardsoni*; *Pentstemon* (*Chelone*) *barbatus* *Torreyi*, *Arbutus Unedo*, small specimens; *Choisya ternata*, on a south wall; *Cistus ladaniferus*, *Bocconia japonica*, *Plumbago capensis*, *Physalis Alkekengi*, in a dry place; *Aponogeton distachyon*, in running water; small plants of Tree Carnation Miss Jolliffe, and a large collection of layered plants of border Carnations. W. H. Divers, Ketton Hall Gardens, Stamford.

THE APPLE BLOOM.—No feature of the truly wondrous bloom seen on almost all Apple trees this year more struck me than its remarkable pertinacity; we have had in some previous years a greater wealth of bloom, but rarely have we had bloom which under exceedingly harsh and trying weather proved so tenacious. That is, amidst the gloomy surroundings which cold ungenial weather created, the great cause of hope that in spite of frosts, hail, rain, wind, and cold cloudy days, there will be a fine set and a splendid Apple crop. There have been years when we have seen greater colour perhaps in the bloom. This spring the two or three exceptionally warm days of the 12th and thereabouts, doubtless served to unduly blanch the flowers, for the pale red tints of the Apple bloom could hardly long withstand such unusual heat. Colour may be sometimes held indicative of strength, but there has been no lack of strength this season, colour or not, and instead of the bloom showing a fugitive life of but a few days, it was really been spread over fully three weeks—an unwonted time. This duration may in some respects be due to the average low temperature and general absence of sunshine, but there can be no doubt whatever that it is chiefly due to the wonderful plumpness of the buds last autumn, the splendid ripening wood and spurs received then, and the thorough healthiness and robustness of trees and bloom. The season has shown us convincingly that even with cold ungenial weather at the blooming time, we may yet look for a good crop of fruit if the wood and spurs have been the previous year fully matured. When that element is lacking, it is very certain that only during exceptionally genial springs can we hope to save imperfect bloom to produce fruit. It must not be forgotten, too, that whilst the trees benefited so much above the ground from the ripening influence of the autumn, the roots also greatly benefited from the heavy rains of the early part of the summer. Since that time we have had an autumn, winter, and spring, of what may be classed as of exceptional dryness, and under ordinary conditions the roots of all large trees should now be none too moist. The strain upon the roots, however, has not yet come, but it will do so in a few weeks. Judging by the bloom, the fruit should be both fine and healthy. That the showers, both of rain and hail, have helped to cleanse the bloom and foliage of insects there can be no doubt. These things combined should help to bring fine fruit later. Still more will probably depend upon the roots, and their capacity to furnish the sap needful to create Apples, than upon anything else; and whilst we may well deprecate too great abundance of rain as being detrimental to other crops, yet for large fruit-bearing trees, it would seem as if a heavy rainfall were desirable. What is to be feared, following upon a season when buds have bloomed so abundantly, is, that next year may see the trees too exhausted to carry anything worth terming a crop; that is one of the unfortunate conditions which attach to hardy fruit culture. We have to take the seasons and their produce as they come to us, as we are unable to direct them into anything like regular courses. Could we rely

upon what may be called a fair half crop every year, it would be very much better for us all than is a tremendously heavy crop now and then, with several lean years intervening. It is impossible in such case to regulate sales, or secure fair profits. Very likely this year, because there bids fair to be an enormous crop of all kinds of fruits, there will be great waste or much loss. If it be possible to create methods by which so much of what will certainly be surplus fruit could be utilised for service in other years, then immense good will be accomplished. We have jams and preserves of a sort, to repletion. All jam and preserve stocks will be filled up inordinately, but still there will be a great quantity of good fruit left unutilised. Probably that is a problem which it is more needful should be solved, than is the minor one of how to get more fruit. It is specially with those uncertain crops, Plums, Cherries, Pears, and Apples, that the solution should apply. *A. D.*

ART IN NATURE.—The artistic arrangement of flowers for bouquets—baskets, ladies' dress-sprays, &c., is one of the most important branches of the trade-florist's business. When he has to match some peculiar shade of colour in a lady's dress or dinner-service, &c., a difficulty is often found in securing the tints to blend or contrast, and in some cases in seasons when there is a scarcity of flowers, it is not an easy task to find suitable colours; and in some cases the customer is rather exacting, and makes but scant allowance for the scarcity of flowers, or the difficulties of procuring the desired shades of colour. I was reminded of the many different styles of arranging flowers when passing along a West End thoroughfare recently, I saw displayed some large bouquets of pink Roses mixed thickly with the dried and dyed feather-grass, *Agrostis minutiflora*, so that the Roses were scarcely visible; another was of yellow Roses, similarly treated; as was also a basket of scarlet Pelargoniums, which, to say the least, was an odd mixture. In all arrangements of this kind, the natural foliage should be always employed in preference to that artificially prepared, or purely artificial, and especially is this true in bouquet-making, or in baskets and vases. In the season, large quantities of the Fairy Queen are grown in pots for the West End florists; the small foliage and buds give a natural finish to the arrangement, relieving flatness, and at the same time the entire surface of the bouquet of Roses may be seen. The *Agrostis* is a pretty and very useful grass for decoration of the drawing-room in the winter season. *B.*

DOUBTFUL HARDY PLANTS IN NORTH NOTTS.—

—Of plants which are of doubtful hardiness, *Panocratum illyricum* has lived with protection from wet only, as have several sorts of *Calochortas*. *Montbretia Pottsi* has survived, though *M. crocosmiflora* has almost, if not altogether, died out. A newly planted *Crinum Powellii* is no more; but I think it was destroyed by the frost of October 28, before it became established; whilst to my surprise, a plant bought under the name of *C. caffrum* has come safely through with the protection of a bit of sacking and a handlight over that. The *Dictionary of Gardening* gives *C. caffrum* as a synonym of *campanulatum* or *aquaticum*, and marks it as a stove plant; but I believe I have seen a record of *C. aquaticum* living out-of-doors. It is possible, of course, that my plant may not be true. *James Snow Whall.*

SCOTLAND.

PHILIPHAUGH.

RECENTLY the estate of Philiphaugh, in Selkirkshire, after having been in the hands of the Murray family for upwards of 400 years, was purchased from Sir John Murray, Bart., by Mr. Strang Steel, 6, Fenchurch Avenue, London. Philiphaugh is famous in Scottish history, as it was there that the military career of Montrose was ended, his forces having been routed by the Covenanters, under Sir Alexander Leslie, while he himself had to seek safety in flight. Until the present century, the estate, for the most part, was an expanse of marsh and Heath, but measures were taken to beautify and improve it; the barren slopes were planted with trees, and the lower lands were converted into arable ground. The result is, that Philiphaugh is now one of the most beautiful domains in Scotland. The

mansion-house occupies a fine site, and overlooks the classic Yarrow at its confluence with the Ettrick. Since Mr. Steel acquired the estate, great improvements have been decided upon. The aspect of the grounds in the immediate vicinity of the house has already been greatly changed, the house itself is having a large addition made to it, and a contract has been entered into for the erection of a magnificent conservatory and huge range of glass-houses. In the construction of the conservatory (which will be connected with the house by a corridor) only iron, marble, and glass will be used, and it is estimated that the marble alone will cost about £1000. The glass-houses, which will rank amongst the largest in the country, comprise Vineries, Peach-houses, Orchard and Orchid-houses, Melon and Cucumber-houses, &c. A range of rooms for the under-gardeners is also being erected, fitted with sanitary arrangements of the most complete description.

BOTANICAL SOCIETY OF EDINBURGH.

This Society met on June 11 at the Royal Botanic Garden; Mr. Lindsay, President, in the chair. Mr. Potts, Fettes Mount, Lasswade, exhibited a new seedling Saxifrage, raised by himself—*Saxifraga densa* var. *Pottsi*, white, very dense in habit, and exceedingly floriferous. Mr. Grieve, Pilrig Nursery, showed *Cytisus purpureus albus* and *C. Andreanus*.

The following pot plants in flower were from the garden:—*Adonis pyrenaica*, *Erigeron Roylei*, *Cytisus purpureus*, *Gentiana verna*, *Dianthus alpinus*, *barbatus*, *Listera ovata*, *Orchis foliosa*, *Onosma tauricum*, *Oxytropis campestris*, *O. Halleri*, *Potentilla eriocarpa*, *Primula sikkimensis*, *Ramondia pyrenaica*, *Stylidium graminifolium*, *Silene pusillus*, *Wahlenbergia pauciflora*, *Xanthosia rotundifolia*, *Saxifraga burchialis*, *S. mutata*, *S. lingulata* (seedling).

Professor Balfour made some remarks on *Talinum caffrum*, a South African plant, presented to the Garden by Professor T. R. Fraser. The flowers are self-fertilised, and are very ephemeral, being open only for an hour and a half in the afternoon. Dr. W. Craig exhibited a fasciated *Primula elatior*.

Mr. Gustav Mann gave an historical outline of the views held on the embryo-sac of Angiosperms, and criticised those at present followed. Mr. Mann advanced an hypothesis that the embryo-sac contains eight macrospores, which he considered to be practically eggs, one of which, after fertilisation, gave rise to the embryo plant, while two others, by their fusion gave rise to a transient embryo—the endosperm.

Mr. J. Graham Kerr gave a graphic account of his experiences as naturalist to the Pilcomayo Expedition. The object of the expedition was to determine the much-disputed point as to whether the Pilcomayo was navigable and of use as a waterway. On entering the Pilcomayo, civilisation was left completely behind, there being no settlements whatever on the river. The river was picturesque in its lower reaches, the tall banks on either side being crowned with luxuriant forest. After about a fortnight's navigation the river became much narrower, and its banks low-lying and liable to inundation. The aspect of the vegetation changed altogether. The country, much more open, was covered almost entirely with far-stretching Palm forest, the Palm trees being dotted over a plain covered with tall grass. The most characteristic vegetation of the Gran Chaco was the enormous forests of fan Palms. Dicotyledonous forest also occurred. The trees were small, and growing very closely together, the great number of Lianas, and the numbers of spiny Bromeliaceous plants made these bits of forest practically impenetrable. One Bromeliaceous plant, the water Caraguatá, nearly always contained in the axils of its leaves a supply of cool fresh water collected from rain and dew, and from another the Indians obtained a fibre which they used for many purposes. Mr. Kerr afterwards described types of vegetation seen on the downward overland journey to Asuncion, including the luxuriant semi-tropical forests bordering the river Paraguay.

Report on Temperature, &c., at the Royal Botanic

Garden, by Mr. Lindsay.—The past month of May has been one of the most unfavourable experienced for many years. Dull, inclement weather during the day, and frequent frosts at nights, have prevented vegetation from making very much progress. A few showers of rain fell, but not of that genial nature wanted at this season of the year. At the close of the month, few of the ordinary forest trees were in full leaf, except the Maple, Elm, and Horse Chestnut. The latter is well set with flower-buds, which, when fully expanded, will make a grand display. Fruit trees, such as Apple, Pear, and Cherry, are flowering most profusely. Trees and shrubs generally, though later in flowering than I ever remember, promise to be quite up to the average in flowering. Laburnum, Hawthorn, Holly, Lilac, Azalea, and others are very well set with flower-buds ready to burst forth when more genial weather comes. Vegetation generally is very much in the condition usually found in April; so late a season very rarely occurs. During the month the thermometer was at or below the freezing point on five occasions, indicating a total of 10° of frost. The lowest readings were on the 4th, 30°; 5th, 31°; 17th, 27°; 19th, 30°; 21st, 32°. The lowest day temperature was 48° on the 8th, and the highest 74° on the 12th of the month. On the rock garden 260 species and varieties of plants came into flower, as against 365 for the corresponding month last year. Among the most interesting were:—

<i>Andromeda fastigiata</i>	<i>Erica australis</i>
„ <i>tetragona</i>	<i>Gentiana verna</i>
<i>Androsace lactea</i>	<i>Narcissus triandrus pulchellus</i>
„ <i>sarmentosa</i>	<i>Olearia Gunniana</i>
<i>Anemone alpina</i>	<i>Onosma taurica</i>
<i>Arnebia echinoides</i>	<i>Petrocalis pyrenaica</i>
<i>Aubretia Hendersonii</i>	<i>Primula grandis</i>
„ <i>Leichtlinii</i>	„ <i>integrifolia</i>
<i>Cortusa Matthioli</i>	„ <i>viscosa</i>
<i>Cytisus decumbens</i>	<i>Romanzoffia sitchensis</i>
„ <i>Arduini</i>	<i>Stylophorum japonicum</i>
<i>Daphne cneorum</i>	<i>Trichonema roseum</i>
„ <i>Fioniana</i>	<i>Trillium grandiflorum</i>
<i>Dianthus glacialis</i>	<i>Vella pseudo-cytisus</i>

Mr. David Christison stated that in this extraordinary season there had been a great diminution in the girth increase of the trees measured by him in the garden. The aggregate increase of twenty-eight young deciduous trees till the end of May was 1'80 inch in 1891, the average of the previous four years being 3'40 inches. The aggregate increase of thirty-one young Conifers in 1891 was 3'65 inches, the average of the previous four years, being 6'73 inches. Thus the amount was little more than half the average of the previous four years, both in deciduous and evergreen groups. While in each of the previous four years there was an appreciable increase in girth in April, amounting in the aggregate to about half an inch in the deciduous trees, and 1½ inch in the Conifers, there was no increase in either group in April, 1891.

Report from Glasgow Botanic Garden, by Mr. Bullen.—This month was for the most part very cold for May, and strong easterly winds were frequent. A considerable cyclone passed over this district on the 14th inst., after which the weather generally was more like March of an ordinary season. Snow was frequently to be seen falling lightly, and the sun shining at the same time; while thunder showers and hail were frequent. On the 10th and again on the 12th, the temperature was high, on the latter date 73° was registered on a shaded thermometer at 3 feet from the ground, which is very unusual at this season. Light morning frosts were frequent here, but in some districts not far removed, as much as 8° were registered, the early bloom of fruit trees being destroyed, while in later districts and when bloom is also abundant there is yet hope. Most outdoor plants are in such a backward state, flowers for teaching purposes cannot be had at the usual time.

COLONIAL NOTES.

CESALPINIA ECHINATA, Lam.

OF the many sweet-scented plants growing in Trinidad, it is doubtful if a more powerful rival could be found for the Australian *Boronia megas-*

tigma than the above. In size ours is a small tree, and is represented by a solitary specimen. At the time of flowering (May) the air for a considerable distance from the tree is heavily laden with the pleasant odour which emanates from its flowers, suggesting the agreeable atmosphere noticed when entering the show-house (No. 4) at Kew, whilst *Boronia megastigma* is in flower. Were this leguminous plant under notice to occupy and grow successfully in tropical-houses in England—to wit, the Palm-house at Kew—the Australian representative would indeed be equalled under cultivation for perfume, and if a showy appearance be taken into consideration, it certainly would be untrivalled. This *Casalpinia* bears erect racemose yellow flowers, with the upper petals recurved, blotched with a dark red colouring. It may not perhaps be out of place to note here, how often we have been amused at Kew to hear the remark from visitors, "Oh! what is it smelling so nice?" when perhaps the object which called forth the question was close at hand, in the shape of the modest, inconspicuous, flowered *Boronia* which I here refer to for the sake of comparison.

PETREA VOLUMILIS.

We have growing with us both erect and pendulous representatives of *Petrea*, all recognised according to recent determinations at Kew as belonging to one species only, locally known in this colony as the "Lilac," or "rough leaf." For similarity in appearance, the flowers certainly hang from the trees very much after the fashion of the European Lilac, so popularly known in England. The fact, also, of their being a lilac colour gives the tree greater claim to bear this local designation. The corolla is of a darker purple than that of the calyx, and drops soon after expanding; whilst the latter is persistent, remaining a long time after opening. In shape, size, and colour, the corolla is much like many of the purple-flowered bedding *Verbenas*. It is no exaggeration to say that the trees are literally laden with flowers nearly from the ground to their apex, some being devoid of leaves, others not. A very good substitute for sand-paper are the rough leaves often used by people in the colony to "sand-paper" chairs or other furniture. The leaves of another native, *Curatella americana*, are also known to bear this characteristic roughness, perhaps to a more marked degree.

PELTOPHORUM FERRUGINEUM.

The appearance of this tree at all times of the year is conspicuous, as seen growing in Trinidad, on account of its dark green, feathery leaves. When in flower, this dense-leaved tree carries great weight with those who prefer a mass of bloom. The yellow flowers are arranged in large erect panicles, the corolla hairy inside and out. The calyx is clothed with a reddish pubescence externally, and the stamens have their filaments covered similarly with rust-coloured hairs, such as are also found on the inside of the corolla; the anthers are bright yellow. The position of the tree where these notes were taken is near the foot of a high hill, covered with burnt up turf, and numerous bare trees, including many large (and at this time) leafless *Bamboos*, standing in clumps, so that it can easily be imagined how showy must *P. ferrugineum* appear in the midst of such surroundings.

CASSIA FISTULA.

When writing a short time ago about *Cassia moschata*, and comparing its flowers to those of the common *Laburnum*, I quite overlooked *C. fistula*, as there is not much doubt but that this is truly the tropical *Laburnum*; the bright yellow flowers hang in clustered racemes. The tree is of medium height. Our garden specimen is leafless, or nearly so—which it is always during the flowering period. Its fruits are long, cylindrical, and black, very similar to those of *C. moschata*, but larger. They are divided interiorly by transverse partitions, each cell containing one seed, which is imbedded in a sweet pulp that finds common use in the West Indies as a mild laxative.

(DONTADENIA SPECIOSA.

This climbing plant, generally known under cultivation as *Dipladenia Harrisii*, is now flowering in the flower garden, trained to form an arbour, with other plants suitable for the same purpose, amongst which perhaps next in prominence, is *Clerodendron volubile*. This arbour is exposed to the sun during the hottest part, and for the greater portion, of the day. The bold ribbed leaves, coupled with large handsome orange flowers, cannot easily escape notice, and they emit a strong and pleasant scent of the Clove Carnation. The corolla tube is of a shiny yellow colour externally, partly ribbed, and striped with red internally. Grisebach states in his *Flora of the British West Indies* that it is indigenous to Trinidad, in the locality of swamps, which fact I have not yet had the pleasure of confirming. The spot where it grows so freely in our garden is anything but a swamp, although not far off is situated a small fountain, wherein are growing a few aquatic plants. It fruits occasionally. (B. M., 4825.) W. E. Broadway, Assist. Supt., Royal Botanic Garden, Trinidad.

CONIFEROUS TREES, AND THE LATE WINTER.

For some few weeks after the frost disappeared, it did not seem that much mischief had been done, but a closer examination at a later date revealed a little. I will premise that no garden has exactly the same advantages or disadvantages. This garden is too near London for trees to have the clean and healthy growth seen in places more distant from the smoke, and where the air is pure. Our garden is about 7 miles due east from the Bank of England, and the west winds bring smoky fog of sufficient density to deposit a tolerably thick layer of soot on our glass-houses; but, fortunately for us, when the fogs have been the densest, and the most stiding in the metropolis itself, the winds have been from the east, and I am able to record a favourable season in that respect. In the next place, the character of the soil is of importance; ours is naturally very wet, and if a drain happens to become choked up, the land gets flooded. When I took charge of these gardens, about eight years ago, the common Spruce and Scotch Firs were dying, and before I would plant anything I dug a few holes to a depth of 2 feet, and found the water standing in them to the depth of 1 foot, or sometimes more, in twelve hours. Even if the soil had been good, which it was not, nothing could be done until the water was drained off. We cut drains 3 feet deep, and about 10 yards apart, and watched the water disappear from the 2-feet holes. The soil began to be bad at 6 inches from the surface; in fact I never saw anything quite like it. There is a bed of gravel, which comes up in places nearly to the top, and the small stones have been, as it were, welded together, and may be dug up in masses, weighing a few pounds to several hundredweights. Much of this, at 2 feet below the surface, we removed, and wherever a tree was planted, a round hole, 6 feet wide and 2 feet deep, was dug, the first 9 or 12 inches of soil nearest the surface being the only portion of the staple that was retained, the remainder being loam and peat of a good quality. Some trees, such as the Umbrella Pine of Japan (*Sciadopitys verticillata*), had a compost consisting of three parts good sandy peat, placed for them to grow in. The result of draining the ground, and making up suitable stations for the trees, is seen in the vigorous growth, which is as good as may be met with anywhere. As regards the fog deposits, the trees may be washed clean with the garden engine when the fog season is past; heavy rains do some good in that way, too, and I have seen the sooty water running down the boles of the trees on rainy days, quite black.

After this year's experience, if I had to name the best Conifers for a lawn in this district, I would select *Cupressus Lawsoniana* and its varieties, none of them are injured in the least, except a variety with silver-white variegation, which stands much

exposed. The white parts of this tree seem to be tender. The pretty variety with very glaucous foliage, *C. L. variegata argentea*, is in good health, as also *C. L. erecta-viridis*. The variety *aureo-variegata* does not make clean healthy growth in our soil, but it is doing fairly well, and has not suffered from fog or frost. *Abies concolor violacea* is the most vigorous growing of all the *Abies*, and the bluish tint of the young leaves gives the tree a fine effect in the early summer; it is a plant that may be much commended, and it is also quite uninjured. *Picea ajanensis* is another that is uninjured; the tree has a tendency to grow very bushy at the base instead of running up like *A. concolor*, but the glaucous silveriness of the undersides of the leaves gives it a striking appearance. *A. grandis* has made a handsome tree, and grows freely; it is very distinct in character, and was not the least touched by frost. *A. magnifica* has also stood the inclemency of the winter bravely, and is a handsome tree, quite distinct from, and more free in growth than *Abies nobilis*, with which it is sometimes confounded. This last-named species is much injured by frost, and all the younger leaves drop at a touch, although the leaves formed in 1889 are quite sound and retain their hold. *Picea Engelmanni* var. *glaucæ*, frequently named *P. Parryana* var. *glaucæ*, pleases me much, and it is a very striking Conifer in the early summer months, the young leaves sparkling in the sun like silver; it is not in the least injured. [*P. Parryana* should be called *P. pungens*. It is better adapted to our climate than the more tender *Engelmanni*, which cannot be recommended near London. Ed.] *P. polita* is perfectly sound; it is a very distinct and handsome species, with smooth foliage of a rich grass-green colour.

I am pleased to note the perfect hardiness of *Abies Veitchii*, a free-growing distinct species, but one that is not so well furnished with branches as some others. *A. Pinsapo* is quite sound for 3 feet up, the lower branches being but slightly protected with snow; the young and old leaves above that height have disappeared, and the trees must suffer very much. *A. Nordmanniana* is slightly injured, but where the trees were sheltered by snow, the plants are unhurt, but all the young leaves drop off near the tops of the trees. *Sequoia gigantea* is badly injured, all the top branches being killed, and most of the leaves have fallen. *Abies Douglasii* is also injured, and the top branches have lost most of their leaves. *Cedrus Deodara* is much injured, although parts of the tree are sound, and others blasted as if by fire; *C. atlantica* is not much injured. The young leaves of *Araucarias* are much browned, but *Sciadopitys verticillata* has proved quite hardy, not a leaf being injured. *J. Douglas, Great Gearies, Ilford.*

THE PREPARATION OF VEGETABLE TALLOW IN CHINA.

In a recently-issued report by Mr. Consul Hosie on the trade of Winchow, he thus refers to vegetable tallow from *Stillingia sebifera*, which he says occasionally appears as an import, but more frequently as an export. The tree is largely cultivated near Wencho, and still more widely within the Ch'u-chou Prefecture to the west. It is not, perhaps, generally known that the fruit of this tree produces oil as well as tallow. The berries, which resemble coffee-beans in appearance and size, are first steamed and then pounded in an ordinary rice-trough. By pounding, the soft mealy mesocarp is partially separated from the kernels, the whole is then placed in a bamboo-sieve, the meshes of which are just large enough to allow the mealy matter to be scrubbed through, and small enough to keep back the kernels, which are hard, black, and about the size of Peas. From the mealy matter the tallow is expressed in primitive wooden presses. The oil is derived from the kernels in the following manner:—They are dried and passed between two millstones, held at such a distance apart, by means of a Bamboo pivot, as to crush the hard shells of the kernels without injuring the white interior. The whole is then passed through a

winnower, which separates the broken shells from the solid matter; the latter is then placed in a deep iron pan, and roasted till it begins to assume a brownish colour, the process being accompanied by continuous stirring to prevent burning. The crushed shells make an excellent fuel for this purpose. It is next ground by a huge stone roller in a circular stone well, steamed, made into circular cakes with Bamboo and straw casings, and passed through the wooden press. A good lighting oil, called "Ch'ing yu," of a brownish-yellow colour, is thus obtained. The tallow is called "p'i yu;" that is, skin or external oil.

TEA AND COFFEE SUBSTITUTES.

(Continued from p. 568.)

LILIACEÆ.

76. *Smilax glycyphylla*, Smith. — A glabrous climbing plant, with the stems and branches more or less armed with scattered prickles. It is found in N. Australia, Victoria, New South Wales, and Queensland. A decoction made from the leaves has a sweet taste, and is used in Australia under the name of Sweet Tea, or Botany Bay Tea. It would seem, however, to be used more as a medicine than a tea proper, for it is stated to have similar properties to Jamaica Sarsaparilla, which is a nearly allied plant.

PALMACEÆ.

77. *Phoenix dactylifera*, L.—Date Palm. Under the name of Date Coffee, the hard, horny seeds of this well-known Palm were roasted and ground, and largely advertised a few years ago as a substitute for true coffee. A company was formed for the exclusive manufacture and sale of this article, which is now seldom or never heard of.

GRAMINEÆ.

78. *Andropogon citratus*, DC. (Lemon-grass).—This scented-leaved grass occurs only in a cultivated state, and very rarely flowers. It is cultivated in Ceylon and Singapore for the sake of the fragrant oil which is distilled from the leaves, and used in perfumery. In the fresh state these leaves are said to be sometimes used as a substitute for tea, under the name of Citronelle tea; a warm infusion made from them is likewise stated to be a valuable medicine in febrile affections.

FILICES.

79. *Aspidium fragrans*.—The fronds of this Fern, which have a scent similar to that of the Raspberry, are much esteemed in the north of Asia for their anti-scorbutic properties, and are used as tea by the Mongols.

80. *Adiantum caudatum*, L. — A widely-spread Fern throughout the Tropics of the Old World, is used as tea in Réunion, under the name of Capillaire.

81. *Pellea flexuosa*, Link.—In Fournier's *Mexicana-rum Plantarum Enumeratio*, it is stated that the fronds are used as tea in Mexico. John R. Jackson, Museum, Kew.

(To be continued.)

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

JUNE 9.—Present: D. Morris, Esq., in the chair; Mr. McLachlan, Dr. Müller, Professor Church, Dr. Bonavia, Mr. Blandford, Rev. C. W. Dod, Rev. W. Wilks, and Rev. G. Henslow (Hon. Sec.).

Vine Branch Grown in Darkness.—With reference to the specimen exhibited at a previous meeting, Mr. Rivers contributed the following additional information accompanied by sketches:—"The situation is absolutely dark; first, there is a covering of slates overlapping each other, above which is a bed of tan 6 inches deep; the front wall and the back is

of brick; the temperature must be very high, as the hot-water pipes pass through the place, that of the house being seldom below 70° Fahr. The house was cleared of Grapes and plants by the middle of July, and the heat taken off. It was then undisturbed until March, when the slates and beds were cleared preparatory to a new crop. The branch was then discovered, its length being about 12 feet. It had, therefore, been about nine months without heat; during part of the time a severe frost had lasted. The leaves and bunch of Grapes were of the colour of a well-blanching Lettuce. It is impossible to say how long the branch was forming. I did not see any seeds in the fruit."

A discussion arose as to the degree of perfection to which flowers can attain when grown in total darkness. Mr. McLachlan, for example, found a Hyacinth, which by accident could not emerge from the ground, to be rose-coloured. Mr. Smee on a former occasion exhibited a dark purple Hyacinth which had developed underground beneath a slate. Many other instances are known. The committee expressed a wish to receive descriptions of any cases of plants developing in darkness which correspondents may be able to furnish.

Excrescences on Willows.—Mr. Blandford had examined sections of the specimens brought to the last meeting. The woody tissue was very dense, and indicated no clear evidence of insect origin. He suggested that there might have been an old gall, and that the tissues continued to hypertrophy after the escape of the insect, possibly a cryptocampus or sawfly. The wood was referred to Professor H. Marshall Ward for an examination of the tissues.

Staves Perforated.—Mr. Blandford observed that the insect officially reported by the India Office as taken from the barrels, and supposed to be the wood-borer, as mentioned at the last meeting, proved not to be the case. The staves are really perforated by *Xyleborus perforans*, an insect well known since 1855, and detected as perforating Sugar-canes in St. Vincent in 1867. He proposed making further investigations. Mr. McLachlan remarked that the original home of this insect was Central and South America, that it was exported to Madeira, and thence to India. Mr. Morris observed that the distribution also agreed with exportation of the Sugar-cane.

Injuries to the Cocoa Tree, Theobroma cacao.—Mr. Morris remarked upon the presence of *Styrastina depressa* infesting Cocoa trees in Grenada, that it is not a native of the West Indies, but introduced from S. America. At the Jamaica Exhibition, Cocoa from Surinam, together with insects injurious to it, were shown. Hence it was undoubtedly introduced into the West Indies along with the Cocoa.

Kämpferia, Tuberos Roots.—Professor Church had examined the tuberous roots, exhibited at a previous meeting by Mr. Morris, which are used as food in Trinidad and Dominica. He found that they contained very little starch, but a relatively large amount of gummy matter, which possessed a strong left-handed rotation, being apparently, therefore, of the levulose group. He remarked that it rapidly absorbed iodine, which became quite colourless, so that it was difficult to detect the starch unless a considerable quantity of iodine was present. These roots, therefore, would seem to have a composition closely resembling the tubers of *Stachys tuberosa*.

Papaver pilosum (?).—Rev. C. W. Dod exhibited a Poppy with orange-coloured flowers, about which some doubt was raised as to its identity. It was referred to Kew.

Apple Twigs Injured.—Mr. Lee of Clevedon, sent a number of twigs "ringed" in places. Generally the ringing had taken place at the buds. It was suggested to have been done by bullfinches rather than sparrows, as Mr. Lee intimated. It was observed by Mr. Blandford that hymenopterous insects not unfrequently produce a like result when collecting materials for their nests, as—e.g., hornets on Ash trees. It was suggested that the trees should be searched for the presence of insects at the time when the injury was done.

Hippeastrum Diseased.—Mr. Morris exhibited bulbs with leaves covered with red spots and blotches. They were received from Mr. J. Douglas, of Ilford. The bulbs were reddish coloured, and the leaves died off prematurely. It was thought to be due to *Saccharomyces glutinis* (described and figured in the *Gardeners' Chronicle*, 1886, p. 396). It was referred to Prof. H. M. Ward, for further examination and report.

ROYAL BOTANIC.

THE second summer exhibition was held June 17. The large tent was fairly well-filled, although the large specimen plants, flowering and foliage, which used to be such a prominent feature twenty years ago, and even more recently, were nearly absent; nor was the well-known Orchid bank filled to overflowing. The centre of the bank was well filled with a group of choice Orchids from Messrs. F. Sander & Co., St. Albans. The plants were very artistically arranged, and consisted of fine forms of *Miltonia vexillaria*; the variety, Mrs. Henry Ballantine, already alluded to in this paper, was most conspicuous. The variety *leucoglossum*, with a white labellum, was distinct and beautiful, reminding one of *Cobbanium*. *Oncidium macranthum*, Sander's variety, in the way of *hastiferum*, had a large handsome spike. *Cypripedium Curtisii* had two dozen of very fine flowers. *Phaius Humblotii* in flower, and fine forms of *Cattleya Mossiae*, were greatly admired.

The 1st prize for a group of Orchids was awarded to Mr. J. Douglas, gr. to Mrs. Whitbourn, of Great Gearies. It was composed of good forms of *Cattleya Mendeli*, *Dendrobium nobile*, *Aërides crassifolium*, *Cypripedium grande*, *C. Elliotianum*, *Calanthe veratrifolia*, *Anguloa Clowesii*, *A. uniflora*, *Sobralia macrantha*, &c.

From Messrs. B. S. Williams & Son, Upper Holloway, London, came a very meritorious group, consisting principally of Orchids. It was backed with sixteen large Vanda plants, for which this firm is famous. Handsome specimens of *Cypripedium superbiens*, and *C. barbatum nigrum*, *Oncidium macranthum*, splendidly flowered. In the centre of the group was *Cymbidium Lowianum*, with seven superb spikes.

Messrs. John Laing & Sons, of Forest Hill, arranged a very fine group of flowering and foliage plants, the most conspicuous objects in it being the tuberous-rooted Begonias, single and double, the tints of the flowers being delightfully varied, from the rich dark crimson of "Darkest Africa" to the pale rose and salmon tints. Mrs. Richard Dean is one of the best, the flowers clear rose with paler centres.

Messrs. W. Paul & Son, of Waltham Cross, exhibited a nicely-arranged group of Roses, cut *Rhododendrons*, hardy flowering and foliage shrubs, for which the firm is famous.

From Messrs. Paul & Sons, The Old Nurseries, Cheshunt, came a most artistic group, chiefly of alpine and hardy plants in pots and pans, baskets of old-fashioned Roses, which the firm grow as well as they do the modern Tea-scented and hybrid perpetual varieties. Their flowering and beautiful foliage shrubs were also very fresh and beautiful in arrangement.

Messrs. Hugh Low & Co., of Upper Clapton, exhibited a choice group of Orchids, New Holland plants, and Cape Heaths. *Saccolabium præmorsum* was very attractive, the more so, as we do not see this plant often in these days.

Mr. George Elliot, gr. to W. F. Darnett, Esq., Devonshire House, Stamford Hill, also exhibited Orchids, principally *Cattleyas*, nicely arranged with Ferns and foliage plants.

Messrs. Kelway & Son, of Langport, Somerset, made an immense show, with boxes of single and double *Pyrethrums*, single and double *Faonies*, *Irises*, *Delphiniums*, and hardy herbaceous plants. The long rows of boxes, with the heads of flowers, quite level, may be somewhat formal, but the quality of the exhibits was worthy of all praise.

Messrs. James Veitch & Sons, of Chelsea, had a charming collection of hardy flowers and shrubs, very choice cut *Rhododendrons*, and hardy *Azaleas*, a choice group of *Ixias*, new Orchids, amongst them the Hybrid *Disa Veitchii*, *Dendrobium Phalanopsis Statteriana*, very rich in colour; a good variety of *Gloxinia*, named *Monarch*, the flowers rich crimson, shaded.

Messrs. Carter, of High Holborn, exhibited a collection of *Gloxinias*, remarkable for their free-flowering character, rich colour, large size, and fine form.

Messrs. Cutbush & Sons, of Highgate, exhibited a group of flowering and foliage plants of the usual high character, used for furnishing, showing good arrangement; also six boxes of cut *Pyrethrums*. Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, exhibited an immense collection of single and double *Pyrethrums* in all the best varieties. Messrs. Paul & Son obtained the 1st prize in a good competition for a collection of cut herbaceous flowers. Messrs. W. Rumsey & Co., Waltham Cross, were awarded a

Bronze Medal for a fine lot of Niphetos Roses (cut blooms). Messrs. Dobbie & Co., Rothesay, received a Bronze Medal for a very nice collection of Pansies and Violas. Messrs. Barr & Son, King Street, Covent Garden, showed a large collection of hardy cut flowers, of very good quality. Mr. Pritchard, of Christchurch, Hants, exhibited a small group of alpinas. Messrs. Carter had a choice collection of miniature and other Cacti in and out of bloom. In the schedule classes there was not much competition. For twelve and also for six stove and greenhouse plants, Mr. J. F. Mould, Pewsey Nursery, Wilts, won the 1st prizes easily, with very good, well-trained specimens. The best foliage plants were sent by Mr. A. Offer, gr. to J. Warner, Esq., Stand Cross Park, Crawley, who also exhibited the best stove and greenhouse Ferns.

The best twelve specimen Orchids were sent by Mr. James, Castle Nursery, West Norwood, which was awarded the 1st prize, although there was no competition. The best show and fancy Pelargoniums came from Mr. C. Turner, of Slough, and Mr. D. Phillips, Langley Broom, Slough, both exhibitors showing handsome, large, well-flowered specimens. Mr. D. Phillips was awarded 1st prize for six well-flowered zonal Pelargoniums. Mr. Henry James had a nice group of Saracenias, and won 1st prize in class set apart for them. Mr. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, won the 1st prize for Fuchsias with nice pyramidal specimens.

Messrs. W. Ramsey & Co., Joynings Nursery, Waltham Cross, took 1st for Roses, cut blooms, in one variety, with a box of Niphetos. Mr. T. Osman, gr. to L. J. Baker, Esq., was 1st for Roses, cut blooms, in one variety (yellow). Mr. G. Mount, Canterbury, was awarded 1st prize for six fine-scented. Mr. J. Douglas, gr. to Mrs. Whitbourne, took 1st for twelve trusses of Orchids, containing some very nice spikes of Cymbidium Lowianum. The 1st prize for twenty-four show Pelargoniums in twelve varieties was easily won by Mr. C. Turner, Slough, with a fine collection; Mr. D. Phillips taking the 1st for zonal Pelargoniums, cut blooms. Messrs. Barr & Son exhibited a large collection of hardy cut flowers, and took the 1st prizes for collection of Ixias and Sparaxis; also for collection of Iris in not less than twenty-five varieties.

Fruit.—The chief feature in this division were the Grapes, which were well contested, and of good quality in all the classes.

Mr. J. Edmonds, gr., Bestwood, Nottingham, took the 1st prize for the best collection of fruit, with Black Hamburg and Foster's Seedling Grapes, Best of All Melon, Brown Turkey Figs, La Grosse Sucrée Strawberries, &c.; also the 1st prize for two Melons.

Mr. T. Osman, gr. to L. J. Baker, Esq., Ottershaw Park, Chertsey, was first with a fine basket of well-coloured Black Hamburg Grapes. Mr. R. Grindrod, Whitfield, Hereford, took the 1st prize for white Grapes.

Mr. T. Osman also took the 1st prize for three bunches of Black Hamburg, and 1st for three bunches of white, any kind, with Buckland's Sweetwater.

Mr. Smith, gr. to G. Sewell, Esq., Warren Hill, Loughton, was 1st for three bunches (black) of any kind, with Gross Maroc; also for the three best bunches of Muscat of Alexandria.

The best Peaches were shown by Mr. W. Robbins, gr. to Colonel E. D. Lee, Aylesbury; and the best Nectarines by Mr. J. Douglas, gr. to Mrs. Whitbourne, Great Gearies, Ilford.

Mr. W. H. Divers, gr. to J. T. Hopwood, Esq., Ketton, Stamford, was 1st, with two fine dishes of Strawberries, Auguste Nicaise and Noble. Mr. J. Crawford, gr., Coddington Hall, Newark, took the 1st prize for Figs in two varieties. Mr. T. Hare, Wellington Gardens, Grantham, was 1st for Cherries; and Mr. Godfrey, Manager to W. Whiteley, Esq., Hillingdon, Uxbridge, was awarded a prize for Tomatoes.

The following is a list of the plants which received certificates:—

Floricultural Certificates.

To Messrs. Laing, Forest Hill, for Begonias Duchess of Leinster, Lady Grimthorpe, Mrs. R. Dean.

To Messrs. Turner, Slough, for Pelargoniums (fancy) Dorothy, (show) Royal Ascot.

To Messrs. Veitch & Sons, for Gloxinia Monarch.

To Messrs. P. Barr & Sons, for Iris germanica Khurput and I. Gatesii.

To Messrs. Carter & Co., for Gloxinias Mrs. J. Carter, Rainbow.

To Messrs. Ware, Tottenham, for Pyrethrum Duchess of Portland, Papaver, Prince of Orange.

To Messrs. Kelway & Son, for Iris amoena Victorine,

pallida, Dalmatica, Achillea mongolica, Delphinium Puck, Pyrethrum Carmen Sylva, Warrior, Ne Plus Ultra, Carl Voget, Lenord Kelway, Pæonia Juno autumnus, Tinted Venus, Humei.

To Messrs. Collins Bros. & Gabriel, for Pyrethrums Monarch and Mrs. Bateman Brown.

Botanical Certificates.

To Messrs. J. Veitch & Son, for Dendrobium Phalenopsis Statterianum, Styra obassia, Epiphrontis Veitchii, Disa Veitchii, Azalea (two sp.), Fig St. John, Aquilegia Veitch's hybrids.

To Sir W. M. Marriott, M.P., Down House, Blandford, for Lælia Cattleya Canhamia.

To Messrs. Sander, St. Albans, for Oncidium loxense, Cattleya Reineckiana (Sander's var.), Lælia hybrida Arnoldiana, Odontoglossum vexillarium, Mrs. Henry Ballantine, Oncidium macranthum (Sander's var.).

To Messrs. Williams, Holloway, for Anthurium Madame de Smet Duvivier, Dendrobium Statterianum.

To Messrs. H. Low & Co., for Cypripedium nivium album.

To Messrs. Barr, for Iris Gatesii.

To Mr. Pritchard, Christchurch, Hants, for Philadelphus Lemoinei.

IPSWICH HORTICULTURAL.

JUNE 4.—The summer exhibition of this Society usually takes place early in July, when Roses and early fruits are leading features. This year, owing to the exhibition of the Suffolk Agricultural Association being held in Ipswich, it was arranged that the above exhibition should be held in connection with it, both being located in Christchurch Park. In consequence of the early fixture, added to the lateness of the season, there was a smaller show than usual, though it contained much to interest visitors.

Stove and Greenhouse Plants came mainly from Mr. George Gilbert, Floral Nurseries, Ipswich. In the class for six, he had Epacris miniata splendida, Erica Cavendishiana, E. ventricosa globosa, and Cattleya Mossia in good condition. Mr. C. Whitfield King had the best four Orchids, staging good examples of Dendrobium thysiflorum, D. Dalmatense, D. chrysotoxum superbum, and Odontoglossum maculatum. The best specimen Orchid came from Mr. Marshall, gr. to J. D. Cobbold, Esq., Ipswich, viz., Stanhopea tigrina, with thirteen large flowers; and the 2nd prize went to Mr. C. Whitfield King, who had Dendrobium nobile.

Begonias were a good feature, Mr. T. Jordan, Harkstead Rectory, was 1st, with six single and also six double varieties, quite distancing any of his competitors by their superior quality. Gloxinias were an excellent feature also, good growth and fine quality prevailing. Mr. F. Buckingham had the best six; and Mr. R. C. Norcutt was 2nd. Mr. Buckingham was also 1st, with twelve; and Mr. E. R. Turner 2nd. Being somewhat numerous shown, they made charming masses of colour. Mr. G. Gilbert and Mr. A. F. Nicholson had the best specimen Lilies, L. Harrisii being shown by both in good condition.

Groups of Plants arranged for effect made a pleasing feature in the centre of the tent. In the class for a large one, Mr. Marshall was placed 1st; and Mr. C. Whitfield King, 2nd; but too close packing of material was observed in all that competed. In the class for a small group, Dr. R. K. Casley was 1st; and Mr. E. R. Turner, 2nd. Roses in pots, and Pelargoniums of all classes were also shown.

Foliaged Plants.—Mr. G. Gilbert had the best six specimens, among them a fine piece of Phormium tenax variegatum in flower, Croton Queen Victoria, Cissus discolor, Acalypha tricolor, well coloured, &c. Mr. Marshall had the best six exotic Ferns, and Mr. A. F. Nicholson was awarded an extra prize for a good group of hardy Ferns.

Cut Flowers.—A very good stand of twelve blooms was staged by Messrs. D. Prior & Sons, Myland Nurseries, Colchester. Mr. C. Jacobs, Henley Road, Ipswich, had the best stand of six blooms. Zonal Pelargoniums, both double and single, were a fine feature also, high quality being generally characteristic of the flower stage. Mr. A. F. Brewster was 1st with twelve bunches in the open class. The best six double zonals came from Mr. W. Andrews, gr. to the Hon. W. Lowther, M.P., Campey Ash. Mr. T. S. Ware, Tottenham, had the best eighteen bunches of herbaceous flowers; Mr. R. C. Norcutt was 2nd.

In the amateurs' class for the same number, Mr. W. Andrews was 1st, and Mr. T. H. Powell 2nd,

Mr. T. H. Powell, Drinkstone Park, Bury, had the best six bunches of stove and greenhouse cut flowers and Mr. R. Burrell was 2nd.

A fine and attractive collection of Orchids was set up by Messrs. F. Horsman & Co., Ipswich, and proved a great point of attraction. It contained Lælia purpurata in variety, Dendrobiums, Oncidiums, Odontoglossa, Cattleyas, &c., and was very highly commended.

Fruit and vegetables were sparingly shown. Mr. A. Tibenham, gr. to Lady North, Little Glenham Hall, had the best three bunches of black, and also of white Grapes. Peaches, Melons, and Strawberries were also shown.

Vegetables were good for the season; Mr. W. Andrews took the 1st prize for a collection of eight dishes; and he was also 1st with six dishes, competing for Messrs. Sutton & Son's special prize. Special prizes were also offered by Messrs. Webb & Son, Mr. T. S. Ware, and H. Cannell & Sons, for various objects.

LAW NOTES.

H. T. WILLS & CO. v. ISAACS & SONS.

THIS was an action, tried on Monday last, the 8th inst., brought by the plaintiffs, who carry on business at Monument Buildings, in the City of London, against the defendants, carrying on business at Monument Yard, E.C., for breach of a contract to deliver a large quantity of Potatoes in the early part of the present year.

Mr. Jelf, Q.C., with Mr. Poyser, appeared for the plaintiffs. Mr. Cock, Q.C., with Mr. Rufus Isaacs, appeared for the defendants.

It appeared from the opening of counsel, that in December, 1890, an agreement was entered into between the plaintiffs and the defendants, that the defendants should sell and deliver to the plaintiffs, free on board ship, in London, as soon as weather would permit, and that the plaintiffs should buy and accept from the defendants "3000 bags, containing 1 cwt. each of British Magnum Potatoes, grown on light soil, of good quality, package and condition prime," or in the alternative that they should be of sound merchantable quality fit for shipment or equal to sample at the price of £3 10s. per ton, to be paid in nett cash against bills of lading. There was a further agreement entered into between the same parties on December 31, 1890, to deliver free on board ship in London, 50 tons more of British Magnum Potatoes of good quality, free from spot and in good sound bags, and equal to sample, at the price of £4 per ton. The plaintiffs complained that the defendants did not ship the said Potatoes, and had repudiated the contracts.

The particulars of damages consisted of the market prices of 200 tons of Magnum Potatoes at 120s. a ton, £1200:—

	£	s.	d.
Less contract price of 150 tons at £3 15s. ...	562	10	0
Do. 50 tons at £4 ...	200	0	0
	762	10	0
Balance claimed in this action ...	£437	10	0

Mr. Henry T. Wills was called, and bore out the learned Counsel's opening of the case, stating that he had made many applications for the delivery of the Potatoes; that having, after some delay, obtained an inspecting order, he found the Potatoes were not in a merchantable condition, owing, no doubt, to the long-continued frost which had previously prevailed. The Plaintiff's manager was called, and spoke generally to the making of the agreement, and as to the condition of the Potatoes, and that the plaintiff said, "You cannot have better Potatoes," and that he could take his word for it that better could not be got, and that thereupon he took a sample, which sample he produced in Court.

Other witnesses were called to prove the market price of Potatoes at the date in question.

Mr. Jelf submitted to the learned Judge that the Potatoes were frost-bitten at the time the offer to purchase was made, and that the plaintiffs were now taking advantage of their own neglect in not sufficiently examining the Potatoes to bring this action for the non-delivery of this large quantity. He further submitted that it was an essential term that the Potatoes were sold according to sample, that each party seemed to think that the one was over-reaching the other, but that, as there was no note in writing showing that the goods were sold according to sample, that in itself would be an answer to the

action, which point had already been decided in a case reported in the *Irish Law Reports*, vol. vi., p. 463.

Having called a good deal of counter-evidence as to the quality of the Potatoes in question, which were described by the witnesses as "black land Magnums," and also as to the market prices, which differed somewhat from the price stated by the plaintiffs' witnesses, his Lordship (Mr. Justice Mathew) assessed the market price of the first 150 tons at 90s., and the second 50 tons at 80s. per ton, resulting in a judgment for the plaintiffs for £150, with costs. His Lordship granted a stay of execution, pending an appeal on the amount of the judgment being paid to the plaintiffs within three days.

FALSE IMPRISONMENT OF A FLORIST: £20 DAMAGES.

In the Brompton County Court on Tuesday, the 9th inst., the case of *Barnet v. Leggett*, remitted from the High Court, came on for hearing before His Honour Judge Stonor, and a jury.

The plaintiff, Mr. George Barnett, florist, of 82, Richmond Road, Brompton, sued Mr. Alfred Leggett, also a florist, of 306A, Fulham Road, Kensington, for £200 damages for false imprisonment. It appeared that both the parties were engaged as gardeners at the Brompton Cemetery by grave-owners to generally attend to the ornamentation of the graves. There had been a great number of plants stolen from some of the graves of late, and complaints were made to the superintendent of the cemetery. On February 9 of this year, while the plaintiff was at work, the defendant gave him into custody, alleging he had stolen some of his plants. The magistrate before whom the charge came, expressed an opinion that it was a case of trade jealousy, and the plaintiff was discharged. He now, therefore, sued for compensation for being falsely imprisoned.

The defence was, that at the time of the occurrence the defendant believed the plaintiff had stolen his plants, that he was advised by the police to prosecute the plaintiff, and that he had reasonable and probable cause for the step he took.

The jury found for the plaintiff, and fixed the damages at £20. Notice of application for a new trial was given by the defendant.

NATIONAL CHRYSANTHEMUM SOCIETY.—The picnic of the above, which was announced in general terms in our issue for June 6, will be held at Ascott, Leighton Buzzard, on Monday, July 20.

MARKETS.

COVENT GARDEN, June 18.

BUSINESS brisker, with good supplies. *James Webber*, Wholesale Apple Market.

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ... 0 4-0 6	Endive, per dozen ... 4 0-...
Asparagus, wholesale, Worcester, bundle 1 0-1 6	Herbs, per bunch ... 0 4-...
Cambridge, bundle 1 0-1 6	Lettuces, per dozen ... 3 0-...
Various, sml. bdle. 0 6-10	Mushrooms, punnet 2 0-...
Beans, French, lb. ... 1 6-20	Mustard and Cress, punnet ... 0 4-...
Beet, red, per dozen 2 0-3 0	Parsley, per bunch ... 0 4-...
Carrots, per bunch ... 0 6-...	Seakale, per basket ... 0 9-1 6
Cauliflowers, each ... 0 6-...	Shallots, per lb. ... 0 6-...
Celery, per bundle ... 2 8-3 6	Spinach, per bushel ... 7 0-...
Cucumbers, each ... 0 6-1 0	Tomatoes, per lb. ... 1 6-2 0
	Turnips, per bun. new 1 6-...

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Foliage plants, various, each ... 2 0-10 0
Aspidistra, doz. ... 18 0-42 0	Genista, per dozen ... 6 0-9 0
— specimen plants, each ... 7 6-10 6	Heliotrope, per doz. 4 0-8 0
Azalea, per dozen ... 12 0-30 0	Hydrangea, per doz. 9 0-18 0
Bedding plants, variety, per doz. ... 1 0-2 0	— paniculata, per plant ... 2 0-4 0
Bouvardia, p. doz. ... 9 0-18 0	Ivy Pelargoniums, per dozen ... 4 0-6 0
Calceolaria, p. doz. ... 4 0-6 0	Liliums, various, per dozen ... 18 0-30 0
Cineraria, per dozen 4 0-8 0	Lobelia, per dozen ... 4 0-6 0
Cyperus, per dozen ... 4 0-12 0	Marguerites, doz. ... 6 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Mignonne, per doz. 4 0-9 0
— viridis, per doz. 12 0-24 0	Musk, per doz. ... 2 0-4 0
Eunymus, in var., per dozen ... 6 0-18 0	Myrtle, per doz. pots 6 0-12 0
Ericas, various, per dozen ... 8 0-24 0	Palms in variety, each ... 2 6-21 0
Evergreens, in var., per dozen ... 6 0-24 0	Pelargoniums, doz. 9 0-15 0
Ferns, in variety, per dozen ... 4 0-18 0	— scarlet p. doz. 4 0-9 0
Ficus elastica, each 1 6-7 0	Roots for bedding, in boxes, each, from 1 0-2 0
	Spiraea, per dozen ... 6 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, 12 blms. 2 0-6 0	Pansies, 12 bunches 0 6-1 0
Bouvardia, per bun. 1 0-1 6	Pelargoniums, scarlet, 12 spr. ... 0 4-0 6
Carnations, 12 blms. 1 0-2 0	— 12 sprays ... 0 6-1 0
Eucharis, per dozen 3 0-6 0	Primulas, double, 12 sprays ... 0 6-1 0
Gardenia, per doz. ... 1 6-3 0	Ranunculus 12 bun. 1 0-2 0
Heliotrope, 12 spr. 0 6-1 0	Roses, Tea, per doz. 1 0-3 0
Lilac, best, p. bunch 4 0-6 0	— coloured, dozen 2 0-4 0
Lilium Harrisii, doz. 3 0-4 0	— yellow (Maréchal), per doz. ... 2 0-6 0
Liliums, various, per dozen ... 1 0-3 0	— red, per dozen ... 3 0-6 0
Maiden Hair Fern, 12 bunches ... 4 0-9 0	— do., French, doz. 1 0-3 0
Marguerites, 12 bun. 3 0-6 0	Spiraea, per bunch ... 0 4-0 6
Mignonne, Fr., bu. 0 4-0 6	Tuberose, 12 blms. ... 0 6-1 0
Myosotis, 12 bun. ... 2 0-4 0	Wallflower, 12 bun. 2 0-4 0
Narcissus, double white, 12 bunches. 4 0-6 0	

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 4-sieve ... 3 6-6 0	Lemons, per case ... 15 0-25 0
— Nova Scotia, brl. 15 0-25 0	Peaches, per dozen ... 3 0-12 0
— Tasmanian, case 12 0-14 0	Pine-apples, St. Michael, each ... 2 0-8 0
Cobs, Kent, 100 lb. ... 35 0-40 0	Strawberries, p. lb. ... 2 0-5 0
Grapes ... 1 6-3 0	

NEW POTATOES.—Arrivals heavy. Prices—9s. to 11s. for Jerseys; French, 9s. to 10s. Expected lower, crops being very heavy.

OLD POTATOES.—Supply about equal to demand. Prices firm. *J. B. Thomas.*

SEEDS.

LONDON, June 17. — Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., write that to-day's market was very thinly attended, with almost a complete absence of business; in fact, there is just now nothing moving in farm seeds. Of fine Mustard, supplies are in exceedingly narrow compass. For Rape-seed the tone is very strong. Hempseed is weak. Some choice Spanish Canary seed, just arrived, being very cheap, attracts attention. As regards fine samples of blue Peas, the boards are now bare. Good Buckwheat is obtainable on moderate terms. There is an inquiry for English winter Tares.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure, for the week ending June 13, and for the corresponding period last year:—1891. Wheat, 40s. 2d.; Barley, 27s. 2d.; Oats, 21s. 5d. 1890. Wheat, 32s. 8d.; Barley, 25s. 7d.; Oats, 20s. Difference, Wheat, +7s. 6d.; Barley, +1s. 7d.; Oats, +1s. 5d.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	Above (+) or below (—) the Mean for the week ending June 13.	ACCUMULATED.			More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 4, 1891.	Total fall since Jan. 4, 1891.	Percentage of possible Duration for the Week.		
		Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 4, 1891.						
									Below 42°, difference from Mean since Jan. 4, 1891.	
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Ins.					
1	3 —	50	4	+ 25	79	6 —	98	18.7	49	32
2	3 —	61	4	— 92	101	5 —	64	8.1	52	33
3	4 —	55	0	— 127	+ 95	4 —	71	7.4	31	30
4	5 —	63	0	— 121	+ 128	5 —	76	8.0	31	32
5	4 —	72	0	— 88	+ 116	5 —	70	9.2	40	31
6	3 —	82	0	— 114	+ 149	4 —	66	9.2	43	35
7	2 —	70	0	— 9	+ 46	7 —	73	12.7	50	33
8	4 —	64	0	— 42	+ 37	5 —	63	8.6	46	30
9	2 —	83	0	— 71	+ 118	5 —	68	11.9	47	37
10	2 —	70	0	— 54	+ 28	5 —	83	9.6	46	32
11	2 —	83	0	— 27	+ 31	5 —	76	11.5	47	35
12	3 —	83	0	— 58	+ 40	1 —	75	11.3	44	46

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S. Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending June 13, is furnished from the Meteorological Office:—

"The weather has been fair and dry in all parts of the Kingdom.

"The temperature remained low for the time of year until almost the end of the week, when it rose considerably, and maxima ranging from 70° to 76° were recorded in many parts of Great Britain, and 70° to 71° in Ireland. The lowest of the minima, which occurred on varying dates, ranged from 30° in the north and east of Scotland, and 32° in 'England, N.W.' to 39° in 'Ireland, S.' and 44° in the 'Channel Islands.' The average readings for the week have ranged from 2° below the mean in some of the western and south-western districts, to 4° below over northern and central England, and to as much as 5° below in 'England, E.'

"The rainfall has been very slight; in most districts there has been a mere trace, but at the extreme southern stations the fall has been less small, and in the 'Channel Islands' it amounted to three-tenths of an inch.

"The bright sunshine has been more prevalent as a whole than it was during the previous week, and in most districts has exceeded the mean for the time of year. It has been most prevalent in the north and west, the percentage of the possible duration varying from 49 to 52 in Scotland, from 46 to 47 in Ireland, and from 31 to 47 in England."

NOTICES TO CORRESPONDENTS.

BLUE MARGUERITE: *W. S. A.* If you mean *Agatheæ celestis*, it is in the trade, and has been since its introduction in 1753.

CONTRACTING TO SERVE IN A CIVIL CAPACITY IN U.S.A.: *A. D. W.* There is no law against it on this side.

COBBLER'S HEAL: *J. J. F.* The plant you send is *Valeriana officinalis*. We never before heard of its virtues as a salve for wounds.

CORRECTION: At p. 728, in the last issue, instead of British Fruit and Rose Growers' Association, read, English Fruit and Rose Company.

GOOSEBERRY FUNGUS: *James Tait.* Your Gooseberry bushes are badly affected with a fungus, *Acidium grossulariæ*, which was figured in this paper, June, 1881; see figs on p. 765 illustrating the same. It is rather difficult disease to get rid of. Gather and burn all the affected parts, and try spraying with a wash of copper sulphate.

GRAPES: *H. T.* The berries have begun to shank. The roots are doubtless in an unhealthy state, which may be looked into when the Vine begins to cast its leaves. In the meantime, crop it lightly, and surface-dress the border with some special vine manure or good Peruvian guano. The curling of the leaf may be due to insufficient ventilation. We should be glad to inspect better specimens.

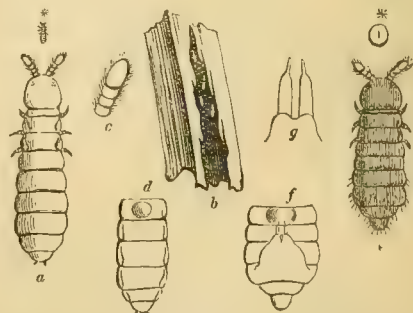


FIG. 153.—SPRING-TAILED INSECTS: *PODURA TERRESTRIS*.

INSECTS: *Enquirer.* The minute white insects found in the earth in your garden-pots are a species of the spring-tailed insects, *Podura terrestris nivea*, of Deljeer, which feed on decaying vegetable matter.

Saturate the soil with gas-tar water. *I. O. W.*
P. F. Your Raspberry plants are being attacked by the clay-coloured weevil. For the present, dress the ground with ammonical liquor and common salt. See answers to correspondents in *Gardeners' Chronicle* for June 13.

NAMES OF PLANTS: *O. D.* *Dendrobium moschatum*, *Lycaste Deppei*.—*S. D. M.* *Arbutus Menziesii*, *Ilex Perado*.—*Bellis*. 1, *Buxus balearica*; 2, variety of *Cherry Laurel*, known as *camelliaefolium*; 3, *Erigeron philadelphicus*; 4, *Phytenua orbiculatus*; *Papaver bracteatum*.—*X. X.* *Asperula odorata*, *Lathyrus pratensis*, *Poterium sanguisorba*, *Arabis rosea*.—*Thos. Wilson*. 1, *Staphylea pinnata*; 2, *Erysimum alpestre*; 3, *Veronica gentianoides*; 4, *Limnanthes Douglasii*; 5, *Helichrysum orientale*; 6, *Anemone sylvestris*.—*S. T.* 1, *Meum athamanticum*; 2, *Sherardia arvensis*; 3, *Medicago lupulina*; 4, *Nepeta glechoma*; 5, *Cardamine pratensis*.—*G. W. R.* *Cratægus Crus-galli*, if with thorns.—*G. McA.* 1, *Veronica gentianoides*; 2, *Trollius europæus*; 3, *Diplopappus chrysophyllus*; 4, not found; 5, *Sedum Rhodiola*; 6, *Veronica*, not recognised; 7, *Sedum Sieboldi* var.—*F. S.* 1, *Phlox subulata*; 2, *P. subulata*, white var.; 3, *Centaurea montana*; 4, *Veronica*; 5, *Epimedium alpinum*; 6, *Pulmonaria officinalis*.—*Heaton*. Orange flower, *Diplacus glutinosus*, greenhouse, nearly hardy; yellow-flower, a *Doronicum*, we do not know which one, from the miserable scrap you send.—*W. B.* 1, *Papaver orientale*; 2, *Crinum Mooreanum*.—*J. J. F.* Shrub, *Euonymus pungens*; the grass is *Alopecurus bulbosus*.—*R. H.* *Aërides falcatum Leonis*.—*D. Hunter*. *Prunus padus*.—*W. L.* 1, *Eranthemum aureo-reticulatum*; 2, *Sonchella Hendersonii*; 3, *Cyrtodeira chontalensis*; 4, *Anæctochilus regalis concinnus*; 5, *Phaius maculatus*; 6, *Phlox subulata*; 7, *Euphorbia cyparissias*; 8, *Mecanopsis cambrica*; 9, *Ornithogalum umbellatum*.—*R. W. N.* 1, *Saxifraga granulata*, double-flowered var.; 2, *Nertera depressa*; 3, *Saxifraga Wallacei*; 4, *Saxifraga*, not recognised; 5, *Saxifraga cotyledon*; 6, *Viola*, not known; 7, *Sedum reflexum*.—*West Surrey*. 1, *Kalmia angustifolia*; 2, *Rhododendron ferrugineum*.—*W. S. A.* A species of *Polygonum*, we do not know which one.

PEACH AND VINE LEAVES: *R. B.* The leaves sent exhibit the usual indications of improper ventilation. Probably the syringing of the trees takes place too late in the morning, and the house becomes unduly hot before air is afforded; and, when globules of water remain on the leaves, or water hangs about the edges, this kind of scalding readily occurs. When it is very excessive the leaf drops off after a time. The Vine leaves are deficient in substance.

PEACH MILDEW: *Vox*. Too late to do anything this year. Another year try spraying with sulphide of potassium or sulphate of copper at a very early stage.

PEAR LEAF: *W. S. A.* Your leaves are probably affected by the slug-worm.


TOMATO PLANTS DYING. *T. H. W.* Try the use of Sulphate of Copper—often written about in these columns.

CATALOGUES RECEIVED.


F. ROSE & Co., Artificial Stone Manufacturers, London.—Illustrated List of Bricks, Edging Tiles, &c.

REID & BORNEMANN, Sydenham Nurseries, S.E.—Zonal Pelargoniums, Fuchsias, Dahlias, &c.

COMMUNICATIONS RECEIVED.—*David Hunter*: nothing was found in the envelope.—*J. S.*—*Canon Swayne*.—*Sir J. P.*—*W. E. G.*—*Professor G.*, Liège.—*Dr. Macfarlane*.—*E. J. L.*—*Ch. D. B.*, Antwerp.—*J. V. V.*, Brussels.—*J. D. S.*, Baltimore.—*R. V. S.*—*W. Barron & Son*.—*W. E. B.*—*R. D.*—*Expert*.—*Wild Rose*.—*W. H.*—*D. S.*—*W. K.*, your letters will be shown to the committee.—*W. A. C.*—*J. S.*—*J. D.*—*T. H.*—*B. A. E.*—*A. D. W.*—*W. G. H.*—*Merryweather*.—*T. J. S.*



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NOTICE IS HEREBY GIVEN, that by virtue of an Order of the High Court of Justice, dated May 26, 1891, the use of the name **AGRI-HORTICULTURAL CHEMICAL COY.** on Show-Cards, Circulars, Labels, or otherwise howsoever, by the Makers of the **ACME WEED KILLER**, recently trading under that name at Tunbridge, Kent, is **ILLEGAL**, and that our Manufactures cannot be obtained genuine in Tunbridge except from our Agents, Messrs. **WEBMER & WARDLEY**, Chemists, there.

ORDER OF THE HIGH COURT OF JUSTICE.

The Horticultural and Agricultural Chemical Coy.,
97 MILTON STREET, GLASGOW.
PLAINTIFF.

VERSUS

The Agri-Horticultural Chemical Coy.,
TUNBRIDGE, KENT.
DEFENDANTS

The Court granted an INJUNCTION RESTRAINING THE DEFENDANT COY.

- (1) From using in any manner or for any purpose whatsoever the Name Agri-Horticultural Chemical Coy. or any name likely to mislead or deceive the public into the belief that the business of the Defendant Coy. is the same as the business of the Plaintiff Coy. or in any way connected therewith.
- (2) From infringing the Plaintiff's Letters Patent, dated 11th March, 1886, by making or selling any compounds made according to the specification thereof for the purpose of imitating the said Plaintiff's product.
- (3) The Court also ordered the Defendant Coy. to pay to the Plaintiffs £40 towards their costs of this action.

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thoroughly. I have been asked by many how the Roses are
so clean, and I at once tell them to get one of the "Stott"
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soon find the benefit. I have used it all round the walls, and
it has cleansed everything. I think it a very useful invention,
and shall recommend it to all my friends.—I remain, yours
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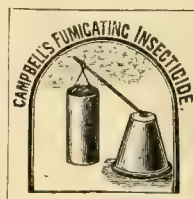
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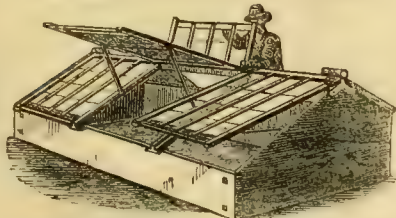
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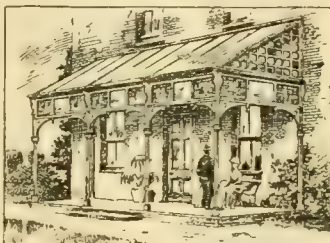
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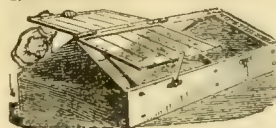
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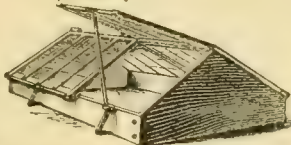
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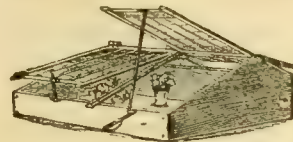


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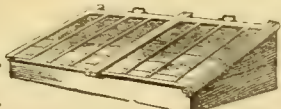


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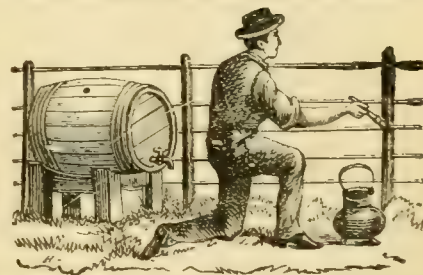
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&c. Fine specimens for Sale very cheap.—Apply by letter, Estate Office, Barrett's, Henley-in-Arden.

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ENGINEERS to Her Majesty, H.R.H. the Prince of Wales, H.M. Government Admiralty Department, War Department, Royal Horticultural Society, Royal Botanic Society, Parks, and Public Buildings. Patentees of the Duplex Upright Tubular Boilers.

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MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney. WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Tuesday Next.

ODONTOGLOSSUM ALEXANDRÆ.

A very fine importation guaranteed from the best Pacho district, many good varieties seen in Flower. The plants are fine masses, in very good condition, and have been collected and brought by Mr. Millican, who only reached Southampton on the 16th inst. In all 300 lots.

MESSRS. PROTHEROE AND MORRIS will include the above important batch of ODONTOGLOSSUM ALEXANDRÆ in their Orchid SALE on TUESDAY NEXT, June 30, at half past 12 o'clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.—Established Orchids, many in Flower.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, June 30, at half-past 12 o'clock, about 200 of ESTABLISHED ORCHIDS, mostly in Flower and Bud. There will be included a magnificent and very distinct form of ODONTOGLOSSUM ALEXANDRÆ.

On view morning of Sale, and Catalogues had.

Friday Next, July 3.

By order of Messrs. Linden, Directors of *L'Horticulture Internationale*, Brussels, Belgium.

A most IMPORTANT SALE of New and RARE IMPORTED ORCHIDS, including the magnificent new ONCIDIUM LEOPOLDI, Rolfe.

Offered for the first time. See *Lindenia*, English edition, plate, 274.

One of the grandest ORCHIDS ever imported, and destined to create sensation. The flower-scapes attain a length of several yards, and bear as many as 300 large flowers of the greatest beauty. The segments are white, and have a large purple spot at the base, while the lip is of a bright violet-purple. This will be an amvellous addition to the genus, already so rich, and which will be still more prized than the beautiful ONCIDIUM MACRANTHUM.

COCHLIODA (ODONTOGLOSSUM) NOETZLI, Rolfe.

(See *Lindenia*, English edition, plate 266.)

In fine masses, and the most perfect condition. M. Bungeo says in his last letter that he considers this one of the grandest of the genus.

MESOSPIDIUM VULCANICUM GRANDIFLORUM.

This is a most superior variety to Mesospidium vulcanicum in size and colour. The dried flowers sent by the collector measures nearly 3 inches in diameter, of a brilliant carmine colour, and produced in quantities on slender panicles.

ODONTOGLOSSUM NEBULOSUM CANDIDUM.

A most superb and superior variety, producing pure white large, elegant blooms. Just arrived, in the best possible condition.

ZYGOPETALUM LINDENIÆ, Rolfe, in Flower.

(See *Lindenia*, English edition, plate 276.)

CORYANTHES LEUCOCARYS, Rolfe, in Flower or Bud. The white-helmed Coryanthes. A most beautiful and rare new Orchid.

CATTLEYA REX, James O'Brien.

The "King of the Cattleyas."

(See *Lindenia*, English edition, plate 265.)

Only one very fine plant of this grand Cattleya we are able to offer. The largest plant imported.

Also a small number of fine healthy established unflowered plants of the beautiful autumn-flowering CATTLEYA VAROQUEANA: a very fine lot of ONCIDIUM MACRANTHUM HASTIFERUM, and other choice and beautiful ORCHIDS, for description of which, see Catalogue.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, July 3, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, July 3, a small batch of a most beautiful semi-established CYPRIPEDIUM, believed to be entirely new, and received direct.

Copy of coloured drawing taken from a plant which flowered in the case will show the extreme beauty of the flower. Only about four dozen plants for Sale.

On view morning of Sale, and Catalogues had.

Tuesday, July 7.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, on TUESDAY, July 7, at half-past 12 o'clock, by order of Mr. F. Sander, importations of useful and popular ORCHIDS, consisting of the following, and many others:—Cattleya Bowringiana, C. Mendellii, C. superba splendens, Oncidium papilio majus, O. hamatochilum, Saccolabium Blumei, S. curvifolium, Dendrobium formosum giganteum, D. Dalhousiana, D. draconis, Lycaste Skinnerii, Dendrobium dicuphium, D. Felschii, Schomburgkia Sanderiana (new), Dendrobium heterocarpum, Grammatophyllum Measuresianum, Batemannia Burtii, Bulbophyllum mandibularum (new), Cattleya O'Brieniana, C. Trianae alba (true), C. Schofieldiana (true), Laelia grandis tenebrusa, Epidendrum Randii, Cattleya Eldorado Wallisii, Phaius Humboldtii, Cynochloa chlorochilum, Cypripedium hybridum cabuze, Haynaldianum calophyllum, C. Wallisii, C. Wendlandianum, and many other choice and interesting plants.

On view morning of Sale, and Catalogues had.

Thursday, July 16.

SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD.
MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD, will take place, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 16, and he will be glad if Gentlemen desirous of ENTERING LOTS for THIS SALE will please send LISTS as soon as possible.

Unreserved Sale.—Preston Hall, Aylesford.
About 3 of a mile from South Eastern Railway Station, and same distance from Barming Station, London, Chatham, and Dover Railway, and 3 miles from Maidstone.

HIGHLY IMPORTANT SALE OF VALUABLE ORCHIDS, STOVE, and GREENHOUSE PLANTS.

MESSRS. R. WATERMAN AND SONS are favoured with instructions from H. L. C. Brassey, Esq., to SELL by AUCTION, in the Gardens, Preston Hall, on MONDAY, June 29, 1891, commencing at 10 o'clock precisely, the Excellent Collection of 270 well-established and CHOICE ORCHIDS, some being in flower and bud, consisting of Odontoglossums, Dendrobiums, Cattleyas, Oncidiums, Aerides, Vandas, Saccolabiums, and various other kinds. Exceedingly well-grown Stove and Greenhouse Plants, comprising 60 Indian Azaleas, Exotic and Hardy Ferns, Crotons, Ericas, Epacris, and others; 25 magnificent Marguerites, from 3 to 6 feet; 40 Hybrid Perpetual Roses; choice collection of 270 Chrysanthemums of the newest and best varieties, Camellias, Gloxinias, Palms, Fuchsias, Arum Lilies, Fruiting Pines, &c.

May be viewed on Friday and Saturday prior to the Sale.

Catalogues may be obtained of the Head Gardener on the premises, and of the Auctioneers, 20, Week Street, Maidstone.

Ousegate House, Selby, near York.

MESSRS. ACTON AND ACTON have received instructions from the Executors of the late T. M. Weddall Esq., to SELL by AUCTION, on WEDNESDAY, July 1, 1891, as above, the Important, Choice, and Rare ORCHIDS, STOVE, GREENHOUSE, and BEDDING PLANTS, Sale at 12 o'clock, prompt.

Catalogues on application to the Auctioneers, 8, Clifford Street, York.

The Stock of a Florist and Nurseryman, including about 6000 choice bedding plants, Azaleas, Camellias, Palms, Ferns, Fuchsias, Geraniums, Pelargoniums, Calceolarias, Marguerites, Begonias, Ageratums, Caladiums, Solanums, Dahlias, Petunias, Heliotropes, Clematis, Lobelias, Pyrethrums, &c. Seeds, flower-pots, floral wreaths, garden tools, horses, carts, harness, household furniture, and effects.

MESSRS. H. W. SMITH AND FORD will SELL the above, by AUCTION, upon the Premises of Mr. Geo. R. Woollett, Caterham Valley, Caterham, Surrey, on MONDAY, June 29, at 12 o'clock.

Catalogues can be obtained at the place of Sale, and at the Auction and Estate Offices, 26, Ludgate Hill, London, E.C.

WANTED, a small NURSERY, about six Greenhouses, and half an acre of Ground. Must be in good repair, and doing a good business.—State particulars as to price, which must be low, to A. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE SOLD, a bargain (through a death).—

The LEASE of a capital MARKET NURSERY, 8 miles from Covent Garden, with eleven good Glasshouses, all exceptionally well heated; also 200 good Pit-lights and fixtures. Capital Stabling and Dwelling-house with every convenience. Rent only £25 per annum, price low to an immediate purchaser.

Apply to J. S., 2, Elm Villa, Town Road, Lower Edmonton.

FLORIST'S BUSINESS for DISPOSAL, close to a busy station (West). Established six years. Terms moderate. Good reasons for selling.

Address, FLORIST, Clarke & Co., Salesman, Covent Garden.

FOR SALE, at a Great Sacrifice, a compact

little NURSERY. Doing a good all round business, increasing annually. Fifteen and a quarter years' lease. Six Greenhouses, all fitted with Hot-water Piping; Pits and Frames. Good position. Established thirty-eight years. Six-roomed House. All in thorough repair. Shop near station in main road, doing good Cut Flower Trade. Rent low. Reason, ill health. Genuine.

Apply, R. HOLLOWAY, 87, Dulwich Road, Herne Hill, S.E.

To Market Gardeners and Fruit Growers.

Near Stanford-le-Hope Station.

A GOOD LIGHT-LAND FARM, of about

143 acres, well adapted for Fruit and Market Garden purposes; 28 acres past the Strawberries from this Farm have been sold at Covent Garden Market; they are now well-known, and stand at £1. An additional 30 acres, immediately adjoining Stanford Station, may be had if required. The whole Farm is in a first-class state of cultivation.

For full particulars, and order to view, apply to Mr. T. W. OFFIN, Land Agent and Surveyor, Rochford, Essex.

FRUITERER'S and GREENGROCER'S for

DISPOSAL. West. A thoroughly genuine Business, with good Family Trade. Good position.

Apply for particulars to Messrs. HOLDER AND CO., Corn Exchange Chambers, Seething Lane, London, E.C.

THE TOWER FURNISHING COMPANY

(Limited), SUPPLY GOODS ON HIRE, direct from the Manufacturers; one, two, or three years' Credit without Security. Purchasers have the choice of 100 Wholesale Houses. Call or write for Prospectus.

Address, SECRETARY, 43, Great Tower Street, E.C.

CHOICE PALMS AND FERNS.

Beautiful PALMS, well grown and healthy plants for Greenhouse and Table Decoration, 1s. 6d., 2s., and 2s. 6d. each; small Palms, for growing on, 6s. and 9s. per doz. Twelve fine FERNS for Greenhouse, 9s. and 12s.; MAIDENHAIR FERN, 6s., 9s., and 12s. per dozen. Small FERNS, in variety, for fancy pots, indoor rockeries, &c., from 3s. per dozen; several new and rare varieties, 1s. 6d. to 3s. 6d. each. SELAGINELLAS, in variety, 6s. and 9s. per dozen. SELAGINELLA EMILIANA, a beautiful new Moss, 1s. 6d. each. See List, gratis. WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham; also 10 and 12, Market Street, Manchester.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

52ND ANNIVERSARY FESTIVAL, JULY 8, 1891,

AT WHICH

The Right Hon. JOSEPH CHAMBERLAIN, M.P.,

WILL PRESIDE.

The following SUBSCRIPTIONS & DONATIONS have been Paid or Promised:—

The Right Hon. JOSEPH CHAMBERLAIN, M.P.	£52 10 0
His Grace The Duke of WESTMINSTER	20 0 0
Messrs. ROTHCHILD AND SONS	105 0 0
Sir W. H. SALT, Bart.	50 0 0
The Baron SCHRODER	31 10 0
The Right Hon. Lord CREWE	1 0 0
Messrs. JAMES VEITCH AND SONS, Chelsea	21 0 0
F. D. GODMAN, Esq., Horsham	10 10 0
Executors of the late JOHN DOMINY, Esq., Southampton	10 10 0
H. C. LEE, Esq., Upper Tulse Hill, S.W.	10 10 0
Mr. A. BENTLEY, Eshwood Hall, Durham	10 10 0
Mr. A. BORTHWICK, Sherborne Ho., Cheltenham	10 10 0
Mr. STEPHEN DREWETT, Tweed, Lymington	10 10 0
Mr. HAYTER, Reigate	10 10 0
Mr. H. PADDON, Bramley Park, Guildford	10 10 0
Mr. C. PEACOCK, Oak Hill Grove, Surbiton	10 10 0
Mr. E. TICKNER, Reigate	10 10 0
Mr. A. PLUMMER, Staines	5 15 6
W. THOMPSON, Esq., Walton Grange, Stone	5 5 0
Mr. DANIEL KEEN, Tring	5 5 0
Mr. R. JORDAN, Godalming	2 2 0
Mr. F. MORRIS, St. Leonard's	1 7 0
Miss A. J. WINTER, Hampstead	1 1 0
Miss MARY WINTER, Hampstead	1 1 0
Mr. E. GILBERT, Old Charlton	1 1 0
Mr. J. ATKINSON, Tottenham	1 1 0
Mr. H. DOWDING, The Gardens, Farnham Castle	1 1 0
Mr. J. ALLAN, Esq., Alexandra Park, Manchester	1 1 0
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Mrs. MAITLAND GORDON, New Galloway	1 1 0
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E. MAYLED, Esq., Windor	1 1 0
M. YOUNG, Esq., Upper Sydenham	1 1 0
Mr. JAMES BECK, Wimborne	1 1 0
The Very Rev. Dean MAPLETON	1 1 0
Messrs. MARTIN AND CO., Oxford Street, W.	1 1 0
Mr. C. T. REED, East Sheen	1 1 0
Mr. A. FENN, East Dereham	1 0 0
Mr. J. RUSSELL, and young Men at Portlough	0 11 0
Gardens	0 10 0
Mr. E. SHEPSTONE, Charlton, Somerset	0 9 0
Mr. G. STEPHEN, Craithie Castle, Aberdeen	0 8 6
Mr. J. DUTHIE, Newton Stewart	5 0 0
Sir THOMAS S. BAZLEY, Bart., Hartherop Castle	5 5 0
HERBERT J. ADAMS, Esq., Enfield	5 0 0
EDWARD SALT, Esq., Fernhurst, Shipley	5 5 0
GUSTAV LE DOUX, Esq., East Reading	5 5 0
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R. B. WHITE, Esq., Ardarauch, Gallowayhead	2 2 0
SYDNEY COURTAULD, Esq., Braintree	1 1 0
M. H. MILNER, Esq., Sefton Lodge, Newmarket	1 0 0
per Mr. W. H. LEE	1 1 0
FREDK. RYLEY, Esq., Broadwells, Bury	1 1 0
Ancient Order of York Florists, per JOHN FIELDEN, Esq.	10 10 0
Messrs. HURST AND SON, London	10 0 0
Messrs. WILLS AND SEGAR, South Kensington	5 5 0
Mr. MURDOCH CHISHOLM, East Sheen	10 10 0
Mr. RICHARD H. EDGE, Frodsham, Cheshire	10 10 0
Mr. P. MANN, Westbury, Wilts	1 1 0
Mr. D. ELKINS, Cirencester	1 1 0
Mrs. FINDLAY, Bonington, Park	0 10 6
Mr. A. B. WADDS, Osterley Park	0 5 0
Mr. T. SMITH, Papworth, St. Ives	0 5 0
Collected by—	
Mr. A. HISLOP, Bletchley Park	2 10 0
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Mr. R. PARKER, Wansford, Northampton	0 14 0
Mr. C. TERRY, Knutsford	0 5 0
F. A. BEVAN, Esq., Lombard Street	10 10 0
W. VANNEL, Esq., Coleman Street	5 5 0
"DELTA," per George J. Ingram (Secretary)	10 10 0
ALEX. JAMES MONRO, Esq., Callam Street (late Secretary, pro tem.)	1 1 0
Mr. E. BERRY, Romington	0 10 0
ARCHIBALD COATS, Esq., Paisley	3 3 0
Messrs. J. W. WIMSETT AND SONS, Chelsea	5 5 0
JOHN CORBETT, Esq., M.P., Droitwich	2 0 0
W. B. WATERLOW, Esq., Redhill	5 5 0
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Mr. CHAS. FORBES, Trumpington	2 2 0
Mr. W. CHAPMAN, Rugeley	1 5 0
Mr. W. HARRIS, Lyndhurst	2 2 0
Mr. R. STRAND, Denne Mill	0 9 8
Mr. EYLL, Heathersett	2 3 0
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Mr. HARRY WOODHAMS, Wansford	1 1 0
Mr. ARTHUR COCK, Romford	1 1 0
Mr. THOMAS GODFREY, Uxbridge	1 1 0
Mr. THOMAS VAGG, Romford	1 1 0

Further Subscriptions or Donations will be thankfully received and duly acknowledged by the Secretary,

G. J. INGRAM.

50, Parliament Street, London, S.W.

EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

Chiswick Gardens.
EXHIBITIONS AND CONFERENCES,
Tuesday and Wednesday, July 7 and 8, 1891.
HARDY SUMMER-FLOWERING PERENNIALS, STRAW-
BERRIES, GOOSEBERRIES, RASPBERRIES, and other
SMALL FRUITS. Schedules and all particulars to be obtained
from the Society's Office, 117, Victoria St., Westminster, S.W.
Applications for Space to Exhibit to be made to Mr. A. F.
BARRON, Royal Horticultural Society's Gardens, Chiswick,
not later than Friday, July 3.

ROYAL BOTANIC SOCIETY,

Gardens, Regent's Park, N.W.
EVENING FÊTE and SPECIAL EXHIBITION of FLORAL
TABLE DECORATIONS, WEDNESDAY, July 8.
Schedules of Prizes now ready.

BRIGHTON HORTICULTURAL ASSO-
CIATION SUMMER SHOW, July 1 and 2.

£14 offered for 8 Stove and Greenhouse Plants.
£10 " " " Roses, 48 trusses (open).
£10 " " " Roses, 48 trusses (Amateurs).
Classes for Groups of Plants, Groups of Ferns, &c.
For Schedules of Prizes, apply to—
E. CARPENTER, Secretary.
96, St. James's Street, Brighton.

GRAND ROSE SHOW, BATH,

THURSDAY, July 9.
First Prizes, Nurserymen, 72 varieties, £3 8 0
" " " Amateurs, 36 " " 4 0 0
" " " " " 36 " " 5 0 0
" " " " " 24 " " 3 0 0

The Second and Third Prizes in proportion. Several other
Classes for Roses, Bouquets, Strawberries, and Plants. Thirty-
one classes in all. Entries Close on Friday, July 3. For Prizes,
Schedules, &c., apply to B. R. F. PEARSON, { Secretaries.
W. JEFFERY, {
2, Northumberland Bldg., Bath.

TRENTHAM and HANFORD HORTICUL-
TURAL SOCIETY.

(In connection with the National Rose Society.)
GREAT FRUIT and ROSE SHOW will be held in
TRENTHAM GARDENS, on JULY 16. Upwards of £70 given in
PRIZES for CUT ROSES, and COLLECTIONS of FRUIT.
Nine varieties, 1st, £10; 2nd, £6; 3rd, £3. Six varieties,
1st, £5; 2nd, £3; 3rd, £2. Four bunches of GRAPES, 1st, £5;
2nd, £3; 3rd, £2. GROUPS of PLANTS, 1st, £25 10s.; 2nd, £14;
3rd, £10; 4th, £8. Prizes amounting to £300 will be given.
Schedules now ready, post free, on application to—
JOHN TAYLOR, Hon. Sec., Trentham.

SCOTTISH HORTICULTURAL ASSOCIATION
CHRYSANTHEMUM EXHIBITION,

TO BE
HELD IN THE WAVERLEY MARKET, EDINBURGH,
On NOVEMBER 19, 20, and 21, 1891.
PRIZE SCHEDULES NOW READY. Apply to—
ROBERT LAIRD, Secretary, 17, Frederick Street, Edinburgh.

LILIUM HARRISII
(BERMUDA EASTER LILY).

We have secured a large grower's entire crop of this most
desirable forcing Lily, and can supply them, for delivery in
August, at the following low prices, F.O.B., London. SIZE
and PURITY of STOCK guaranteed:—
5 to 7 inches in circumference, 18s. per 100; £7 per 1000.
7 " " " " 25s. " £11 " "
9 " " " " 50s. " £22 " "

We make a specialty of AMERICAN BULBS and SEEDS
of all kinds, and can supply large and small quantities at low
rates.

ACER DASYCARPUM
(A. ERIOCARPUM). Soft, or Silver-leaf Maple.

New crop ready June 1. We offer seed as follows:—1 to
10 lb., 1s. per lb.; 10 to 100 lb., 10d. per lb.; 100 lb. and
over, 8d. per lb. Send for Catalogue.

PITCHER & MANDA,
United States Nurseries,
HEXTABLE, SWANLEY, KENT, ENGLAND;
AND SHORT HILLS, N.J., U.S.A.

Trade Offer.

W. ICETON begs to offer the following
PALMS:—
Strong ARECA LUTESCENS in 60's, at 60s. per 100;
" COCOS WEDDELLIANA, in thumbs, at 32s. and 50s.;
" SFEORTHIA ELEGANS, in thumbs, 20s. and 30s.;
" KENTIAS, BELMOREANA and FOSTERIANA, in
thumbs, 40s. and 75s.
SEEDLINGS in Stores, at 30s. per 100.
ASPARAGUS, P. NANUS, strong, in thumbs, at 45s. per 100.
Extra fine PANDANUS VETCHII, in all Sizes.
Putney Park Lane, S.W.

CLEARANCE SALE OF BULBS
FOR PRESENT PLANTING.

Lemoine's beautiful new GLADIOLI, in mixture, per dozen,
4s. 6d.; RANUNCULUS, showy sorts, mixed, 2s. 6d. per 100;
beautiful new large-flowered single POPPY ANEMONES,
mixel, 4s. 6d. per 100; ANEMONE FULGENS, the beautiful
scarlet Windflower of the Riviera, 4s. 6d. per 100; per 1000, 40s.
Sweet-scented PEARL TUBEROSES, 3s. per doz.; per 100, 1ss.
Carriage Free on receipt of Post Office Order.
BARR AND SON, King Street, Covent Garden, W.C.

FOR ORCHIDS, and GARDENERS
to Grow Them, apply to SANDER'S, St. Albans. The finest
stock of Orchids in the World. 30 minutes from St. Pancras.

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"GAIR" COLLECTION
OF
ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,
HAVE JUST PURCHASED
The Large and Fine Collection of
ORCHIDS,
Formed by the late JOHN GAIR, Esq., of
THE KILNS, FALKIRK, N.B.

The Company have removed the Collection to their Nurseries
at Garston by Special Train. The Collection is now on Sale,
and inspection is very earnestly invited. Descriptive and
priced Catalogues will be sent post-free, on application to the
Company.

THE VINEYARD & NURSERIES,
GARSTON, near LIVERPOOL.

WHITE ROMAN HYACINTHS.

BENJAMIN RIMBAUD,

BULB GROWER,
Quartier du Temple, Toulon (Var), France
(The largest Bulb Grower in the South of France).

Offers—
EARLY WHITE ROMAN HYACINTHS.
PAPER-WHITE NARCISSUS GRANDIFLORA and other
NARCISSUS.
LILIUM CANDIDUM. FREESIA REFRACTA ALBA.
And all other Specialties of South of France.

Seeds and Plants of
CARNATIONS MARGARITE and other CARNATIONS.
PRICE LIST on application to the
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Plant Houses & Trial Grounds, Duzeld, lez Schooten, Antwerp.
Cablegrams—STRECKER, Antwerp and Ghent.

Special Trade Offer.

ARECA LUTESCENS,

Splendid Seedlings for Potting—Very large size
(1½ YEAR).
PRICE, 12s. 6d. PER 100.
SAMPLES FREE ON APPLICATION.

FERNS A SPECIALITY.

The finest, most varied, choice and interesting collection in
the Trade. 1400 species and varieties of stove, greenhouse, and
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ILLUSTRATED CATALOGUE (No. 21),
containing 120 Illustrations and much valuable information on
the cultivation of Ferns, ONE SHILLING and SIXPENCE, post-free.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER."CARNATION—
LIZZIE MCGOWAN."

The Best Pure White Carnation ever introduced. Flowers
fine and large, pure white, and beautifully fringed; the
most free-flowering variety known. Very valuable for Cut
Flower purposes, as the buds do not burst.

STRONG SMALL PLANTS, NOW READY.
Price, 3/6 each; 30/- per dozen.
Orders executed in strict rotation.

PITCHER & MANDA,
The United States Nurseries,
HEXTABLE, SWANLEY, KENT.

CLEMATIS JACKMANII ALBA,
THE WHITE JACKMANNII.
For bedding, 12s. per dozen.
CLEMATIS LANUGINOSA, 12s. per dozen.
CHARLES NOBLE, Bagshot.

LOVELY TEA ROSES.

Best sorts, in pots, 18s. per dozen; stronger, 2s. 6d. and
3s. 6d. each; New and Choice Varieties, 2s. 6d., 3s. 6d. and 6s.
each. See Catalogue, gratis.
W.M. CLIBRAN AND SON, Oldfield Nurseries, Altrincham;
also 10 and 12, Market Street, Manchester.

WOOD & SON'S
NEW IMPORTATION of
SUPERIORBAMBOO
CANES.

300,000 of every description, in Black
and White.

SPECIAL OFFER. TEN DAYS ONLY.
2 feet, 2s. 6d.; 3 feet, 2s. 9d.; 4 feet, 3s.; 5 feet, 7s. 6d.; 6 feet, 8s.; 7 feet, 9s.; 8 feet, 14s.; 9 feet, 20s.; 10 feet, 25s. } 100
In Quantities at a Reduction.

SAVE 20 PER CENT. in Labour by using
WOOD & SON'S

ELECTRIC

WEED DESTROYER.

GUARANTEE EXTERMINATION with ONE WATERING.
SPECIAL OFFER.
Carriage Paid on 10 Gallons and upwards.

10 gallons to 250 gallons of water, 15s.; 20 gallons to 500 gallons
of water, 23s. 4d.; 40 gallons to 1000 gallons of water, 50s.

CHOICE ORCHID PEAT.

The Finest, in brown bracken Fibre, ever seen. Most lasting;
prepared ready for use; no waste. 12s. per cask of 4 bush.

FERTILIZING MOSS.

Recognized as the most successful medium for Plant Culture.
7s. per bushel.

WOOD & SON'S
PRIZE MANURES.

Now being used all over THE WORLD.

LE FRUITIER, unequalled as a Grape and
Fruit Manure. ½-cwt., 10s.; 1-cwt., 19s.

LAWN SAND.

This Celebrated Fertilizer and Weed Eradicator,
56 lb., 15s. 6d.; 1 cwt., 30s.

Lawn Tennis Manure,
Concentrated, 15s. per cwt.W. WOOD & SON, F.R.H.S.
WOOD GREEN, LONDON, N.

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COCOA-NUT FIBRE REFUSE,
4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),
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LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half
ton; 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

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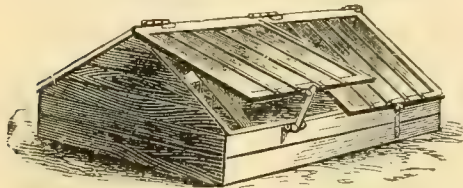
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OUR WELL-KNOWN MAKE.



PORTABLE PLANT FRAMES.

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Sizes and Prices, Glazed and Painted.		£	s.	d.
6 feet long, 3 feet wide	CASH	2	0	0
6 feet " 4 feet "		2	5	0
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6 feet " 5 feet "		2	15	0
12 feet " 5 feet "	CARRIAGE	4	15	0
12 feet " 6 feet "	PAID.	5	12	6

Larger sizes at proportionate prices.

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EXTRA STOUT strong-tanned NET, 2 yards wide, 1½d. yard; 4 yards wide, 3d. yard; or 2 yards wide, 10s. per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE NETTING, 1 yard wide, 2d. yard; 2 yards wide, 4d. yard; 4 yards wide, 8d. yard; 12 yards wide, 2s. yard. COTTON NET, nine meshes to square inch, 1½ yards wide, 7d. yard run.

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For Destroying Weeds on Garden Walks, Carriage Drives, Roads, Stable Yards, &c., also for Killing Plantain on Lawns. Saves more than twice its cost in Labour. No Smell. Does not stain the Gravel.

One application will keep the Walks clear of Weeds for at least Eighteen months.

Recommended by Mr. W. G. HEAD, Superintendent, Crystal Palace Gardens; Mr. J. BELL, the Duke of Wellington's Gardener; Mr. E. S. MCLAURIN, the Empress Eugénie's Gardener; Mr. R. IRWIN LYNCH, Curator, Botanic Garden, Cambridge; and many other eminent Gardeners.

The solution is applied with an ordinary watering can.

Prices, in 1 and 2-gal. Tins, 2s. per gal. (Tins included); in 5-gal. Drums, 1s. 6d. per gal. 10 and 15-gal. Drums, 1s. 4d. per gal. Special quotations for larger quantities. Carriage paid on 10 gals. and upwards.

Used in the proportion of one gallon to twenty-five gallons of water.

ANTI-FUNCI POWDER, THE ONLY EFFECTUAL REMEDY FOR TOMATO DISEASE, MOULD AND MILDEW ON ROSES, VINES, &c.

It can be applied with an ordinary Powder Distributor, has no smell, and is harmless to the plants or fruit. Recommended by Mr. W. HILLS, Gardener to Viscount Gort, East Cowes Castle; Mr. W. CHILDS, Gardener to the Rev. W. WILKS, Secretary to the Royal Horticultural Society; Mr. CHAS. ROSS, Welford Park Gardens, Newbury, and others.

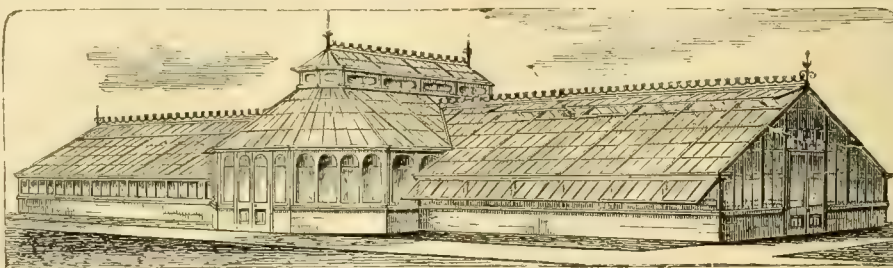
Prices: 1 lb. 1s., 3 lb. 2s. 9d., 7 lb. 5s. 6d., 14 lb. 10s., 28 lb. 18s., 56 lb. 35s. Carriage paid on 28 lb. and upwards.

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Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm, from the smallest to the largest. Hot-water Heating Apparatus, with really reliable Boilers, erected, and success guaranteed in all cases. Melon Frames, Sashes, Hotbed Boxes, &c., always in stock.

Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

THE "CLIMAX" CONCENTRATED WEED KILLER

Is Double the strength of any other.

Destroys all weeds on Garden Walks, &c., &c.
Improves the colour of the Gravel—has no smell.
Saves many times its cost in labour alone. One application will keep the walks clear of weeds for a whole season at least. Can be applied with an ordinary watering-can.

Note the strength, & compare the price with others.

1 Gallon makes 51 Gallons for use.

PRICE IN TINS:—1 gallon, 3s.; 5 gallons, 2s. 6d. per gallon; 10 gallons, 2s. 3d. per gallon; 40 gallon casks, 2s. per gallon. Tins and Casks free.

Carriage paid on all orders of 10 gallons and upwards. Sample gallons sent Carriage paid on receipt of Postal Order.

Prepared solely by the **BOUNDARY CHEMICAL CO., Luton Street, Liverpool.**

Can be had through all Seedsman, or direct. Ask for the "CLIMAX," and take no other.

THE "CLIMAX" MOSS ERADICATOR

Is Guaranteed to effectually Destroy all Moss on Lawns, &c., while at the same time it will stimulate and increase the Growth of the Grass.

1 Gallon as sold will make 15 Gallons for use, and is sufficient to do 110 square yards. Can be applied with an ordinary watering-can. Saves many times its cost, and insures a perfect Sward.

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THE "PERFECT" WEED KILLER



Without which none is genuine.

"PERFECT" SUMMER SHADING.
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SOLD BY
SEEDSMEN, ETC.
Prices and Particulars Free.

"PERFECT" MILDEW DESTROYER.
"PERFECT" WORM DESTROYER.

SOLE MANUFACTURERS:

THE HORTICULTURAL & AGRICULTURAL CHEMICAL COY.,

97 Milton Street, GLASGOW (Originally of Tunbridge, Kent).

CAUTION TO THE PUBLIC.—Please carefully note our Name, Address, and Trade Mark, and do not be deceived by imitations.

NOTICE IS HEREBY GIVEN, that by virtue of an Order of the High Court of Justice, dated May 26, 1891, the use of the name **AGRI-HORTICULTURAL CHEMICAL COY.** on Show-Cards, Circulars, Labels, or otherwise howsoever, by the Makers of the **ACME WEED KILLER**, recently trading under that name at Tunbridge, Kent, is **ILLEGAL**, and that our Manufactures cannot be obtained genuine in Tunbridge except from our Agents, Messrs. **WEBMER & WARDLEY**, Chemists, there.

ORDER OF THE HIGH COURT OF JUSTICE.

The Horticultural and Agricultural Chemical Coy.,
97 MILTON STREET, GLASGOW,
PLAINTIFF.

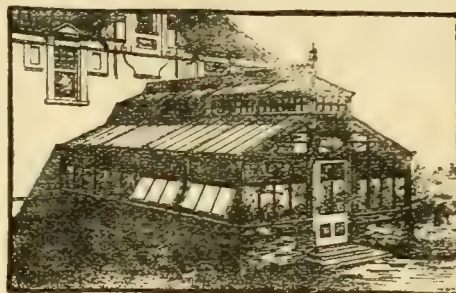
VERSUS

The Agri-Horticultural Chemical Coy.,
TUNBRIDGE, KENT,
DEFENDANTS.

The Court granted an **INJUNCTION RESTRAINING THE DEFENDANT COY.**

- (1) From using in any manner or for any purpose whatsoever the Name Agri-Horticultural Chemical Coy. or any name likely to mislead or deceive the public into the belief that the business of the Defendant Coy. is the same as the business of the Plaintiff Coy. or in any way connected therewith.
- (2) From infringing the Plaintiff's Letters Patent, dated 11th March, 1886, by making or selling any compounds made according to the specification thereof or being a colourable imitation thereof.
- (3) The Court also ordered the Defendant Coy. to pay to the Plaintiffs £40 towards their costs of this action.

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HORTICULTURAL BUILDINGS.

The Most Complete Issued. Price 1s. Abridged Catalogue free.

MANY PRIZE MEDALS.

WARMING and VENTILATION of Churches and Public Buildings (as well as Greenhouses).

W. RICHARDSON & CO.,
DARLINGTON.

Conservatories, Greenhouses, Vineries, Peach Houses, Store and Orenid Houses, &c. Also Boilers, Pipes, and Fittings.

HILL & SMITH'S BLACK VARNISH

for Preserving Ironwork, Wood, or Stone.



(Registered Trade Mark.)

An excellent substitute for oil paint, at one-third the cost. Used in all London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

Price 1s. 6d. per gallon at the manufactory, or carriage paid to any railway station, 1s. 8d. per gallon in casks of 36, 18, or 9 gallons.

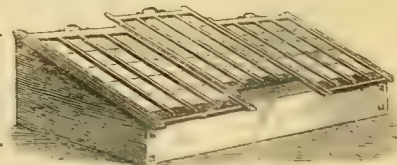
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47, Dawson Street, Dublin.

JAS. SENDALL & CO.,
HORTICULTURAL BUILDERS, CAMBRIDGE.

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See **ILLUSTRATED LISTS** of 20 Varieties,
OUR OWN INVENTIONS, Post Free.

No. 100.—
MELON
and
CUCUM-
BER
FRAMES.



These Frames are made of well-seasoned red wood Deal, with our improved corners. Height, at back, 2ft.; at front, 13ins. The lights are 2 ins. thick, with iron cross-bar and handle.

PAINTED three coats of best oil colour.
GLAZED with 21-oz. English Glass, ready for use.

2 Light Frame, 6 ft. x 4 ft. ...	Notice the	23 6 0
2 " " 8 ft. x 5 ft. ...	useful sizes we	2 15 0
2 " " 8 ft. x 6 ft. ...	Stock,	3 0 0
3 " " 12 ft. x 6 ft. ...	Cash Prices,	4 2 6
4 " " 16 ft. x 6 ft. ...	Packed and	5 5 0
5 " " 20 ft. x 8 ft. ...	Carriage Paid,	6 7 6

Orders of 40s. Value Carriage PAID to Stations in ENGLAND & WALES, many in SCOTLAND & IRELAND.

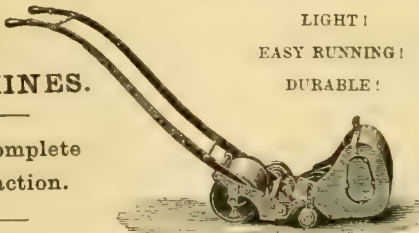
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THE BEST AND
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LIGHT!
EASY RUNNING!
DURABLE!



STANDARD MACHINE.



NEW LIGHT MACHINE.

Give Complete
Satisfaction.

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LONDON WAREHOUSE:—
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WHERE REPAIRS ARE ALSO EXECUTED.

PRICE TWOPENCE.—POST FREE, TWOPENCE-HALFPENNY.

THE ROSE NUMBER OF THE GARDENERS' MAGAZINE.

JULY 4, 1891.

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NATIONAL ROSE SOCIETY, AND ITS WORK ... George Gordon
THEN AND NOW; OR, FIFTY YEARS OF ROSE
SHOWING ... Rev. H. Honeywood D'Ombraim
DEVELOPMENT OF THE HYBRID PER-
PETUAL ... William Paul, F.L.S.
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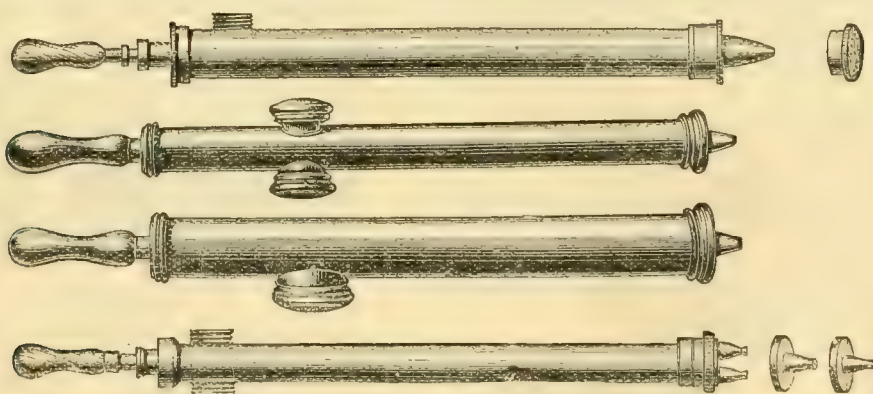
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THE
"JUBILEE"
FIRE AND GARDEN
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FLOWER POTS
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PIT LIGHTS.

Best quality and workmanship, 2 inches thick, 6 ft. by 4 ft., iron bar across and very strong, 4s. each; free on rail in London. Cash or reference with order.

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Timber sufficient to build 100 ft. by 12 ft. house, lights, door, &c. Put on rail in London. Low price. Send for detailed specification, to

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Hardwood do., Ferns, and Rhododendrons, by sack, yard, ton, or truckload. **SPECIAL ORCHID PEAT**, in sack only. Rich fibrous LOAM, superior LEAF MOULD, Coarse, Crystal, and Fine SILVER SAND, CHARCOAL, C.N. FIBRE REFUSE, fresh SPHAGNUM, Patent MANURES, FERTILISERS, INSECTICIDES, and all other Garden Requisites. **Peat Moss Litter.**

The Original Peat Depot, RINGWOOD, HANTS.

ORCHID PEAT.

VERY FINEST QUALITY.

PREPARED ORCHID PEAT, all fibre, ready for use, 10s. per sack; 5 for 47s. 6d.

SELECTED ORCHID PEAT, in Blocks, very fibrous, 8s. per sack; 5 for 37s. 6d.

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PREPARED COMPOST, for Potting all kinds of Plants, 4s. per sack; 5 for 18s.

All Sacks included. Send Postal Order for SAMPLE SACK. GARDEN STICKS of all descriptions.

For PRICE LIST, and Special Quotations for larger quantities, apply to—The Forester,

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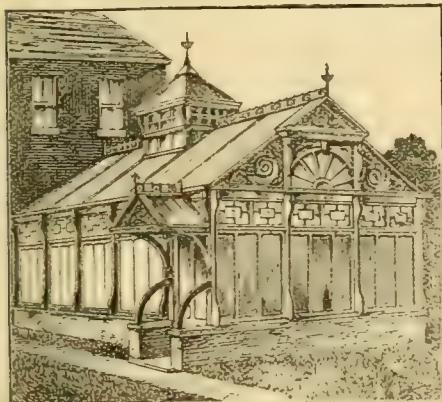
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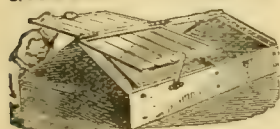
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HAND LIGHTS, PROPAGATING
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GLAZED LIGHTS 6 feet by 4 feet ... 14s. each.
UNGLAZED LIGHTS ... 5s. 6d. each.
Carriage paid on Orders of 40s. value.

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Of all makes and sizes supplied at the cheapest rates.
VALVES, PIPES, and all FITTINGS always in Stock.

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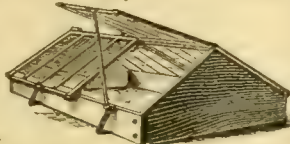


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**PORTABLE PLANT
PRESERVER.**

CASH PRICES.
CARRIAGE PAID.

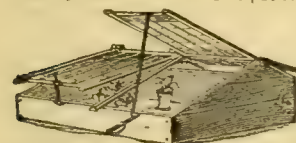
6 ft. by 3 ft. ... £2 0 0	6 ft. by 4 ft. ... £2 5 0
12 ft. by 3 ft. ... 3 2 0	12 ft. by 4 ft. ... 3 15 0

No. 73. NEW SPAN-ROOF GARDEN FRAME



CASH PRICES.
CARRIAGE PAID.

4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 14 0
8 ft. by 6 ft. ... 4 4 0	16 ft. by 6 ft. ... 7 4 0

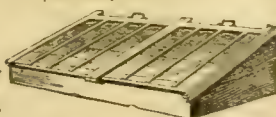


No. 74.
**THREE-QUARTER
SPAN
GARDEN FRAME.**

CASH PRICES.
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4 ft. by 6 ft. ... £2 14 0	12 ft. by 6 ft. ... £5 17 0
8 ft. by 6 ft. ... 4 5 6	16 ft. by 6 ft. ... 7 8 6

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4 ft. by 6 ft. ... £2 0 0	12 ft. by 6 ft. ... £4 3 0
8 ft. by 6 ft. ... 3 0 0	16 ft. by 6 ft. ... 5 6 0

No. 77.—Smaller size Frames, { 6 ft. by 4 ft. £1 15 0
similar to No. 75. { 9 ft. by 4 ft. 2 7 6
{ 12 ft. by 4 ft. 3 0 0

All Frames made of Select Red Deal, painted three times, and Lights glazed with 21-oz. sheet glass.

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In Stock Glasses.
15-oz., per 100 ft., 9s. 6d. { 12x10, 18x12, 18x14, 24x14
21-oz., " 13s. 0d. { 14x12, 20x12, 18x16, 24x16
PAINTS and VARNISH at low prices. FLOORING, at 5s. 6d. per square; MATCHING, at 4s. 6d.; 2x4, at 1/2d. per foot run; 2x7, at 1d. GREENHOUSE BARS, MOULDINGS, DOORS, IRONMONGERY, &c. Catalogues Free.

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Specimen Palms, TREE FERNS, &c.

B. S. WILLIAMS & SON

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**PALMS, TREE FERNS,
DRACÆNAS, CAMELLIAS,
AZALEAS,**

RHODODENDRONS,

And all kinds of

**FOLIAGE AND FLOWERING STOVE AND
GREENHOUSE PLANTS,
WHICH IS UNEQUALLED IN EUROPE.**

Sizes and Prices will be quoted upon application.

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GREENHOUSE AND STOVE GEMS.

CROTONS, 12 sorts, 6s., 9s., 12s., and 18s. per dozen; DRACÆNAS, for growing on, 9s. and 12s. per dozen; CALADIUMS, 12 splendid varieties, to make a show this summer, 12s. and 18s. per dozen; 12 beautiful Stove or Greenhouse PLANTS, 9s., 12s., or 18s.; 12 beautiful Stove or Greenhouse CLIMBERS, 21s. to 42s.; PANSY-FLOWERS, in variety, 1s. and 1s. 6d. each, 6 beautiful sorts, 7s. 6d. See Catalogue, gratis.

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A PURE WHITE BEDDING CLEMATIS, and the FERN which has lately received so many of the highest awards and proofs of admiration.

CLEMATIS, SMITH'S SNOW-WHITE JACKMANII.

The flowers are paper-white, about the same size as those of the old Purple Jackmanii, but produced in even greater profusion. It is unrivalled for beds, and also for climbing. Ready in August. 7s. 6d. each.

PTERIS TREMULA SMITHIANA.

This is a very valuable and distinct Fern. No Collection should be without it. Illustration and description free. 5s. to 10s. 6d. each.

We now have a very fine lot of the best varieties of CLEMATIS ready for planting out, also BEDDING PLANTS, and shall be pleased to send particulars.

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Nurserymen and Seed Merchants,
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SWANLEY, KENT.



THE

Gardeners' Chronicle.

SATURDAY, JUNE 27, 1891.

ASCOTT, LEIGHTON BUZZARD.

IF anyone would see early summer vegetation in its most enchanting garb, he should visit Ascott Park in May and June.

Ascott is about two miles to the south-west of Leighton Buzzard, and is a hamlet of Tring, a town of some pretensions hard by. The old manor-house has now wholly disappeared, but some traces of the fish-pond and moat still remain. The mansion at Ascott is an old Elizabethan structure of brick and timber, and was originally a farmhouse, built in 1606; but was restored and enlarged about 1874 as a hunting-box, and again in 1880 and 1887.

During the period of its occupancy by Mr. Leopold de Rothschild, many important alterations have been made; the pleasure-grounds have undergone considerable extension. The ground falls towards the fertile vale of Aylesbury, which lies between Ascott and the fine demesne of Mentmore. Magnificent old trees, scattered over the place, impart a well-furnished appearance to the whole; and among trees planted in recent years, of which there are many, are fine examples of the Horse Chestnut, of large size, which were brought a considerable distance, and with great success, by Mr. Jennings, Mr. Rothschild's gardener. The chief feature of the gardens is the abundance of evergreens that are planted.

From the front of the mansion the visitor looks across a sweep of lawn, and sees the ancient and the modern happily blended. There are a number of evergreens—Yew, Box, &c.—clipped into fantastic shapes—a church, animals at table, with wine-cups and glasses cut out of the evergreens, with chairs and attendant dogs, representations of birds, &c. As the visitor perambulates the grounds, he comes unexpectedly on some of these clipped shrubs—eccentric, and not at all in consonance with modern taste, but still not out of harmony with their surroundings. There are terrace walks, with boundary walls covered with choice climbing and other plants; numerous sloping banks filled with Roses, variegated coniferous plants, &c.; and on one of them can be seen the effects of the winter on a bank of large shrub-like plants of Olearia Haastii cut down to the ground in great part, but now breaking up from the roots; and here and there are bushes of American Azaleas, sadly punished by loss of flower-buds by frost in early May.

Many charming touches in the way of spring gardening appear. So much Myosotis dissitiflora was probably never before seen, so vigorous

in growth and fine in bloom; one circular bed of it upon the lawn is worth going miles to see, and if this plant could be spread out in lines, so abounding is it, there would be a mile or two of a broad band of turquoise-blue. Violas are largely employed; foremost is Snowflake, a rare grower, and wonderful bloomer; and in company with the *Myosotis*, it overflows in every direction, lines of it stretching away on every hand. A good form of *Viola lutea grandiflora*, Countess of Kintore, and other varieties, are largely employed; the Giant Polyanthus revel in a luxuriance of growth and bloom, stimulated by the fertile soil in which they are planted. But the features of *Ascott* are so abundant, so varied, and so attractive, that space would fail to do justice to this delightful spot. During the fourteen years Mr. Jennings has had charge of the gardens, he has extended and improved them in a hundred ways; and at any point appears signs of a most careful supervision.

In the glass-houses the leading feature is the extensive and grandly-grown collection of *Carnation Souvenir de la Malmaison*. It is not too much to term this variety of *Carnation* the favourite flower of the house of Rothschild. Here are plants from last year's layers blooming for the first time, and these may be counted by hundreds; besides there are specimens of three years old, so large, and so finely grown and bloomed, as to deserve a place on any exhibition stage. Health, robustness, magnificence of bloom, characterises all—white, pink, and crimson, alike. But the *Carnations* generally deserve a more extended notice, illustrating as they do the perfection of good culture. The favourite winter *Carnation* is *Miss Joliffe*, which is largely grown; there are batches of other varieties, and a general collection in smaller quantity also. One might say that *Ascott* is never without the fragrant blossoms of the *Carnation*. Among the yellows, one named *Selby* is noticeable for its depth of colour and well-formed flowers; it is of a deeper tint than *Germania*, but lacks somewhat its smooth, shell-like petals. Several houses are filled with *Carnations*, which overflow on every hand, and in the open are large beds of them for late summer display.

In other houses might be seen a very fine collection of show *Pelargoniums*, of zonals, decorative foliage plants, and many other kinds, having their appropriate period of service.

There are no vineries at *Ascott*, but *Peach* and *Cherry* cases, &c. In the open ground there appears to be an abundant promise of all kinds of fruit, as, so far as can be perceived at present, the early frost which damaged other things, spared the hardy fruit crops.

The kitchen garden is in keeping with the other departments, order, neatness and high culture prevailing. A large plantation of *Ellam's Early dwarf Cabbage* illustrates its value as an early variety, and the care with which the particular stocks have been selected. *R. D.*

NEW OR NOTEWORTHY PLANTS.

VERONICA LAVAUDIANA (fig. 154).

FROM Mr. Burbidge, of the Botanic Garden, Trinity College, Dublin, we lately received specimens of a very pretty free-flowering dwarf *Veronica*. A reference to *Hooker's Handbook of the Flora of New Zealand*, p. 214, showed that the shrub in question was the *V. Lavaudiana* of Raoul. It is decumbent or dwarf-growing, the older branches marked at intervals with transverse scars, the young shoots purplish puberulous; the leaves are rather closely set, shortly stalked, opposite, spoon-shaped, crenate-serrate, fleshy, each about the size of a sixpence. The flowering branches have smaller leaves, and run out into horizontally-spreading many-flowered

corymbs, $1\frac{1}{2}$ inches across. Each flower is about $\frac{1}{2}$ inch across, white, flushed with lilac or pink, and with the usual *Veronica* structure. The plant is apparently quite hardy. *M. T. M.*

ORCHID NOTES AND GLEANINGS.

ZYGOPETALUM GUTTATUM, Rehb. f.

THE section *Promenæa* of *Zygopetalum*, formerly considered a distinct genus, and still retained as such in many gardens, comprises about seven very interesting little species; and among them the subject of the present note, which was described as long ago as 1856 (*Bonplandia*, iv., p. 323), but appears to have long been lost sight of. At that time it was cultivated by Messrs. Booth & Son, of Hamburg, together with its near ally *Z. xanthinum*. The flowers were described as whitish-yellow, the base of the column dark purple, and the hinder part of the lip striped with purple, and a small rhomboid



FIG. 154.—VERONICA LAVAUDIANA: HARDY SHRUB FLOWERS PALE LILAC.

crest at the front of the transverse plate which connects the side lobes. Mr. J. O'Brien, of Harrow-on-the-Hill, now sends to Kew for determination two flowers which, I suspect, belong to the same species. A tuft was received from Brazil some time ago, one portion of which has now produced a flower of *Z. xanthinum* (curiously deformed, one petal being united with a lateral sepal, the other with the dorsal one, thus giving only three segments, besides the lip), while the other portion has produced flowers of quite a distinct character. Comparing these with the original description (for I have seen no authentic specimen) I observe one or two slight discrepancies, but hardly of a kind to warrant its specific separation. The lip is not acute, and Reichenbach says nothing about the numerous very light-brown spots on the sepals and petals which are found in the present one; but similar variations occur in other species, and the points of agreement in the two appear to me too important to be passed over. I suspect the original plant, like the present one, appeared in a

batch of *Z. xanthinum*, both being noted by Reichenbach at the same time as having been received from Messrs. Booth, of Hamburg. It is a very pretty and interesting little plant. *R. A. Rolfe.*

CYPRIPEDIUM × BRAGAIANUM.

Like *C. Desboisianum*, see p. 731, this was raised from *C. Boxalli atratum*, but in this case the pollen-parent was not *C. venustum* but a superb variety of *C. hirsutissimum*, *C. h. cœrulescens*. This parent is manifestly apparent in the product with which we are occupied here, the petals particularly, with their rose-violet coloration at the extremities, the black dots which overrun the basal third, and the similar dots at the base of the dorsal sepal, resemble closely *C. hirsutissimum*. On the other hand, the size of the last-named organ, and the deep black colour, which covers it almost completely, diminishing lightly towards the summit, as also the size of the labellum, recall rather *C. Boxalli*. In habit *C. × Bragaianum* is tolerably intermediate between the two parents; it is more handsome, and has a more elegant habit than *C. hirsutissimum*, though the dorsal sepal has a somewhat similar design. Its aspect is really superb, and of great distinction, and from this point of view it is difficult to compare it with any other form whatever. *Lindenia*, May, 1891, p. 35, pl. 279.

NURSERY NOTES.

BEGONIAS AT FOREST HILL.

WORDS fail to describe the display of *Begonias* now to be seen at Messrs. J. Laing & Sons' Forest Hill Nursery. The most sanguine of *Begonia* fanciers some ten or twelve years ago could not have dreamt of what is now a reality. The beauty as well as variation of colour found in the flowers, and especially in the singles, defy description. To what extent, size, colour, and habit they may yet go, when we regard what has been done since the firm of Laing & Sons took the *Begonia* in hand, some fifteen years ago, it is impossible to say. Then, those who may wish to see what the *Begonia* is outdoors, will do well to call at Forest Hill about the middle of August. The firm plants out about 200,000 of January-raised seedlings, all of which will then be in bloom; and in one block of over an acre of ground we saw the other day 110,000 plants from seed, set out in beds or blocks of colours, which will form a show absolutely unrivalled. Singles come usually very true to colour from seed, but doubles are uncertain. The singles, however, are the summer bedding plants of the day. There are evidences, too, of some distinctive breaks, which will be heartily welcome. Some are developing sweet perfume. Some, too, are showing fimbriated edges, and irregular or fluted contours; these will be heartily welcomed, as pleasing breaks from the smooth edges. While there is room for improvement in habit, we trust the tendency to worship mere size will be restrained, and that raisers will keep the *Begonia* as such and not endeavour to turn it into the semblance of something else.

THE BULB GARDEN.

NEW NARCISSUS.

INNUMERABLE as are the varieties of *Daffodils* at the present time—or, indeed, as they have been for some years past—there is still room, not for mere novelty, but for many improvements in some groups both in form and colour. To attain to some decided improvement, however, with so many good kinds in cultivation, is a long and tedious task, involving careful hybridising, long years of waiting and watching, as well as the raising of thousands of seedlings, before anything of superior merit may be obtained. The word superior, as here intended, has a broad

and comprehensive meaning, and any new comer should be undoubtedly superior in colour, in form, and in refinement also; it will not be sufficient that it be a huge, rough, or coarse flower, for such as these are not wanting. As examples of what the writer regards as improvements, may be mentioned a variety having the constitution of Golden Spur, possessed of the colour of maximus in the trumpet and perianth segments, the latter stiff, imbricated, and set back like a well-grown Tenby Daffodil, *R. obvallaris*; another acquisition would be a variety possessed of all the fine qualities of Empress, and having much purer perianth-segments; or again, the gold of maximus and all its refinement, coupled with the freedom of flowering, the want of which places maximus at a disadvantage. Of this latter it is not unlikely that Mr. Barr's Santa Maria, from Spain, may, in a great measure, supply the missing link, for it is rich in colour, free in flowering, and apparently good in constitution. But to plan improvements in these flowers is simple enough: to produce them in the acme of perfection is a totally different matter, though the work is still going on, and those who have set themselves the task—the life-long task even now, at the present high standard towards perfection—will sooner or later be rewarded for all their labours by the advent of some decided improvement—and who may say what it shall be? Recently, while these plants were in their prime, I had the pleasure

TULIPA GESNERIANA.

This has been very showy in borders where they were planted in patches of three or five bulbs. The blooms are at their best when the early-flowered Tulips have passed out of flower; and the brilliant crimson flowers are liked by all, which is more than can be said of some sorts of Tulips. *E. M.*

NARCISSUS BIFLORUS.

I think that this plant is worthy of a place in the borders, or on the turf in the wild garden, as it comes into flower when most other species are past their best, and is, therefore, useful; moreover, it possesses a fragrance not commonly found in the *Narcissus*. *E. M.*

POTATO PERFORATED BY COUCH.

SPECIMENS such as that seen in fig. 155 are occasionally sent to us, and have been figured at various times. We have now the opportunity of doing what we have previously been unable to do, giving a correct explanation of the phenomenon which always excites surprise. The roots of plants are formed within the substance of the plant, and make their way out from the centre to the circumference, not only (if at all) by pressure exerted during growth, but by secreting a digestive ferment, which softens

square. The bottom is covered with one thickness of flannel, over which is fastened a piece of perforated zinc. This part rests on the frames, over a calico quilt, and allows the heat from the hive to ascend, so that the nursery is kept at the same temperature as the hive itself. Each compartment is covered with a glass lid, and a piece of American cloth is placed over all. When we want to see if a queen has hatched, we have only to go to the nursery, and turn back the cloth, and there is no disturbance at all to the hive underneath. The best hives in which to put these virgin queens are the nuclei, as these colonies being small, it is an easy matter to find and supersede the queens in them. The introduction should be by means of a tubular cage, $\frac{1}{2}$ inch in diameter, and $1\frac{1}{2}$ inch long, made of perforated zinc. One end is closed, and when it contains the queen, the other end is screwed into a piece of super foundation. The cage is then pressed down between two of the combs, and the queen is soon liberated by a hole being gnawed through the wax at the bottom.

SELF-HIVERS.

The writer is experimenting with one of these, this season, and hopes to give his experience with it later on. There is a tunnel made of queen-excluding zinc, placed at the entrance of a skep expected to swarm, leading into the entrance of an empty one placed in front. The latter contains a piece of comb as an additional attraction.

SKEPS.

In experiments with inverted skeps this season, the tendency so far seems to be for the bees to swarm instead of filling the supers. The reason, no doubt, is partly owing to the want of sufficient bottom-ventilation, which the feed-hole is incapable of affording. The idea has occurred, why not have all the tops of flat skeps in future made of wood, through which a large hole could be cut, and queen-excluding zinc nailed over. The bees would then attach their combs to the zinc, and any kind of super could be worked on the top, as in the ordinary way, with every prospect of success. *Expert.*

PLANT NOTES.

GARDENIA STANLEYANA.

THOUGH this plant, perhaps more correctly named *Randia maculata*, was introduced into this country nearly fifty years ago, it has not become much known in gardens, although it possesses much merit. As a decorative subject the flowers are dissimilar from those of the *Gardenia* mostly grown in our hot-houses, and those unacquainted with the plant would not be likely to assign it to that genus upon seeing it for the first time. It is a free-flowering plant, and has lately attracted considerable attention on the part of visitors to the Cambridge Botanical Garden, where a plant in a 32-pot bore ten flowers. It has an erect stem and branches, which spread horizontally; the growth is stiff and straggling, and not abundant. The leaves bear some resemblance to those of *G. florida*, but they are readily distinguished by their lighter colour and the small glands in the axils of the veins leading from the midribs. The flowers are produced singly and are axillary, and without the perfume of the *Gardenia* radicans attributed to it by some authorities, viz., *Williams' Book of Choice Stove and Greenhouse Plants*, though it may be that there are more varieties than one in cultivation which perhaps are accented. The flowers are trumpet-shaped, and the average of the tubes of the corolla on the plant before me measure some $8\frac{1}{2}$ inches in length, the diameter measuring, when the lobes are extended, a little more than 4 inches; the lobes are recurved, of a purple and white colour without, the upper surface having one of its edges white, and the opposite marked with reddish-brown spots. The flower has been compared to a spotted Japan Lily. The tube is of a reddish-brown.

It should be grown in a brisk heat, and kept as close to the glass as practicable, in a good light

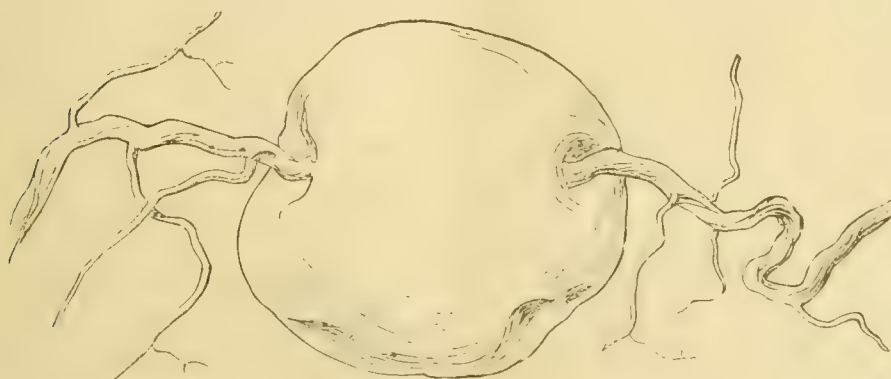


FIG. 155. - POTATO PERFORATED BY COUCH GRASS.

of passing an afternoon among Mr. Barr's Daffodils at Long Ditton, and apart from the magnitude of the display, there were one or two among the rare and beautiful kinds, the like of which I have never before seen. These were two seedlings surpassing in beauty any others.

Gathered together in one spot, for comparison's sake and for hybridising purposes, were the cream of Mr. Barr's fine collection, Monarch and Weardale, both noble flowers. These two varieties partake of *N. Emperor* and *N. Empress* in style of growth, constitution, and vigour; Monarch belongs to the yellow *N. Ajax* section, and Weardale to *N. Ajax* bicolor. Monarch has flowers of a richer and deeper hue than Emperor, and is remarkable for its bold habit and elevated trumpet (the trumpet in Emperor inclines to the earth), whilst in substance it is infinitely superior to that variety. Weardale is a much glorified Empress, good flowers of the latter looking small beside it; the trumpet is bold, inclining upwards, as that of Monarch; the perianth segments broadly ovate, decidedly imbricate, much clearer in whiteness than Empress, and devoid of the greenish reverse characteristic of the segments of the latter. In my curiosity, I measured the flowers of Weardale, and found the segments to be $4\frac{1}{2}$ inches broad, the trumpet 2 inches long, and 2 inches wide at the mouth. Growing close by, were Madame de Graaff, Glory of Leyden, Captain Nelson, and J. B. M. Camm, all very conspicuous flowers. *J.*

and dissolves the tissues and allows of the emergence of the root. Now the roots of the Couch coming into contact with the Potato exercise a similar property, and are thus enabled to penetrate the tuber. This is no theory, but has recently been demonstrated by a French experimenter, whose name we have unfortunately mislaid.

THE APIARY.

HOW TO MAKE A QUEEN NURSERY.

It often happens that the beekeeper has a preference for some particular queen in his apiary, on account of the good temper or energy of her progeny, or for some other reason; and if queen cells are at any time found in the hive of the favourite queen, after a swarm has issued, or otherwise, the opportunity occurs to head other colonies with her daughters. This cannot be so well done as by having recourse to a queen nursery. The ripe cells are cut out carefully and isolated therein, so that the young queens, when they emerge, are quite secure from the onslaught of their sisters. The most convenient nursery is one that is made to place on the tops of the frames, one kind is made to hang like a frame, and of course would be in the hive itself. A box of $\frac{1}{4}$ -inch wood is constructed, $2\frac{1}{2}$ inches deep, $9\frac{1}{2}$ inches square, and is divided into sixteen compartments 2 inches

slightly shading it from bright sunshine, and after flowering slightly pruned back. Pot the plants in a compost consisting of turfy peat, with some half-rotten leaves added, and a good sprinkling of coarse clean sand. It is not so subject to insect pests as are *Gardenias*. Generally, propagation is effected by taking off partly ripened shoots and putting them into pots of a sandy peat soil, and plunging these in a bottom heat of about 80°. *W. Harrow, Botanic Garden, Cambridge.*

FORESTRY.

THINNING OAK PLANTATIONS.

THE British Oak, *Quercus robur*, Lin., combines the useful and ornamental to a large extent; its timber is used for a vast number of purposes, while its bark is used for tanning, and the seed or acorns are relished as food by deer, sheep, and cattle. In the natural Oak forests of this country, as well as that of Ireland, I have found two varieties or species of that tree, namely, *Q. r. pedunculata*, and *Q. r. sessiliflora*. The former produces its fruit on foot-stalks, while that of the latter is sessile, or without foot-stalks. Another distinguishing point is, that the buds at the terminal points of the twigs and branches of *Q. r. sessiliflora* are of a larger size and more prominent than such as are produced by *Q. r. pedunculata*; and when marking the trees to be thinned out in early summer before the leaves and fruit expand, this is the best guide to the cultivator. As the timber produced by *Q. r. pedunculata* is superior to that produced by *sessiliflora*, the latter species should be reduced in numbers as much as possible in the course of thinning during the early stages of the tree's growth. Although the Oak is a hardy, indigenous tree, yet it is the better for shelter during the early stages of its growth, as I have occasionally had it scathed by late spring frosts in the month of June. Several other species of our native trees grow at a higher elevation than the Oak; as, for example, at the Pass of Ballater, on the Hill of Craigandarrach, or Hill of The Oaks, 1425 feet above sea-level, the natural Oak covers the slope of the hill for a considerable distance up its side, while Scotch Fir, Larch, Birch, and Mountain Ash clothe the ground to its highest summit. Were it not for the saving of the bark, I should prefer thinning Oak plantations during winter in place of early summer, but as this cannot be done but at a great loss of capital we have no alternative, but to fell the trees when the bark can be removed from the wood with the greatest facility. As early-saved bark always commands the highest price in the market, no time should be lost in commencing to thin Oak plantations as soon as the bark can be removed from the wood with facility. The principal tools used for peeling the trees are a heavy and light axe, crosscut and hand-saw; a scraper for removing moss and lichen, which often infest the surface of the bark at the base of the stem; a short hand-bill for cutting the bark into sections, wooden mallet, barking-chisel of a duck-bill shape, flat on one side and rounded on the other; and an adze for dressing the stools to prevent the lodgment of water to cause rot. Of course, these tools require to be furnished in sufficient numbers to meet the requirements of the hands to be employed. Before the trees are felled, a section of the bark 2 feet in length should be removed from the base of the stem a notch should then be cut with an axe about 2 inches deep around the stem a little above the ground level, and the work of felling finished with the crosscut saw. The workmen engaged at this work should be careful not to allow the trees which they have cut to crash into others in their immediate vicinity, that are to be left on the ground for a crop. In early summer, when the sap is on the move, and the buds and leaves are beginning to expand, the Oak is remarkably tender, and easily damaged by fracture or sudden exposure, so that the woodman requires to be specially vigilant

when thinning his plantations at this particular season of the year. The branches should then be carefully pruned off the trees, cut into lengths of some 2 or 3 feet, and carried to the roads to have the bark removed. Sometimes these branches require to be tapped with a wooden mallet on a smooth stone to loosen the bark, but the less tapping the better, as it not only gives extra work, but likewise bruises and lessens the value of the bark. The bark should be removed from the trunk and larger size of branches, in sections of about 2 feet in length. A wooden hurdle should be erected in an open, airy place, for placing the bark to dry and season. The smallest sizes should be arranged on the hurdle first, and the larger sizes placed on the top, outside uppermost, to defend the small stuff from the risk of damage by rain. In fine weather, the bark should be disturbed occasionally, to assist the drying process; the inner side, however, should never be exposed to the direct influence of the sun for any length of time, as such is found to lessen the tannin properties of the bark. Great vigilance is often necessary to prevent the bark from becoming mouldy or contracting black inky spots, which is apt to reduce the value of the bark about 50 per cent. As soon as it is dry, it should be immediately delivered to the tan-yard, or placed in an open airy shade to keep it dry and safe until it is wanted.

The stools or roots left in the ground should be dressed with an adze as the work of felling proceeds, and all sizes of timber removed to the roads at once, to prevent the young suckers from damage by tramping with the feet later on in the season. Clean out all sorts of rubbish from drains and ditches, and see that they are in thorough working order before leaving the plantation. Dress tree-wounds by paring off all sorts of dead and splintered wood, and dress the surface with a coat of thick paint, the colour of the bark of the tree, to prevent the ingress of water to cause rot. *J. B. Webster.*

TREES AND SHRUBS.

HARDY AZALEAS.

WHETHER these are used for greenhouse or outdoor decoration, they are among the best of flowering shrubs. Considering how very freely the Ghent Azaleas grow and flower everywhere, it is surprising that they are not more extensively planted. They flower early, are exquisitely scented, and of almost every shade of colour. Planted in beds, upon a somewhat dry and light soil, they will thrive and flower well, requiring less attention than any other flowering shrubs. Ghent Azaleas are so called because they were first raised in M. van Houtte's nursery at Ghent, and are the result of crossing the Pontic species with the hardiest American Azaleas. *Azalea mollis* is a Japanese variety, and it is particularly striking for the large size of its flowers, which are borne in profusion. The colours are exquisite, and are soft and beautifully toned down.

For early forcing these two Azaleas cannot be surpassed, and as they are so hardy, anyone with a small garden and cool-house may have them to perfection. After being grown in pots for a few seasons, it is best to turn them out in some good soil to regain their vigour. If the soil is of a heavy nature it should be lightened with sand and leaf-mould. Like the Rhododendron, the plants thrive in good turfy peat soil, although as before stated, any fairly light soil will grow them very well. *A. P.*

RHODODENDRON FALCONERI.

This appears to be much harder than any other species of Sikkim Rhododendrons, as with us in East Anglia it stands out in the open air quite unprotected, and though the past winter has been so severe it has not suffered in the least, every leaf and bud being as fresh-looking as before the frost set in. The plant has been growing in the same spot for years, a somewhat sheltered one at the foot of a high bank, with large evergreens around it on

the north side. Even without this shelter, I am of opinion that it would stand out uninjured, and being so very ornamental in its foliage, it ought to be more commonly planted as an outdoor shrub.

The leaves are 8 inches long, and broad in proportion, the colour of the upper surface a deep olive-green, and beneath a rich dark brown. Unfortunately, it is a shy bloomer, for ours has not flowered yet, but that may perhaps be owing to its position, as it gets but little sun to ripen the shoots. It would be interesting and useful to know if anyone has tried or tested the hardness of *R. Nuttallii*, or *R. Dalhousiae* by planting them out, and if so, how they behaved under exposure. I tried *R. Edgeworthii* many years ago, and the plant succumbed the first winter. For greenhouse cultivation this is perhaps the best of all the Himalayan species, as it is a moderate grower in regard to size, and free-flowering, the blooms being very fragrant, pure white, and of great substance. This variety has been much used for breeding from, and many valuable hybrids have originated from it, both by using it as a seed and a pollen parent, and much may yet be done with it in the same way, and gardens further enriched by its progeny. *J. Sheppard.*

[The late Captain Mangles, of Vale Royal, Haslemere, was very successful with the Himalayan and Sikkim species, and found that they flowered best when kept very cool during the winter, and to that end he used to keep them under canvas and mat roofs at that season, so that early growth—their greatest bane in our climate—was averted in a great degree, and if it should occur, the thawing of the shoots after frost, which does all the harm, was very gradual, being carried out in the shade. He flowered many species well in that way, and by putting them in nooks and corners, where the sun could not reach them. After there was no longer danger from frost, overhead protection was removed. *Ed.*]

THE WEEK'S WORK.

THE FLOWER GARDEN.

THE ROSE GARDEN.—June is proverbially the month for Roses, a distinction which must this year be transferred to July, as, up to the time of writing, we have not been able to cut any blooms worth speaking of, from either standard or pegged-down plants; nor are we likely to do so before the first week in July. During the last ten days our supplies of cut Roses, in succession to those hitherto had from pot-plants, from out-of-door varieties, have been obtained from Gloire de Dijon, Géant des Batailles, Celine Forestier, Reine Marie Henriette, and Devoniensis, all well-proved old friends, growing against east, south, and west walls.

Beds and borders devoted exclusively to Roses should be heavily mulched and copiously watered, and, in view of the present hot weather, the applications should be repeated at more or less frequent intervals, according as the soil is light or heavy. These waterings, together with overhead washings and renewal of mulchings, will maintain clean and vigorous growth, and tend to the production of larger blooms and better succession of them than would otherwise be secured. Go over the plants three or four times a week during the next four or five weeks, and cut off all old blooms, so that the plants do not needlessly exhaust themselves by the production of seed-pods, instead of making young growth for autumn blooming.

BRIARS FOR BUDDING.—Remove superfluous shoots from these plants, and mulch with half-rotten dung or leaves, following this with a good watering, which will ensure the bark running when budding time arrives in about three or four weeks.

HARDY FERNERIES.—These, for some unexplained reason, are not so frequently met with as they deserve to be, and as there are shady spaces and consequently suitable sites in most gardens that could be converted into hardy ferneries, a new and interesting feature could be added to many a place. See that Ivy, Periwinkles, and such like plants used as a groundwork in the fernery do not interfere with the proper development of the Ferns—their functions being confined, and the draping of the

materials used in the construction of the fernery, and covering the bare ground between the Ferns. Therefore, the thinning and reduction in size of the above-named and similar plants must be taken in hand from time to time. Should the soil appear dry below the surface, water should be afforded forthwith. The tops of all our plants of *Osmunda regalis* (Royal Fern) were nipped by the 4° of frost which we had here on the night of the 10th inst.

WATERING TREES AND SHRUBS.—Trees and shrubs which were transplanted late in the spring should have a good watering at the roots once or twice a week during the present hot weather, especially those growing in light soil and a dry situation, otherwise growth will be meagre.

TRIMMING SHRUBS.—Garden hedges of all kinds should now be trimmed, Privet, Yew, and Box being clipped, and Holly, Sweet Bay, Portugal Laurels, Junipers, Retinosporas, and Laurels, should be cut into shape with the knife by simply shortening longer shoots a little below the face of the hedge, so that the wounds do not show. Thus trimmed, there are no mutilated leaves or glaring wounds to mar the good effect of the hedge.

RHODODENDRONS, AZALEAS, ETC.—Where these shrubs are growing in numbers in beds, or singly, in prepared soil turfed over, the grass between the plants should be cut at least once a fortnight, great care being taken not to injure the plants in doing this. *H. W. Ward, Longford Castle, Salisbury.*

THE HARDY FRUIT GARDEN.

THE STRAWBERRY.—While most gardeners adopt the plan of planting out forced plants, it must not be overlooked that young plants raised early from runners, and planted on well-tilled rich land, will produce excellent crops of fine fruit the first season. Layering for this purpose should be commenced as soon as the runners are strong enough, either into pots of 60-size filled with loam, or in the soil of the bed. I prefer pots to anything else, as these may be better supplied with water, and the plants can be removed without injury to the roots. Layer but few from one plant, cut off the growing point in front of the layer, and keep all other runners cut off. Plant them out in about one month from the time of layering, either at the distance they are intended to stand for fruiting, say 2 feet for strong growers like Elton Pine, or 1½ foot for weaker ones; or at half these distances apart in the rows, and remove every alternate plant after one season. Protect all beds of garden Strawberries from the birds, first weeding them, and seeing that the mulching is good enough to protect the berries from grit. If it be thought needful, afford the beds a thorough soaking of water. When nets are employed, it is better to put some kind of frame-work beneath them, to keep them clear of the plants.

SWEET CHERRIES.—These fruits should also have nets placed over them as soon as the fruits begin to colour, fixing the net at the top of the wall, and allowing it to stand off about 4 feet from the bottom of the wall, but keeping the ends closed.

MORELLO CHERRIES should have the young shoots fastened to the wall and be treated similarly to the Peach, always laying in the young fruiting wood thinly, and pinching forerights and weak shoots so as to form them into fruiting spurs. Very strong shoots are best removed altogether. Employ the garden engine pretty freely, this tending to keep aphides in check, than which nothing spoils the look of the fruit and damages the young shoots more. Mulching the roots has a beneficial effect on both fruit and the current season's growth, if the soil be light. *H. Markham, Mereworth Castle, Maidstone.*

THE ORCHID HOUSES.

THE PHALÆONOPSIS are now either just starting into growth, or growing away fast, the earlier plants to bloom, viz., *P. amabilis* and *P. grandiflora* being the first to put on new leaves; and weak liquid-manure may be afforded them, very great care being necessary not to overdo the doses, or use it too strong; but commence always with a weak solution. Guano and farmyard drainage are two good manures to apply alternately during growth. Syringe the plants freely with the single jet, turning the water into a

fine spray with the forefinger over the aperture, and wetting both sides of the leaves—a most important point, as thrips mostly harbour on the undersides of the leaves. Plants of *P. speciosa* and *P. Luddemaniana*, just gone out of flower, should be kept slightly on the dry side for a few weeks, i.e., till the new roots are seen to be pushing out freely. These species are much later in making growth than others.

THE AERIDES.—These plants form a useful section for midsummer flowering, and the varieties are numerous, but none are so showy as *A. Sanderiana*, *A. Lawrenceana*, and *A. Godefroyæ*; they do best when grown warmly, and well supplied with moisture during growth. Thrips are apt to locate themselves in the axils of the leaves, which quickly become discoloured if they are allowed to remain there for a short time.

ANGRÆCUM SCOTTIANUM, now in flower, is one of the best growers of the genus, and when set in baskets, pots, or bare rafts, the plants bloom freely. *A. fastuosum* is another small-growing species, which seldom fails to grow and bloom satisfactorily; the flowers are white, comparatively large, and deliciously scented. I would reiterate my remarks on the necessity at this season of fumigating the warm Orchid-houses once a week; and if the houses are properly ventilated at all times, a small amount of tobacco smoke will not cause any injury to the plants.

PHAIUS MARSHALLIÆ, P. ALBA, AND P. BENSONIÆ, should now receive liberal treatment, and be kept moist, or they will suffer seriously; a good supply of liquid manure should be given them alternately with clear water. *Phaius* should be potted in a mixture of peat and sphagnum moss. The East India-house temperature may now be 70° to 75°; *Cattleya*-house, 65° to 68°; Intermediate-house, 60° to 62°; cool-house, 50° to 55° at night. *A. G. Cuth, Parkfield Gardens, Hallow, Worcester.*

FRUITS UNDER GLASS.

PEACHES AND NECTARINES.—During the ripening of the fruit in the early house, the borders should not be allowed to become dry, as they often do, but they should be well watered twice or thrice directly all the fruits are gathered; and mulching, if it has been well done previous to the final swelling of the fruit, will have been of great assistance—and if it has disappeared in part, another may be applied. Syringe the trees daily; and if aphids or red-spider are on the foliage, apply a wash forthwith of water, tobacco juice, and soft-soap, thoroughly wetting every part, any shoots that are not required being previously cut out. Ventilate abundantly, there being still a long time in which to ripen the wood by sun-heat alone. Want of moisture at the root, and the crowding of the shoots is, I think, the cause of much of the bud-dropping complained of, and if the maturing of the shoots is hurried by fire-heat, the evil is much intensified.

SUCCESSION-HOUSES.—In these, or some of them, fruits have begun to approach the ripening stage, and these will now require to have any foliage which may be shading them pushed aside or cut off wholly or in part, and mis-shapen fruit removed. Many gardeners are obliged to crop their trees too heavily, but there is no need to leave anything but what is good. The trees will, like earlier fruiters, require, if old, and not vigorous, some kind of manure afforded them, and I have formed a good opinion of "Le Fruitier," but whatever kind of powdered manure be used, it should be followed by a thorough watering of the border. When the soil is light, a mulch of cow-stable manure is beneficial. Copious syringing of the trees must be done, or the foliage cannot be kept in health; and air should be freely afforded in bright weather, some small quantity being let in at night. Trees in late houses and wall-cases will require similar treatment, retarding or hastening them as may be desirable. *G. Wythes, Sion House, Brentford.*

PLANTS UNDER GLASS.

THE GREENHOUSE.—For planting out in a cool conservatory, there are few plants which are better suited than *Brugmansias*, if space for full development can be afforded them, and they make very considerable growth in one year. If planted out, afford them assistance by means of clear manure-

water of moderate strength, or a top-dressing of deer's or sheep's droppings during the flowering season, as, being robust growers, they soon impoverish the soil. Syringe the plants freely, to keep them free from red-spider, which is very apt to get a lodgment on the lower side of the leaf. Plants raised from cuttings or seed last year must be shifted into pots of a larger size as fast as the soil gets moderately filled with roots, for if allowed to be cramped for space at the root, a check will be given them which will interfere with their progress to the end of the season.

BASKET PLANTS.—Ferns in baskets will now require large quantities of water to keep them in a healthy state; and the most efficient way to afford it where practicable is to immerse them in a tank or tub of water two or three times a week, allowing the water to drain off before hanging them up again. Baskets of *Achimenes*, *Petunias*, Ivy-leaved *Pelargoniums*, and any in which the plants are in bloom should be assisted occasionally with weak manure-water.

CLIMBERS.—Attend to the thinning-out and regulation of the shoots of these plant, so that those which may be standing beneath them are not robbed of light to any great degree. Any climber infested with thrips must be cleaned with some trustworthy insecticide or tobacco-water, &c., removing other plants from beneath them during the carrying out of the work.

TRAILERS.—The present is a good time to propagate a good stock of *Tradescantia zebrina*, *Panicum variegatum*, &c., for winter decoration; also to divide and repot the required number of *Isolepis gracilis*. *R. Milner, Penrice Castle, Swansea.*

THE KITCHEN GARDEN.

CABBAGES, KALES, SAVOYS, ETC.—These plants may now be set out in the quarters, in quantity according to the demands of the family, well watering the beds, if dry, before lifting or drawing the plants. A sowing of some quick-growing variety of Cabbage should be made, and one of Coleworts, for planting after some of the summer crops are cleared off. Sutton's Earliest is an excellent Cabbage for this purpose, it being a rapid grower, and of good eating quality.

TOMATOS.—These plants now growing freely, should have all laterals that are not wanted pinched off, which will strengthen the main branches; but the principal leaves should be wholly preserved. If show fruits are required, some of the fruits on the best plants should be thinned at an early date, leaving only the largest and best-shaped ones. Afford the plants liquid-manure occasionally, and a slight mulch of spent hot-bed manure. Keep the soil moist, but avoid excessive root-waterings, unless the soil be hot, shallow, and gravelly.

PEAS.—Late Peas coming up must be guarded from sparrows. Threads of white cotton put along the rows, about 1 foot above the surface, form a good protection. Stake such as need it, never letting the plants fall over first; and strong growers, which have weak tendrils or few of them, should be made secure with soft twine put along the rows of sticks. The last sowings of Peas should now be made, and these may consist chiefly of *Ne Plus Ultra*, *Sturdy*, and *Latest of All*—a green Marrow. Sow thinly to avoid attacks of mildew.

SEAKALE.—Keep the lines free from weeds, and on light soils the plants may be mulched with half-rotten dung, and supplied with liquid manure in dry weather. The lighter and poorer the soil, the more necessary it is to afford manure in some form. Thin the buds on the crowns if there are more than two—neglect of this often renders the heads too small for table use. Remove every flower-head by cutting it down as low as possible without sacrificing the leaves, and cut them off as soon as seen. All weak growths on spring-planted Kale should be cut off, only the strongest shoot being left. Interlined crops which may have been grown between lines of Kale, should not be allowed to remain longer than can be helped, or the Kale will be weakened; it is, in fact, better not to intercrop at all. Another sowing of Early Horn Carrots, Spinach, Turnips, Radishes, Lettuces, Endive, and small saladings may be made on a moist border. *C. J. Waite, Glenhurst, Essex.*

EDITORIAL NOTICES.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, and sent as early in the week as possible.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

PLANTS, &c., TO BE NAMED.—Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Advertisements should not be sent to the Editor, but to the Publisher, at the above address.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

FRIDAY, JULY 3—Dundee Horticultural Association.

SHOWS.

TUESDAY, JUNE 30 { Canterbury.
Winchester.

WEDNESDAY, JULY 1 { Croydon.
Brighton and Sussex (two days).
Lee and Blackheath (two days).
Bagshot.
Brockham.

THURSDAY, JULY 2 { Chiswick.
Farnham.
Norwich.

SATURDAY, JULY 4 { National Rose, at the Crystal
Palace.

SALES.

TUESDAY, JUNE 30 { Sale of Flowering Orchids, at Pro-
theroe & Morris' Rooms.

FRIDAY, JULY 3 { Sale of Established Orchids, at Pro-
theroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—62°·7.

The Royal Horticultural Society.

If the Council of the Royal Horticultural Society, and especially their energetic Secretary, the Rev. W. WILKS, do not experience a sense of complacency, they must be differently constituted from most mortals. The affairs of the Society became so terribly depressed during the tenure of the garden at South Kensington, that many and many a time was the aspiration heard—would that the Society could be obliterated and a fresh start made! But reform is more palatable to the conservative instincts of Britons than revolution. The Society has not been disestablished, although a fresh start has been made.

Once again the Society has vindicated its position as the public representative of British horticulture. Once again the sun of prosperity has risen on the once-foundering society, and under its present energetic but judicious administration there seems every prospect of a long spell of success. Two factors, in particular, have brought about this result: one, work, downright hard work; the other, principle, sound principle. The society was founded for the direct advancement of horticulture, not for the benefit (unless incidentally) of any particular class, fashionable, frivolous, commercial, or scientific. For some years, owing to causes to which we need not revert, horticulture *quâ* horticulture was pushed into the background, the resources of the Society were squandered uselessly, and its reputation, in the eyes of the ill-informed public, was besmirched. There is no doubt a vast deal to be accomplished yet, especially at

Chiswick, but the Council has good justification for being satisfied with existing prospects; and when they meet their friends, as they did on Tuesday last at the Hôtel Métropole, they must have felt that they had conscientiously earned, not only their dinner, but the thanks and appreciation of the Fellows and of the public at large.

Tuesday's proceedings were notable in more ways than one. Alluding to them in the order in which they occurred, we may mention that the fortnightly show in the Drill Hall was not only large but choice, and particularly interesting. People who like to see the fashions, and "hear the band" will, doubtless, prefer the big shows; exhibitors who have something to sell will prefer a larger gathering of potential customers; but the genuine flower-lover, who likes flowers for their own sake, and regards other matters as mere incidental accessories, will prefer the smaller fortnightly shows, when, according to the season, the choicest and most interesting exhibits are made in numbers not too large for comfortable inspection, and without the inconvenience and distractions of the larger gatherings. For commercial purposes also, these smaller gatherings are of the greatest utility.

In another column we give a detailed report of the show. Here we can only say that it was a particularly interesting one. The Tea Roses, shown under the auspices of the National Rose Society, came as a surprise—that such flowers should have been possible out-of-doors after such a winter, was almost too much to believe. Mr. GIRDLESTON, who availed himself of the opportunity by holding forth on the merits of the Tea Rose, illustrated his remarks by excellent demonstration; one flower of Comtesse de Nadaillac exhibited by him was particularly beautiful. The lecturer had obviously no need to expatiate on the loveliness of Tea Roses; and when he upheld their hardihood, he could, at least, point to the display in the room in confirmation of his statement. Nevertheless, other people tell a very different tale, and in any case the necessity for protection by Fern fronds, straw, earthing-up, or some other means, is one that requires emphasising. Lord PENZANCE's exhibition of hybrid Sweet Briars was particularly interesting, and is one of those efforts which the Society should do its utmost to encourage on account of the disinterested benefits they confer on science and horticultural progress. Another hybrid, *Disa Veitchii* ×, between the scarlet *Disa grandiflora* and the lilac *D. racemosa*, was most attractive, and the same may be said of Sir TREVOR LAWRENCE's Purple Emperor variety of *Odontoglossum crispum*. Flowers of *Iris Gatesii*, a species like, but in our opinion preferable to, *I. Susiana*, were shown by M. VAN TUBERGHEM and by Messrs. VEITCH. From Kew came two new and extraordinary Primroses, for the advent of one of which we have been looking forward eagerly for years—we mean the yellow-flowered *P. imperialis* from the mountains of Java. The other was *P. Poissoni*, one of the many interesting and beautiful novelties from Central China, and of which we have had so much to say latterly.

Disa tripetaloides, looking at a distance more like a *Stylidium* than an Orchid, and the dwarf *Crinum purpurascens*, were also shown from Kew. The warm thanks of the community are due to the authorities of the Royal Gardens, for the exhibition of these treasures, which add so greatly to the interest of these shows. On the *Pæonies*, *Pyrethrums*, *Larkspurs*, *Irises*, and other plants that went to make up the show, we need not dilate here. We cannot, however, help noting

a remark we overheard concerning the magnificent spikes of *Verbascum olympicum* exhibited by Messrs. CANNELL. These flowers are not of much service as cut flowers, and they are devoid of the special features which render florists' flowers acceptable to their devotees. On these grounds it was, we expect, that they elicited from a gardener the remark, in a tone that was not appreciative, "That's a queer-looking thing—a sort of weed, I take it." The antidote was quickly supplied by his companion, who remarked, justly enough, that it would be grand as a decorative plant.

Among the other exhibits, we must not omit to mention the portrait of Mr. SHIRLEY HIBBERD, painted for the subscribers by Messrs. MAILL & FOX, and intended to be hung in the Lindley Library. The portrait is from a photograph, and appeared to give general satisfaction, though many commented on the absence of "fire" in the eye which was so marked a characteristic of our late friend. On the whole, we do not think a more satisfactory portrait could, under the circumstances, have been obtained. The balance of the moneys subscribed will be invested for the aid of the orphan daughter, and it is particularly requested that those who have not yet paid their promised subscriptions will now do so without delay to Rev. W. WILKS, or to Dr. MASTERS, the Treasurer of the fund, at the Royal Horticultural Society, 117, Victoria Street, Westminster.

THUNBERGIA GRANDIFLORA (fig. 156).—I send you a photograph of a beautiful creeper, *Thunbergia grandiflora*, growing completely over a Mango tree 70 feet high. Most of the shoots are hanging down from the top of the tree 50 feet. The leaves overlapping one another in a most extraordinary way, being covered from top to bottom with large blue flowers, quite four inches broad. It is a perennial, having large tuberous roots, with a woody stem. The photograph conveys a very poor idea of what this giant creeper is like. I was quite astonished when it came out in a perfect blaze of flower; it commenced to flower last year after our first rains in July. The leaves are so beautifully arranged, one over the other, a person could stand for hours under it in the heaviest rain without getting wet. The whole thing looks like a huge festoon. *T. H. Storey, Oodeypore.*

ROYAL HORTICULTURAL SOCIETY.—On Tuesday evening, the 23rd inst., a large number of the Fellows, and their friends, dined together at the Hôtel Métropole, the president of the society, Sir T. LAWRENCE, Bart, M.P., occupying the chair. Amongst those present, were the Earl of Rosse, M. Jean Gennadius, the Greek Minister, Lord Justice Fry, Baron Schroder, Sir James Paget, Sir Joseph Lister, Sir J. T. D. Llewellyn, Mr. T. B. Haywood, Mr. Farquharson, Dr. Hogg, Mr. P. Crowley, Mr. Thiselton T. Dyer, Mr. R. Martin Smith, Mr. N. N. Sherwood, Mr. H. J. Veitch, Mr. T. B. Haywood, Mr. D. Morris, and the Rev. W. Wilks. After the usual loyal toasts, and that of foreign countries had been proposed and responded to, the toast of the evening—the Royal Horticultural Society—was proposed by Sir James Paget, who in a pleasant speech, drew attention to the great strides taken in botany and horticulture, since he took up the study of these subjects in his youth. He was glad, he said, to represent the opinions of those who valued the great work which the Royal Horticultural Society had done, and was doing, for the comfort and happiness of the nation. Personally he had been more interested in matters relating to the diseases and deformities in the vegetable world. These studies might be unattractive to outsiders, but were of supreme utility to mankind. The Society had assisted in fostering a love of horticulture among all classes of society to an extent not dreamt of in his youth. He

rejoiced that Sir Trevor Lawrence was the President of the Society, because it was to the teachings of Sir W. Lawrence, the President's father, and his accomplished wife, that he (Sir J. Paget) owed the early interest he had taken in horticulture. Sir Trevor Lawrence, in response, reviewed briefly the history, aims, and work of the Society, and emphasised the fact of the steady support which the Society received from the nursery trade. Among other toasts were "Botanical Science," proposed by Professor Michael Foster in

the views of the proposer. Sir Trevor Lawrence, paid a well-merited eulogium on the Secretary (the Rev. W. Wilks), and in proposing his health, said it was impossible to really estimate the value of the services which he had rendered. Mr. Wilks briefly responding, the two remaining toasts were withdrawn, the evening being far advanced.

NEWSPAPERS AND THE POST OFFICE.—On Tuesday last a deputation, representing the news-

papers, speeches were made by Messrs. STEAD, A. FOSTER, UFCOTT GILL, STIRLING, PEARSON, and LONG. It was represented that any interference with the arrangements for the insertion of supplements would be hurtful to the interests of the papers, and also that there should not be any restriction as to weight, or as to the proportion of advertisements to matter. Mr. RAIKES, who stated that he sympathised greatly with the newspaper interest, said that the Post-office would meet them as far as possible, but the

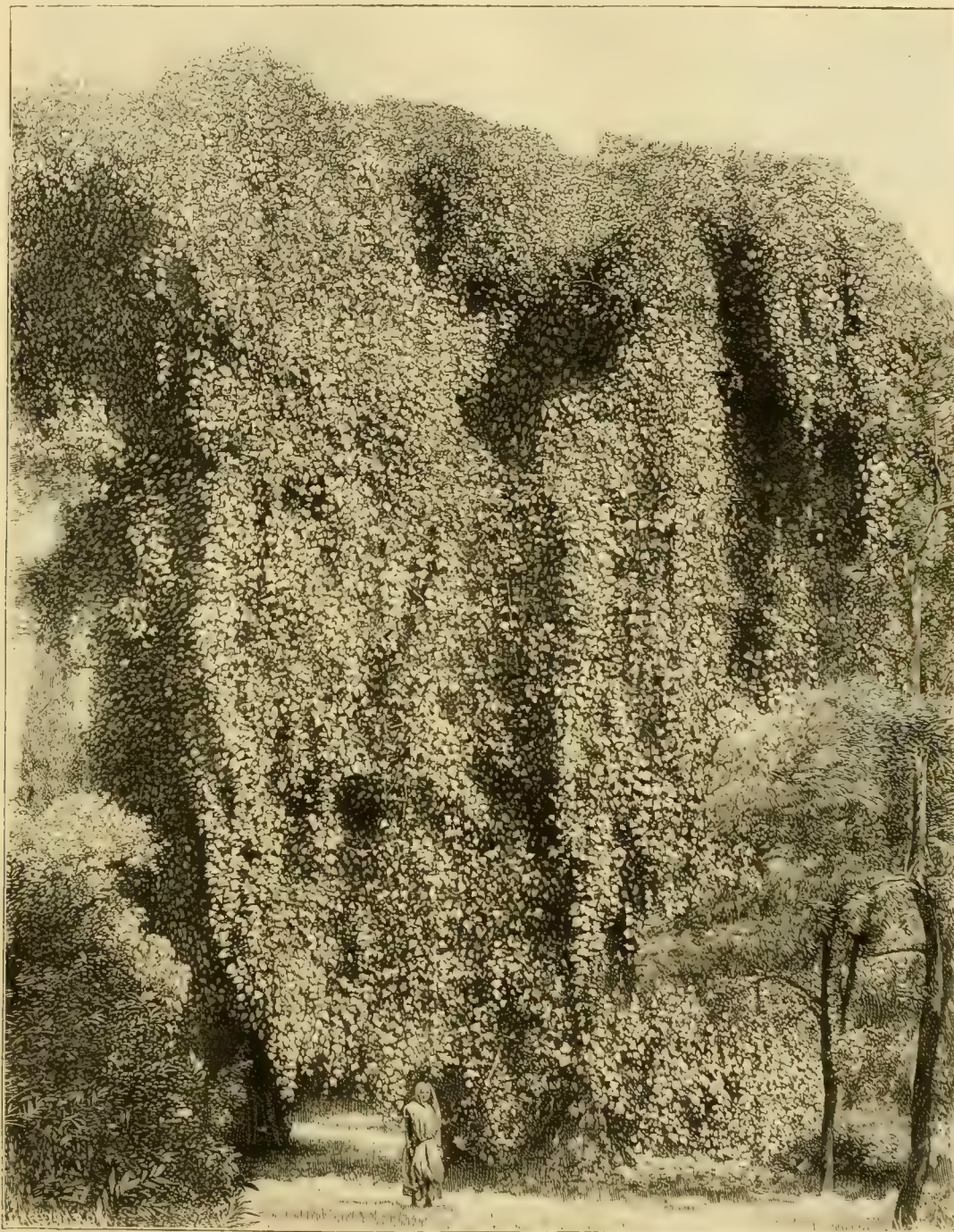


FIG. 156.—THUNBERGIA GRANLIFLORA; FLOWERS BLUE. (SEE P. 788)

a speech in his usual touching but humorous style, and which was highly appreciated. This toast was acknowledged by Lord Justice Fry, and Professor C. Stewart, the President of the Linnean Society; the Treasurer and Benchers of the Inner Temple were proposed by Mr. D. Morris, and responded to by Mr. H. W. Lawrence. "The health of the Chairman" was given by Baron Schroder, who very earnestly pleaded for a central Horticultural Hall; and the President, in responding, cordially supported

paper proprietors and publishers, waited on Mr. C. RAIKES, M.P., the Postmaster-General, with regard to the proposals embodied in the new Post-Office Bill now before Parliament. The deputation was introduced by J. HENNIKER HEATON, Esq., M.P., who explained the working of the postal branches of the U.S.A. and of Canada, where newspaper rates are more favourable to the newspapers than they are here. Mr. PICTON, and other Members of Parliament, were supporting Mr. HEATON. As representing the news-

papers, inclusion of periodical publications—not newspapers—at the newspaper rate, was a matter for grave consideration by the Government.

HAILSTORM AT CHOLSEY, BERKS.—A very acceptable heavy fall of rain, accompanied by severe thunder, but not much lightning, occurred at Cholsey, Berks, on Wednesday last, and about 3 o'clock a very heavy hailstorm with hailstones fell as large as marbles, but it had not damaged the glass.

THE GARDENERS' ORPHAN FUND.—We are informed by G. W. CUMMINS, Hon. Local Secretary of the above, that the Committee of the Croydon Horticultural Society have again kindly made arrangements for holding a Rose Fair, in aid of the Gardeners' Orphan Fund, on Wednesday, July 1, in connection with their Annual Exhibition. Readers of this journal are requested to make the same a success by contributing Roses or other flowers for sale; for which the Committee will be greatly obliged. Packages should be addressed "Rose Fair Tent," Brickwood House, Addiscombe Road, Croydon.

KEW EYOT.—Every one who crosses Kew Bridge must be struck with the beauty of this little wooded islet. Time after time the protection of this beauty spot has been advocated, and on the last occasion, if we mistake not, the answer was given, that, according to old maps, no wasting had taken place! Now, it appears, the trees are falling, because the roots are being laid bare, and to avoid catastrophes, an order (we quote from a daily paper), has been issued that the remaining trees are forthwith to be felled. Let every one who appreciates the beauty of this little spot, and who can realise the hideous prospect which will be afforded when the trees are felled, at once raise a protest against such a desecration. Camp-shedding, or a few Willows deftly planted, to keep up the bank, would obviate all danger, and preserve what can never be replaced if destroyed. We do not know if the authorities at Kew have any power in the matter, but we can, at least, ask them to act as intermediaries in the endeavour to save this ideal "eyot."

BEGONIA, "JACK IN THE GREEN."—Mr. CANNELL sends us an oddity under this appellation. We do not know whether he intends the name to be merely provisional, but whether or no we think it likely to be more persistent than the thing itself, which is a curious monstrosity in which the segments of the perianth are more or less leafy in character. What is even more unusual is the circumstance, that the central column, or axis, which bears the stamens, ends in a small tuft of leaves, thus affording an illustration of median leafy proliferation. Some of the uppermost stamens are more or less leafy in character. Another flower had the ovary "superior," completely free from the perianth, instead of inferior, as is usually the case.

"MEEHAN'S MONTHLY."—Were it only for the sake of its alliterative title, this magazine would attract attention; but when we say that its author is Professor THOMAS MEEHAN, those who care for plants and gardening, and those who look on flowers as things not only to be seen but studied, and on fruits and vegetables as objects not only for the table but for philosophic investigation, will know that the resources at their disposal are materially augmented. Judging from the first number before us, the object of the Editor in his new venture is to combine practical gardening with a knowledge of plants, and especially with those of the United States. Those who remember the defunct *Gardeners' Monthly*, will rejoice to see its revival in its present shape. The periodical is published by Messrs. MEEHAN, Germantown, Philadelphia.

JAMES R. PITCHER, the well-known Secretary of the United States Mutual Accident Association, and a partner in the firm of PITCHER & MANDA, is, says the *Radiator*, one of the heirs to an immense fortune, estimated at between 15,000,000 and 20,000,000 dollars, left recently by the late LORING A. ROBERTSON, of Brooklyn, who died intestate.

NYMPHÆA MARLIACEA CHROMATELLA.—The water-garden during the last few days has made rapid progress, and its charms draw one irresistibly to its side for the first enjoyment of the morning. Marliac's yellow Water Lily, which is now in bloom, is undoubtedly one of the handsomest and most satisfactory of hardy Nymphæas, beautiful both in flower and leaf. It has been claimed at Kew that this

variety is a cross of *N. tuberosa* with a yellow kind, probably *N. flava*, and it is there known as *N. tuberosa flavescens*. From its growth here it seems more probable that it is a hybrid of *N. alba candidissima*, Mr. E. D. Sturtevant, I believe, thinking it a cross of this variety with *N. flava*.—*Garden and Forest*.

AMATEUR'S WAY OF ROOTING CUTTINGS.—A correspondent of *Popular Gardening*, says:—"That he has never lost a cutting if treated as follows. He takes a piece of cotton batting, as large over as a tumbler, thoroughly wets it and puts it in the bottom of a tumbler, with about an inch and a half of water; lets the ends of the cuttings rest on the cotton and places in a warm sunny window. As soon as the roots begin to show well, the cuttings are placed in the pots in which they are to grow. More water is added if it evaporates much. The slips take up very little room, and quite a number can be put into a tumbler at one time."

CHEESE-MAKING.—It is estimated that each ton of cheese impoverishes the soil of a dairy-farm to the extent of £3 14s. 7½d., which amount must accordingly be replaced if the fertility of the soil is to be maintained. The figures given relate to Australia, but though the details might be different here, the principle would remain unaffected.

RHODODENDRON DUCHESSE D'UZES.—The *Moniteur d'Horticulture* gives a coloured figure of this seedling, raised at Angers by MM. FLON & SONS. The habit is dwarf, compact, the leaves narrow, ascending, deep green; the flowers in a lengthened truss, violet-mauve, with a whitish throat, speckled on the upper petal. It is a good variety for forcing, but is quite hardy, and is highly spoken of by M. LUCIEN CHAURE.

THE ELECTRIC LIGHT.—According to the *Illustration Horticole*, the influence of this light upon the trees in the vicinity of the railway near Ghent, has been very marked this spring. The buds on the sides of the trees exposed to the light were considerably in advance of those on the opposite side. Its use in horticulture is only a question of time.

TEA.—It is calculated that the weight of tea consumed by each individual of the population of Great Britain for the year 1890 amounted to 5.07 lb. per head, and the number of gallons of the infusion to 33.4 per head. The largest amount comes from India, next from China, while Ceylon is rapidly assuming a most important position in the market, the proportions being—India 52, China 30, and Ceylon 18.

GHEENT, JUNE HORTICULTURAL MEETING.—The number and quality of the exhibits at this meeting, which was organised by the *Chambre Syndicale des Horticulteurs Belges* and the Ghent Royal Society of Agriculture and Botany, surpassed expectation. Certificates of Merit were awarded for the following plants:—1, *Anthurium Princesse Clémentine*; and 2, *Anthurium Président Van Hulle*, from M. L. Desmet-Duvivier; both are hybrids, the first remarkable for the bright pink spathe with well-marked veins; the second for the green colour of the spathe, and the midrib and margins of pink; 3, *Cœlogyne pandurata*, from M. L. Desmet-Duvivier; 4 to 10, excellent and magnificently-flowered specimens of *Cattleya Mossiæ*; especially noticeable was *Mossiæ Peetersi* (Certificate unanimously awarded), on account of its deep red colouring and veins of pure white, which distinguish it from all other varieties; the variety, *Reineckiana*, with pure white petals and sepals, and deep mauve lip is most interesting; the *Mendeli* shown were remarkable as good and as well-bloomed varieties. All these fine Orchids were exhibited by M. A. A. Peeters; 11, for *Disa racemosa*, which is rarely seen in Belgium, the plant shown by M. A. A. Peeters, was very well bloomed; 12, a fine seedling *Streptocarpus*, from M. Van Imshoet, with abundant flowers; 13, *Odontoglossum crispum*, variety from M. Van Imshoet, a magnificent variety, very dark coloured, curiously

speckled; 14, *Cypripedium Fraseri*, very prettily coloured, from M. Jules Hye; certificate unanimously awarded; 15, *Pteris tremula Smithiana*, from MM. Ed. Pynaert and F. Desbois et Cie; 16, *Pteris cretica densa*; 17, *Pteris cretica nobilis*, from MM. F. Desbois et Cie.; very good and promising varieties; 18, for a remarkable variety of *Cypripedium Rothschildianum*, to M. Jules De Cock. This plant was imported direct, and is noticeable for the very characteristic hairs on the petals, the white column, the aspect of the flowers, their vigour and unusual depth of colour, this is the first time it has bloomed; certificate unanimously awarded; 19, *Odontoglossum crispum Adolphianum* from MM. Vervaeke et Cie., unanimously awarded—remarkable for its large spots; 20, *Cypripedium superciliale* var. *de Rougier*, from the same exhibitors; the petals darker and larger than those of the type, also more spotted; 21, *Odontoglossum majesticum*, shown for the first time; it is quite new and belongs to the same class as *O. Alexandræ*—it is very beautiful, and quite different from all other kinds, the flower is of medium size and very beautiful, in shape rounded, white, the edges pale amber-coloured; the entire flower, lip, sepals and petals, are evenly marked with brown; 22, *O. decorum*, also new, a natural hybrid with long narrow and wavy petals, the flower is partly pale yellow, partly pink; the centre speckled with little red dots; 23, *O. excellens* var., a natural hybrid from *O. Pescatorei* and *O. triumphans*; this variety is quite distinct from the type; the flower is of beautiful and regular shape, pale yellow in colour, the centre is pure white, and the lip white; the whole flower is evenly spotted with bright brown; 24, *O. radiatum*, one of the most beautiful Orchids in this section; the flower very large, and beautiful, rounded in shape, is of a deep chocolate colour, bordered with golden yellow.

Certificates of Merit for Good Cultivation were awarded for:—1, *Oncidium macranthum*, from M. J. Hye-Leyens, with numerous large well-coloured flowers; 2, *Cattleya Warcewiczii*, to the same exhibitor, with fifteen splendid blooms of an unusual colour; 3, *Cattleya Mendeli*, from M. Vuylsteke, a plant of vigorous growth, with twenty large leaves and twenty-two magnificent flowers; 4, *Cypripedium caudatum*, to M. L. Spae-Vandermeulen, with numerous and large flowers of a very good colour. The jury also awarded honourable mention for nineteen exhibits, sixteen of which were for new varieties of Orchids.

POISONING BY A "WEED-KILLER."—An inquest has been held at Hastings, touching the death of a domestic servant. It appeared from the evidence of the employer, that the girl was taken ill, and that he was informed that she had drunk some liquid he had purchased as a "weed-killer." The "weed-killer" he had purchased in the afternoon of the day on which deceased was taken ill, at Mrs. GILBERT'S, florist, in Queen's Road. The bottle produced, which was labelled "Scotch elder-wine," and also bore a smaller label with the words "weed-killer," was taken by himself to the shop, and the liquid, about a pint, was supplied in it. He had himself labelled it "weed-killer." After he had used a portion of the liquid, he left the bottle with the remainder in a corner of the garden, with the label "weed-killer" facing outwards. Deceased told him in the presence of the doctor that she had taken some of the liquid. He had never used the liquid before, and he was not told and did not know that it contained poison, there being many things that are not poisonous which would kill weeds. The sister of the deceased deposed to seeing the bottle on the kitchen-table, and afterwards finding the deceased spitting over the sink. In reply to her inquiry, deceased said she thought the liquid in the bottle was elder-wine, and that she had tasted it, but was certain she had not swallowed any. Mr. E. J. Adkins, surgeon, said that he had analysed the contents of the stomach, and found no arsenic, but had detected it in other parts of the body. He had examined some of the "weed-killer," and found it contained a great deal of arsenic,

caustic soda, and methylated spirit. The symptoms observed were consistent with arsenic poisoning. Ernest Barton, assistant to Mrs. Gilbert, florist, said he served Mr. Banks with the weed-killer, and told him how to use it, and Mr. Banks put the label on it in the shop. It was Smith's weed-killer, but although he knew it was a poison, he did not know what it was made of, nor that it was such a deadly poison. His employer purchased it in gallon cans, which were labelled "poison," but as Mr. Banks bought so small a quantity, he did not think it necessary to put on a label. He had never sold less than a gallon before, and when he sold that quantity a label, supplied by the manufacturer, and describing the liquid as a poison, was put on. The coroner said the death appeared to have been the result of an accident, but it was doubtful whether a florist had the right to sell such a liquid. By the Poisons Act, no person other than a chemist was allowed to sell arsenic, and the seller was liable to a penalty if he sold it without making an entry of the sale in his book, and labelling the bottle containing it to show that it was a poison. The jury returned a verdict of death by misadventure, and expressed the opinion that more care ought to have been exercised in the selling of a liquid of such a poisonous nature.

PROTECTION IN FRANCE.—The horticulturists of Angers have protested energetically against the protective duties proposed to be laid on plants entering France from foreign countries. The imports of trees, shrubs, and plants into France amounted in value in 1890 to 1,685,900 francs, 1,200,000 francs of which went to Belgium, while the value of those exported amounted to 2,875,000 francs. French horticulture, say the protestors, needs no protection, and demands none. Some few French firms, ten in number, have entered into competition with the Belgians and the English, but with little success, and hence they demand protection. Is it just, ask the signatories of Angers, that a small number of establishments shall be advantaged at the expense of the large majority? But this is precisely what Protection does all the world over.

CANADIAN APPLES.—Our advices are to the effect that the crop is likely to be good, if not very large.

PHYLLOXERA.—M. ROMMIER has ascertained that a solution of bisulphide of carbon, in the proportion of O, 4 gramme, to a litre of water, suffices to kill the Phylloxera as well as their eggs.

IRISES AT CHISWICK.—The series of beds in the Royal Horticultural Society's gardens devoted to the barbata section of these showy flowers, now present a most effective appearance. What a range of indescribable colour they display! the richest yellows, intense purples, delicate blues, softest mauves, and beautiful claret-reds. There are whites too, also primroses, and bronzes of every conceivable shade.

CHISWICK HORTICULTURAL SOCIETY.—We understand that the annual show of this society, which is to be held in the Royal Horticultural Society's gardens, on Thursday next, July 2, promises to be a good one. Valuable special prizes, in addition to those offered by the society, will be competed for. The hon. secretary is Mr. HARTLAND, Holly Lodge, Brandenburgh Road, Gunnersbury, and intending exhibitors should send in their entries to him.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We have received the following letter from Mr. G. WYTHES, gr. to the Duke of NORTHUMBERLAND at Sion:—"This deserving Institution labours at present under great disadvantages, and as you have for many years past aided its funds and ventilated its benefits in the pages of the *Gardeners' Chronicle*, I kindly ask you to insert my short appeal on its behalf. I would ask gardeners to become members of this excellent Institution in greater numbers than hitherto. The Institution is anxious

to get more gardeners on its list of subscribers, especially as the provision which has to be made for pensions is now exceedingly heavy, and the aim of the new Secretary is to make it thoroughly deserving of its name. Out of the many thousands of gardeners and garden foremen in the United Kingdom, there are but about 700 gardeners on its list of subscribers, and reliance has to be placed on others for the support of this admirable Institution. I well know the many calls that are made on a gardener's pocket, and more than usual of late; but there are many more than 700 who could spare a small sum to assist a brother gardener in his day of need. If

splendid exertions, obtained no less a sum than £3000. I am thankful to say gardeners responded well on that occasion to his appeal, and I ask them to do so again, and become annual subscribers to its fund. The death of our secretary and valued friend, E. R. CUTLER, and many other supporters of the Institution, makes it the more necessary that fuller support be accorded the new secretary. The chairman who will preside at the annual dinner is the Right Hon. JOSEPH CHAMBERLAIN, M.P., who stands high in the horticultural world, and who will, I hope, get liberal support. I feel sure if the good that this Institution does could be more widely circulated amongst gardeners and those interested in horticultural pursuits, we should secure still greater assistance, and enhance the benefits to those for whom the Institution was founded.

—We are requested to remind our readers that the Fifty-second Anniversary Festival Dinner of the above will take place at the Hôtel Métropole on July 8, on which occasion the chair will be occupied by the Right Hon. JOSEPH CHAMBERLAIN, M.P. Those desirous of attending, should make early application for tickets to the Secretary, Mr. G. J. INGRAM, 50, Parliament Street, S.W.

NEW PUBLIC PARK AT CHESTERFIELD.—Messrs. WILLIAM BARRON & SON, Landscape Gardeners of Borrowash, have been awarded the 1st prize for their designs, for laying out Queen's Park, Chesterfield. The park is 22½ acres in extent, and was purchased by public subscriptions to commemorate the Queen's Jubilee. An ornamental lake, cricket and football-ground, bicycle-track, bowling-green, gymnasium, &c., are provided in Messrs. BARRON's scheme.

AZALEA MOLLIS J. H. LAINQ.—This is a hardy Azalea, originally raised by M. N. DE CONINCK, between *A. mollis* and *sinensis*; whether these two plants are deserving of specific rank is a moot point to be settled by the botanists. Gardeners are more concerned with the fact that a race of hardy Azaleas has been secured, differing from most of the *mollis* type by their warmer colouring and more vigorous habit. The original *A. sinensis* is said to have almost disappeared from cultivation, having been supplanted by the Ghent Azaleas raised from *pon-tica*, *calendulacea*, *viscosa*, *nudiflora*, &c., while these again are yielding the place to the varieties of *A. mollis* originally described by REGEL in the *Gartenflora*.

PUBLICATION RECEIVED.—*A Book about Roses*, By S. REYNOLDS HOLE. Tenth edition.

DISEASE OF HOLLYHOCKS.

In the *Gardeners' Chronicle* for September 20, 1890, p. 324, an illustrated article from my pen is printed on a new disease of Hollyhocks. The illustration is here reproduced (fig. 157). In the article above-mentioned, it was stated that the black bodies, seen inside and outside the Hollyhock stems, would probably germinate "about May" this year.

The examples sent to me I planted in earth and silver sand in a small pot. The pot was slightly protected and attended to, and the surface was kept free from weeds, but the black bodies (or sclerotia) received the full baking of last autumn's sun, and they were frozen into one solid stony mass during the whole of the unusually long and severe frost of the past winter.

The sclerotia, or resting-mycelia, of the Hollyhock blight received no injury whatever from the sun or frost, but true to date germinated in the first week of the present June.

The accompanying illustration (fig. 158) shows the black bodies as they now are: *A* is a piece of the decayed Hollyhock stem on which the black bodies have germinated, and produced a perfect fungus, *Peziza* (or *Hymenoscypha*) *sclerotiorum*. Some of the sclerotia have germinated, but as yet not produced the perfect fungus, as at *C*. A section of the cup of one of the perfect fungi is shown at *D*,



FIG. 157.—HOLLYHOCK FUNGUS.

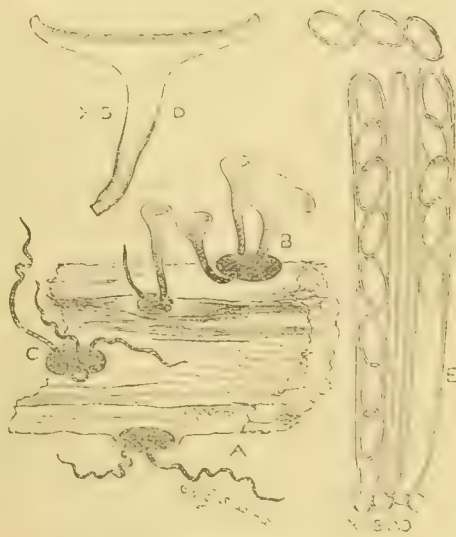


FIG. 158.—DISEASE OF HOLLYHOCKS.

more belonged to the Gardeners' Royal Benevolent Institution, it would more truly fulfil its purpose; but they should lend it their aid and support before they themselves reach old age—and then, if they should not require its assistance themselves, they would have the satisfaction of knowing that it would afford help to others less fortunate. As gardeners, we see how nobly the seed and nursery trades have subscribed to its funds, and at our last festival our chairman, Mr. H. J. VERRICH, by his

enlarged 5 diameters; the minute cross-hatching at the top shows the microscopic fruit. The fruit itself is shown, enlarged 500 diameters at \times . This fruit, as may be seen by the illustration, consists of an enormous number of most minute and closely adpressed transparent bladders, and each bladder (ascus) contains eight spores or analogues of seeds. In one bladder the apex is open, and the spores are shown as escaping. The spores are produced in millions, and are, of course, now full of vitality, and ready to renew the blight of Hollyhocks. Although the fungi are small, the slightest touch causes the spores to escape from the Peziza in myriads, and to be quite visible as a small faint cloud in the air at the moment of their escape.

The Peziza of Hollyhocks does not completely agree with the published descriptions of *P. sclerotiorum*, but no doubt it is one form of this somewhat variable fungus.

The germinating examples illustrated have been given to the Department of Botany, British Museum, Cromwell Road, S.W. *Worthington G. Smith, Dunstable.*

BERLIN.

SOME days ago the Horticultural Society paid a visit to the irrigated fields (Rieselfelder), at Blankenburg, near Berlin, and as there are many things worthy of note, I will try to give you an idea of them. The whole town of Berlin is canalised, and the water for the houses, &c., is pumped by several pumping-stations, partly in the south, partly in the north, at a distance of some 20 to 30 miles. The whole surface irrigated has an area of 7900 hectares, *i.e.*, about 19,522 acres, 30.5 square miles. Of these, 14.5 square miles are situated south of Berlin, whilst 16 square miles are in the north. The whole area is divided into sections of about 5 to 6 acres (2.25 hectares), each of which is again sub-divided into fields of about half an acre. Care is taken that each section and each field can be irrigated at any time. More than half is let for six years at a farm rent of £24 to £30 each section of 2.25 hectares. Early in the beginning of the irrigation scheme, it was proposed to plant along the roads fruit trees. The results, so far as Apples, Pears, and Plums are concerned, were so good, that the planting was extended. The roads are but small, *viz.*, 6 metres, so that the trees must be planted at distances of 10 to 14 metres. Up to this date, in the south 220km. = 136.64 miles; and in the north, 208km. = 129.2 miles, with 77,880 fruit trees are planted covering a distance equal to that between Windsor and the Scilly Islands. But there is still a great deal to be done, for if all the roads are planted as proposed, and this will be done in a short time, about 200,000 fruit trees at a distance of about 682.7 miles, *i.e.*, from the Scillies to the Orkneys, or from Berlin to Marseilles, will be lined with trees. The trees are grown in the nurseries of the town of Berlin, which have a total area of 863 hectares = 2,132 acres. In these there are at the present moment 161,520 trees. The following are the sorts of Apples and Pears which are planted, Apples: Winter Golden Pearmain, Great Reinette of Cassel, Great Bohnapple, Gravenstein, Reinette Baumann, Charlymowsky, Carmelite Reinette, Golden Reinette of Blenheim, Virginian Roseapple, Yellow Richard, Kantapple of Danzig, Prince's Apple, Reinette Landsberger, Green Princeapple, Great Catshead, London Pippin, Alantapple, Royal Short-Stalk. Pears: Williams' Bon Chrétien, Beurré Clairgeau, Beurré d'Esperen, Liège's Winter Beurré, Trout, Red Autumn Bergamotte, Délicieuse de Charmeux, Baron's Pear, Louise Bonné d'Avranches, Colmar Autumn Beurré, Beurré Goumbkow, Romaine Grise, Nouveau Poiteau, Red Dechant's, Fig Pear of Holland, Beurré Diel, and Cowfoot. Cherries are not planted, as they do not grow well; but Plums gave such a good result that they will now be planted in larger quantities.

It may be interesting to hear that the whole plantation is directed by two head gardeners, one for

the southern, the other for the northern district. Each of these has a number of keepers, who are under him, and who are educated in the nurseries. Each of the latter has to attend to 4600 trees. Besides the fruit plantation there are still many noteworthy cultures in the irrigation fields, the details of which must be reserved for a second letter. *Udo Dammer, Friedenau, near Berlin, Handjerg Str., 76.*

HOME CORRESPONDENCE.

LILIUM LONGIFLORUM HARRISII.—In reading Mr. Sheppard's notes upon this fine plant in your last issue, I observe he remarks upon its liability to be infested with aphids. This has often proved a very great drawback to its culture, for everyone has not sufficient bulbs to fill a house, and one does not want to fumigate a whole house for the sake of a few plants. If any of your readers have ever felt this difficulty, permit me to have the pleasure of pointing out a remedy:—2 oz. of Calvert's carbolic soft-soap to a gallon of water; keep this mixture in a tin, or a homely bread-pippin, and dip the plants on the first appearance of aphids. A boy can dip 100 plants in an hour without the least fear of damage to the most tender foliage, and the culture of this plant will be a pleasure instead of a toil. I believe this cheap and effectual insecticide is worthy of more extended use, and applied warm upon the grey aphid, which attacks Plum trees (especially wall-trained trees), its effect is magical. Now that amateurs can purchase *Lilium Harrisii* at 6s. per dozen, and can keep them clean, there should be no obstacle to their extended culture. *A. H. Pearson, Chilwell, Notts.*

THE MARKET PEA CROP.—We have at length got into Pea gathering, although not in a big way yet; but there seems to be no doubt whatever but that there will be an unusually heavy field crop this season; indeed, so far as all the earlier ones are concerned, the extent of the crop may be regarded as assured. We have rarely had on the breadths such robust growth and long-continued bloom. The only drawback is, that podding, like everything else this season, is late; also, that even whilst the first early Rounds are still blooming profusely, the second crop Blues, and the later-sown Marrows, are in bloom profusely too, so that the later gatherings of the earlier will have little market value. Too robust growth in early Peas is not all profit. Very early gatherings, perhaps about three, then off with the haulm, and in with a succession crop, pleases the grower best. The tail end of early Whites seldom pays for gathering when Blues or good successions come in. Sangster's No. 1, so long the best first early Pea for field culture, seems in danger of being deposed from its place by the prolific and rather earlier blue-seeded Eclipse which Messrs. Harrison, of Leicester, sent out. It is interesting to note that this same firm's Glory, although far from being a Pea of quality, yet holds its own still for hardiness, earliness, and prolificacy, as a second crop or early blue Pea. Eclipse, curiously enough, has paler green texture than Sangster's has, and does not make such an apparent fine showy bloom, but it has blue pods and peas, and fills them earlier also; even a couple of days of precocity is a matter of great importance in a Pea district such as this is. The earliest pickings were sent from the Surrey side of the Thames, the soil about Chertsey being earlier than it is on the Middlesex side. These went to London about the 13th, whilst our earliest went in on the 18th. Still, we were really not well into the picking until the 22nd, the warm weather having helped to fill the pods materially during the past few days. From now until the end of July there will be Peas in plenty, the season is all too short; but runner Beans come in abundantly with other vegetables, and the metropolitan consumer likes change, hence it does not do to trust to extensive breadths of late Peas. *A. D.*

WATERING.—In order to secure the best results from flowering or edible plants, the soil should be kept in an uniformly moist state at the roots during the season of active growth, that is to say, in May, June, July, and August. If the soil in which Peas are growing becomes unduly dry in summer, an attack of mildew may be looked for, with the sure result of a crop poor in quality and of short duration. Cauliflower plants from the same cause will become button-hearted, and Lettuce plants will be mere bundles of loose heads of leathery leaves instead of

crisp solid heads. Scarlet Runners and French Beans, Spinach, and other vegetables suffer materially if not kept growing by much moisture in the soil during the summer months. The best time to afford water to plants in flower and kitchen garden is late in the afternoon, or just before sunset. It is better, however, to afford a good watering in the afternoon once or twice a week, so as to thoroughly moisten the soil, than to give dribbles every evening. The notion entertained by some persons, that if plants are watered overhead in the heat of a summer's day, the leaves get scorched by the action of the sun on them while damp, is a wrong one. Nature herself affords ample proof of the correctness of this assertion every summer, when the sun frequently shines forth with full power on the wet leaves of plants immediately after a smart shower of rain, without in any way injuring them. *H. W. Ward.*

THINNING CROPS.—This simple and important operation, which the gardener should perform as soon as he is enabled to ascertain which are the best plants to leave for the crop, and which may be thinned out. In doing this, it will be advisable to thin the plants at first to half the distance which it is intended to leave them, afterwards pulling out every other plant when they have started well into growth, at the same time weeding the plant rows. Thinning crops, like pricking out and transplanting, should be done, if possible, in showery weather, the plants and weeds drawing better when the soil is moist. If the thinning is not done at the proper time, a lanky growth results, and in some cases mildew will follow. *H. W. W.* [In corroboration of Mr. Ward's remarks, we give the following by a former writer of kitchen garden topics in our pages.] In 1885, during that long space of dry weather, I had an opportunity of seeing a large breadth of Altringham Carrots, more than half of which was thinned early, and the rest, after waiting some time, with the hope rain might come. However, that portion that was first done produced a very creditable lot of roots, while the later-thinned half was comparatively ruined by the Carrot-maggot, not a single Carrot escaping. It proved a rather expensive lesson to the owner. *H. Markham.*

IRIS GERMANICA.—These plants, so useful on account of their early flowering, should be divided when the bloom is over, if an increase is desired, each piece of a rhizome, if it be provided with a few roots, making a new plant. The pieces should be planted in good soil in an open situation, and kept in position by a few stout wooden hooks. The leaves may be slightly shortened, a few Pea sticks laid horizontally just above the tops of the plants for shade until rooted, well watering the soil once a week, sprinkling the tops in the afternoon. *A.*

PERENNIAL CORNFLOWERS.—The reason why we do not see more of these plants in gardens is, I suppose, because they are looked upon as common; but let this be as it may, these easily-grown subjects with flowers in three colours, red, blue, and white, are useful in providing blooms early in the year, when there is little else if we except bulbs. The varieties *montana*, *montana rubra*, and *alba* grow very fast, if the soil is only slightly rich; indeed, too much so for weak plants in their vicinity. The stools should be reduced in size, when this is found necessary, an operation best performed in the spring-time. The Cornflower lasts a long time when cut and put into water. *A.*

TRILLIUM GRANDIFLORUM AS A CUT FLOWER.—For providing pure white flowers possessing great lasting property when cut, the above is one of the best hardy plants in cultivation. It not only affords pretty blooms, but fine foliage like a Shamrock, leaves and flowers contrasting well with each other. Half-a-dozen blooms placed in a vase by themselves make an especially pleasing object, lasting fresh for fully ten days. *E.*

SENECIO DORONICUM.—This fine free-growing border plant is not so much grown as it deserves to be. It puts forth a somewhat tufted and prostrate growth, from which stout flower-stalks issue, bearing large flowers of a rich yellow colour. It was staged at the late exhibition of the Royal Botanic Society, among new florists' flowers, but it had been injured in transit. The plant is invaluable for cutting purposes. *R. D.*

CANADIAN PRODUCE.—Referring to garden produce in Toronto, Canada, at the present time I learn, by a note from a friend residing there

that Potatoes are 1s. per peck, and Apples 50 cents per peck, or the English equivalent of 2s. 1d.; and green vegetables are not procurable at all, on account of the excessively dry weather prevailing. So that, after all, we in the "old country" must not grumble too loudly in these matters. B.

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, June 23.—A typical June show was that held by the above on Tuesday last, replete with objects of varied interest, and especially to those who delight in the hardier plants now so greatly employed in the decoration of the garden. Long tables were covered with *Pyrethrum roseum* in endless variety, with *Pæonies*, *Delphiniums*, *Roses*, *Eremurus*, *Iris*, &c. Orchid growers also found much to admire in new and old species, especially the former, of which Messrs. Sander & Co. had several of great rarity and beauty, of which mention is made below. The Rose competition resulted in a fair display, but with a few exceptions the flowers were rather under-sized, owing to the unfavourableness of the weather of late for the fullest development, and perhaps because of the severity of the past winter. It is pleasant to observe that in Rose showing the amateur is able to hold his own, and he put in an appearance in considerable force, a fact not often apparent when other plants are concerned. In fact, it may be said that in the other sections of the exhibits the trade predominated, making, as usual, the fullest use of its opportunities.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. J. O'Brien, De B. Crawshaw, H. M. Pollett, T. B. Heywood, Lewis Castle, E. Hill, and H. Williams.

A very commendable group of Orchids came from Mr. B. S. Williams' Nursery, Upper Holloway. His most noteworthy plants were *Cypripedium superbiens*, a plant with thirteen blooms; *Cattleya Warneri*, with nine blooms; a very bright *Miltonia vexillaria rosea*; the dwarf and rare *Palumbina candida*, of elegant habit; some fine *Oncidium macranthum*, *Thunia Bensonne*, *Dendrobium Phalaenopsis*, *D. Statterianum*, a strong plant of *Epidendrum vitellinum majus* and *Vanda Roxburghi corulea*, of slender growth, with pretty blooms, violet lip and marbled, green sepals and petals, the reverse of which is white. A comprehensive assortment of *Sarracenias* completed the exhibit.

Messrs. F. Sander & Co., St. Albans, showed the new *Laceana bicolor*, a dwarf vigorous plant, with an erect spike of creamy white blossoms, sparsely set, 2 inches in diameter, with a dark purple lip; *Odontoglossum luteo-purpureum illustre*, differing most from the type in large size, and richness of its marking; *Cynoches chlorochilum*, with immense flowers of greenish-yellow, with a lip that has more lemon-yellow in it—it was figured in these columns in 1888; *Epidendrum alatum*, *Catasetum callosum* and *C. barbatum*; *Odontoglossum mulus*, a very grand piece; *Phaius Humblotii*, and *Epidendrum Randii*.

E. Gotto, Esq. (gr., Mr. H. Banks), had *Lælia grandis*, a well-marked form, and *L. g. superba*, a paler form of the former; *L. purpurata Edwardii*, a flower with well-contrasted parts; *L. Gottoiana*, an apparent natural hybrid, with *C. labiata* blood in it—the flowers were of unusual size. A good example of cultivation was shown by J. T. Gabriel, Esq., Palace Road, Streatham Hill, S.E., in *Cypripedium Curtisii superbum*. From Sir Trevor Lawrence's garden came *Odontoglossum crispum Purple Emperor*, differing from the normal type in its great size, and the lilac hue of its petals and sepals; the brilliant yellow *Masdevallia Davisii*, a large clump; *Odontoglossum cuspidatum platyglossum*, a plant with long spikes of magnificent blossoms, brown, yellow, and white; *Cynoches chlorochilum*, and *Odontoglossum crispum Burford var.*, a cupped circular flower, of white ground colour, with purplish brown spots, of a bold character.

Messrs. Seeger and Tropp, nurserymen, East Dulwich, showed a number of *Masdevallias*, of small growth; *Cypripedium Gardenianum*, resembling *C. bellatulum*, but lighter than that species; *Phalaenopsis Luddemanniana*, *Acoranthes grandiflorum*, *Cattleya Mossiae*, &c.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. B. Wynne, H. Herbst, W. C. Leach, H. B. May, G. Phippen, J. T. Poë, H. Cannell, C. Noble, H. Turner, R. Dean, G. Paul, J. Fraser, C. T. Drury, W. Watson, F. Ross, C. Jeffries, and G. Gordon.

For an amateur, the Secretary of the Society, the Rev. W. Wilks, Shirley Vicarage, showed an unusually good and extensive group of cut blooms of *Pæonies*, single and double-flowered. We may specify a few of the more striking of them:—Several forms of *P. officinalis*, *P. grandiflora*, the old English yellow *Pæony*; new ones, as *Victoria Modeste*, *Princess Christian*, *Baroness Schroder*, *Miss Kelway*, and many cut-petalled varieties in divers colours.

Messrs. J. Veitch & Sons, Chelsea, exhibited a group of hardwooded greenhouse plants in flower, including *Fabiana imbricata*, *Ozothamus rosmarinifolius*, &c.; also *Gloxinias Monarch* and *Electra*, the former a dark red, becoming velvety-black at the entrance to the throat; *G. electra* is a rather striking variety, of a bluish-purple, shading away to a white border round the corolla-segments, and a spotted throat. Among the cut flowers were a new variety of *Indigofera Gerardiana alba*, a pure white, and very free-flowering; and blooms of *Iris Gatesii*, of the *Susiana* section—it is of large size, a dull greyish colour, the standard petals finely streaked, and the falls freely spotted with brown. This was shown by M. van Tubergen, of Haarlem.

The extensive collection of hardy cut flowers exhibited by Messrs. Kelway & Son, Langport, Somerset, occupied the whole of one side of the Hall; it consisted principally of *Pæonies*, *Pyrethrums*, and *Delphiniums* in numerous varieties; among the former, *Tree Pæony Moonbeam*, a large double white, the petals shaded with pale yellow at the base, was worthy of note.

Messrs. Paul & Son, Cheshunt, showed a collection of *Alpines*, *Cannas*, varieties of *Rosa rugosa*, *R. polyantha*, *Scotch Roses*, &c. Among the *Cannas* worthy of notice were *Antoine Chantini*, a rich golden-yellow, the lower segment of the corolla thickly spotted with reddish-brown; and *C. Jules Chetien*, a dark crimson colour and robust habit.

Messrs. Barr & Son, Covent Garden, arranged a nice collection of *Irises* and *Pyrethrums*. Among the former was *I. Robert Burns*, a good new variety. The standard petals are rich golden yellow, the falls a maroon, veined with white. Mr. C. Turner, Slough, showed capital *Pelargoniums* and *Clove Carnation Iver White*, a pure white flower of good form.

Mr. T. H. Crasp showed a splendid group of *Carnation Souvenir de la Malmaison*, which was admired by all who saw it.

A selection of choice plants from the Royal Botanic Gardens, Kew, occupied a position on one of the centre stages. *Anguloa Ruckeri*, with nine blooms; *Dendrobium McCarthyi*, *Disa racemosa*, and *D. tripetaloides* were among the plants. Orchids, others worthy of note, were *Protea nana* in bloom, a native of South Africa; and *Crinum purpurascens* (*Fernando Po*), a very small choice variety; the petals are pale pink, the stamens dark red. This variety does best when treated almost like an aquatic.

Messrs. Cannell showed a group of *Verbascum olympicum* and *Begonia Madame La Baronne de Didier*, a large double yellow variety; Messrs. Collins Bros. & Gabriel, a selection of Spanish *Iris*; and Mr. S. Mortimer, Rowledge, Farnham, a group of *Coleus* and *Balsams*. Mr. J. Mill, Campsey Ashe, Wickham Market, exhibited Seedling *Tree Carnation Lord Rendlesham*, a free-blooming plant, with deep salmon-coloured flowers.

An interesting collection of *Tulips* was shown by S. Barlow, Esq., Stakehill House, Manchester, arranged in their classes of *Bizarres*, *Byblomems*, and *Roses*, these being sub-divided into feathered and flamed. Breeder *Tulips* were also shown. A very pleasing box of seedling Sweet Briar *Roses*, which were raised by Lord Penzance, Godalming, were shown by his gardener, Mr. Basket. A collection of French cutting instruments used in fruit cultivation were shown by Mr. C. H. Hooper; also some glass tubes for inserting slips of paper containing the name of a plant. Messrs. Wallace & Aggio, Colchester, showed patent protectors for show flowers, which will likely prove very useful, as they are waterproof, cheap, and durable.

Fruit Committee.

Present: P. Crowley, Esq., in the chair; and Messrs. R. Hogg, R. D. Blackmore, G. Reynolds,

J. H. Veitch, J. Cheal, J. Wright, T. J. Saltmarsh, A. Dean, G. Wythes, J. Hudson, G. T. Miles, H. Balderson, J. Smith, C. Penny, and F. Q. Lane.

The exhibits in this section were not very numerous. Mr. S. Mortimer, Farnham, Surrey, showed a dish of fine seedling Cucumbers, Matchless, from Empress crossed by Lockie's Perfection. Some fine examples of *Strawberry Noble*, grown on heavy soil in open ground, were shown by Messrs. J. Cheal & Sons. A dish of Apples, Striped Beefing, and a dish of Apple Duke of Devonshire were shown by Mr. J. Watkins, Pomona Farm, Hereford. From Mr. T. H. Crasp, came some well grown and finished Peaches and Nectarines. Mr. Leach, gr. to the Duke of Northumberland, Albury Park, showed a nice dish of well-grown Duke of Devonshire Peas.

The Rose Competition.—The competition in the open classes for Roses, cut blooms, was very good, the blooms being of good quality all through.

Mr. G. Prince, 14, Market Street, Oxford, took the 1st prize for the best twenty-four distinct single trusses. Mr. R. Cant, Colchester, coming 2nd; they also winning in the same order with twelve distinct, three of each.

For twelve single trusses of *Maréchal Niel*, A. H. Gray, Esq., was 1st, and Mr. R. Cant 2nd. For twelve single trusses of any Tea or Noisette, other than *Maréchal Niel*, A. H. Gray, Esq., was 1st, with a fine stand of *Souvenir d'Elise Varden*; and Mr. G. Prince 2nd, with *Souvenir de S. A. Prince*.

In the classes for amateurs, the competition and exhibits were also very good. The Rev. A. Foster Melliar, Sproughton Rectory, Ipswich, took the 1st, for twelve trusses, in not less than six varieties, or more than two trusses of any one variety; the Rev. A. Pemberton, Havering, Essex, coming 2nd. For six single trusses, in three varieties, W. Girdlestone, Esq., Sunningdale, Berks, was 1st; this stand contained an exquisite bloom of *Comtesse de Nadailac*, the best bloom in the amateur classes, and was awarded one of the National Rose Society's Silver Medals; the Rev. A. Cheales, Brockham Vicarage, Surrey, coming 2nd.

For six single trusses of any one variety, A. Gray, Esq., came 1st, with *Maréchal Niel*. The Rev. A. Cheales coming 2nd.

For six distinct trusses, three of each, A. H. Gray, Esq., was 1st, there being no other competitors.

Mr. G. Mount, Canterbury, took the 1st prize for a tastefully-arranged basket of Teas and Noisettes. Mr. G. W. Piper, Uckfield, Sussex, showed a nice stand of W. A. Richardson Rose, not for competition. The Rev. W. Wilks, Shirley, took the 1st prize for a collection of herbaceous *Pæonies*; Mr. T. H. Crasp coming 2nd.

List of Awards.

FLORAL COMMITTEE.

First-Class Certificate.

To *Iris Gatesii*, from Mr. C. G. van Tubergen.
To *Iris Gatesii*, from Messrs. J. Veitch & Sons.
To *Weigela hortensis nivea*, from Messrs. J. Veitch & Sons.
To *Indigofera Gerardiana alba*, from Messrs. J. Veitch & Sons.

Awards of Merit.

To *Carnation (Lord Rendlesham)*, from Mr. J. Mill.
To *Iris variegata (Robert Burns)*, from Messrs. Barr & Son.
To *Pæony double (Moonbeam)*, from Messrs. Kelway & Sons.
To *Canna (Jules Chetien)*, from Messrs. Paul & Sons.
To *Canna (Antoine Chantini)*, from Messrs. Paul & Sons.
To *Campanula abietina*, from Messrs. Paul & Sons.
To *Clove Carnation (Iver White)*, from Mr. C. Turner.
To *Gloxinia (Monarch)*, from Messrs. J. Veitch & Sons.
To *Gloxinia (Electro)*, from Messrs. J. Veitch & Sons.
To *Begonia (Mme. la Baronne de Didier)*, from Messrs. H. Cannell & Sons.

MEDALS.

Silver-Gilt Flora.—To Messrs. Kelway & Sons, for collection of hardy flowers.

Silver-Gilt Banksian.—To Messrs. Paul & Sons, for collection of hardy flowers.

Silver Banksian.—To Messrs. Barr & Sons, for collection of hardy flowers; to Messrs. B. S. Williams & Sons, for collection of *Sarracenias*; to Mr. T. H. Crasp, for a group of *Carnations*.

Bronze Banksian.—To Mr. S. Barlow, for a collection of cut Tulips; to Messrs. H. Cannell & Sons, for group of *Verbascum*; to Lord Penzance, for Sweet Briar seedlings.

ORCHID COMMITTEE.

Silver Banksian Medal.

To B. S. Williams, for a Group of Orchids.

First-class Certificates.

To *Dendrobium Phalaenopsis* var. *Statteriana*, from B. S. Williams.

To *Lælia Gottoiana*, from E. Gotto, Esq., Hampstead Heath.

To *Odontoglossum crispum guttatum*, Barford var., from Sir T. Lawrence.

To *Lælia grandis*, 'Tring Park var.', from Lord Rothschild.

Awards of Merit.

To *Lacæna bicolor*, from F. Sander & Co., St. Albans.

To *Odontoglossum luteo-purpureum illustre*, from F. Sander & Co., St. Albans.

Botanical Certificate.

To *Cynochos chlorochilum*, from Sir T. Lawrence, Bart., M.P.

ROYAL OXFORDSHIRE HORTICULTURAL.

JUNE 16.—The usual commemoration show of the above Society, which forms a part of the festivities of the week, took place in the fine gardens of Worcester College, which occupy a site formerly known as the Gloucester Hall, and previous to this it was occupied by a foundation of a very ancient order of Cistercian monks. The day was beautifully fine, and the gardens, which are rich in fine trees, were seen to the best advantage; a more fitting place for a flower show can scarcely be imagined.

Certain classes were open to all England, the leading one being for nine stove and greenhouse plants in flower. Mr. J. Cypher, Cheltenham, was 1st, with a remarkably bright and fresh lot of plants of the usual species; 2nd, Mr. J. F. Mould, nurseryman, Pewsey, with some admirable plants.

Mr. Cypher was again 1st with six *Ericas*, having some very good plants well grown and bloomed, *E. ventricosa* predominating; Mr. J. F. Mould was 2nd, with good plants.

With nine show *Pelargoniums*, Mr. C. Turner, Royal Nursery, Slough, was 1st, with a capital lot of plants, the leading varieties being *Spotted Beauty*, *Prince Leopold*, *Mandarin*, very bright; *Magpie*, *Maid of Honour*, *Symmetry*, very bright and fine; *Wrestler*, and Mr. Potter. 2nd, Mr. J. Mattock, also with bright and well-bloomed specimens.

With nine *Fancies*, Mr. Turner was again 1st, staging some excellent plants, the leading varieties being *Fanny Gair*, *The Shah*, *Princess Teck*, *Ambassadors*, *Miss E. Little*, and *Ellen Beck*.

Then came a series of classes open to all members of the Society. With six plants in flower, Mr. J. F. Mould was 1st, with fine examples of *Epacris miniata grandiflora*, *Darwinia tulipifera*, *D. fuchsoides*, *Aphelexis spectabilis*, *Statice profusa*, and *Erica insignis*; 2nd, Mr. G. Jacob, nurseryman, Witney, with *Vinca alba*, *Lælia purpurata*, *Cattleya Mendeli*, &c. The best specimen stove plant was *Stephanotis floribunda* from Mr. J. Mattock; Mr. Mould being 2nd, with *Ixora coccinea*. The best specimen greenhouse plant was *Erica Cavendishiana*, from Mr. Mould; Mr. Mattock coming next, with a fine scarlet *Azalea*. The best four *Heaths* came from Mr. Mould.

Some well-flowered *Orchids* were shown in fours. Mr. G. Jacob was 1st, with *Miltonia vexillaria*, *Cypripedium caudatum*, *Aërides Fieldingii*, and *Cattleya Mossii*. 2nd, E. A. Bevers, Esq., Broad Street, Oxford, with *Miltonia vexillaria*, *Cattleya Mossii*, C. Mendeli, and a *Maxillaria tenuifolia*.

Gloxinias, *Calceolarias*, *Fuchsias*, *Pelargoniums* of all types, the tricolor varieties were especially well-grown and coloured, while the Ivy-leaved types were large, excellently-grown, and well-bloomed. Mr. John Mattock, Headington Hill Nursery, had six tricolor varieties, so large, well-grown, and coloured as to recall the days when these plants were so highly popular; and we are informed from creditable sources they are coming to the fore again. Mr. John Walker, nurseryman, Thame, was 1st with six large fresh specimens of single zonal *Pelargoniums*, finely-grown and grandly bloomed. Mr. J. Mattock was 2nd; and Mr. Walker's half-dozen

double zonals were equally subjects of high culture. In both cases the plants as exhibition subjects were much superior to the formal trained ones that one usually sees. *Begonias* appear to be a coming feature at Oxford.

Foliage Plants were in good character, and numerous. Mr. G. Jacob was 1st, with six specimens, and Mr. C. Jacob, Barton, 2nd. The best specimen ornamental foliage plant was *Kentia Fosteriana*, an excellent piece, from Mr. G. Jacob; Mr. C. Jacob being 2nd, with *Latania borbonica*. Mr. G. Jacob also had the best six exotic Ferns, and Mr. C. Jacob was 2nd, both showing well-grown examples.

Specimen hardy plants are a good feature at Oxford; the best was a pot of *Lilium Harrisii*, admirably bloomed; the 2nd being a fine example of *Astilbe japonica*. In the amateurs' class, the latter took the 1st prize, and *Hydrangea hortensis* was 2nd.

Cut Flowers.—Roses, generally a leading feature at this exhibition, were limited, owing to the lateness of the season. The best twenty-four single blooms consisted of *Teas* and *Noisettes*, and came from Mr. A. H. Gray, Bath. Mr. John Walker, Thame, had the best eighteen. Superb trusses of zonal *Pelargoniums* were shown by Mr. John Walker, Mr. Mattock was 2nd.

Pansies were a good feature, fine show and rich coloured fancy varieties being staged. Double *Pyrethrums* shown in bunches of three blooms were very fine. Mr. J. Tranter, Henley-on-Thames, was 1st; and Mr. J. Johnson, Gorington, 2nd. A fine collection of twelve bunches of hardy perennials came from Mr. R. Price, Headington; and in the Amateurs' class for six bunches, they were also admirably shown. *Iris* were a good lot, several fine varieties of the German types were staged.

Table Decorations.—The best three pieces came from Mr. J. Mattock; Mr. J. S. Parker, Ilfey, was 2nd. The best single piece came from the Rev. A. H. Picard, Canterbury Road; Mr. J. Mattock taking the 2nd prize. Bouquets and buttonholes were also shown.

Fruit.—The best three bunches of white Grapes came from Mr. Robins, gr. to Col. Lee, Hartwell House, Aylesbury, and Mr. J. Broadfoot, gr. to Col. Metler, Shotover House, was 2nd; both with Foster's Seedling, in good condition. Mr. T. Doherty, gr. to Lord North, Wroxton Abbey, was 1st, with *Black Hamburgh*; and Mr. G. Munday, gr. to W. A. Musgrave, Esq., Thame, 2nd. Mr. Neal, gr. to P. Southby, Esq., Bampton, had the best *Nectarine*, showing a variety of the *Elruge*; Mr. T. Lockie, Oakley Court Gardens, Windsor, was 2nd, with Lord Napier. Mr. Robins had the best dish of *Peaches*, staging very good *Grosse Mignonne*. *Strawberries* were in good condition also; and the best *Melon* was a pale scarlet-fleshed variety named *Beauty of Windsor*, shown by Mr. T. Lockie.

Vegetables were a good feature. Messrs. Sutton & Sons offered special prizes for six dishes, and Mr. T. Lockie was 1st, with a collection so good that the special *Gardeners' Magazine* Medal for an exhibit showing high cultural skill was awarded to it; Mr. E. D. Ball was 2nd. Mr. Lockie also won the 1st of the special prizes offered by Messrs. Webb & Sons, Stourbridge, for six dishes of vegetables; Mr. G. Neal, gr. to P. Southby, Bampton, being 2nd. Good vegetables were shown in other classes, and also by amateurs and cottagers.

YORK GALA.

THE thirty-third annual exhibition—a good one—took place at Bootham Asylum on the 17th, 18th, and 19th inst., and the weather, being fine, there was a large number of visitors.

Stove and Greenhouse Plants.—Mr. Letts, gr. to the Earl of Zetland, staged an excellent sixteen plants, his best being a wonderfully fine *Erica depressa*, which was awarded the Veitch Memorial Medal. Other striking plants were *Erica Cavendishiana*, three superb *Azaleas*, a *Darwinia tulipifera*, *Aphelexis macrantha purpurea*, and a high-coloured *Croton angustifolius*; 2nd, Mr. Cypher. There was a very wide difference between the 1st and the other prize lots.

Two excellent lots of six stove and greenhouse plants ran very close together in point of excellence, those of J. B. Hodgkin, Esq., Darlington, who was 1st with *Erica Cavendishiana*, *E. ampullacea obtata*, *E. ventricosa magnifica*, *Ixora Williamsii*, *Anthurium magnificum*, *Clerodendron Balfourianum*; and Mr. Letts, who was 2nd, with a good *Ixora Coleii*, very fine *Boronia elata*, *Dracophyllum gracile*, and other plants. The other classes for stove and greenhouse plants were well filled.

Ornamental Foliage Plants, in their various classes, filled one large tent. The Earl of Zetland was 1st for six; and 2nd, Mr. J. McIntyre, gr. to Mrs. Gurney Pease, Woodside, Darlington, in whose lot a fine *Dasylirion glaucum* with a long spike of flowers was observed.

Other ornamental foliage classes were well filled, as were those for *Azalea indica*, *Crotons*, *Dracænas*, and *Coleus*. Mr. Cypher's 1st prize lot of three *Cape Heaths* consisted of very excellent specimen plants; Ferns, both exotic and hardy, were plentiful, and some good *Gloxinias* were observed.

In the class for ten *Orchids*, Mr. Cypher was a good 1st, with excellent *Dendrobium infundibuliforme*, *D. thrysiflorum*, a very fine *Cypripedium caudatum*, *C. barbatum grandiflorum* and *C. Lawrenceanum*, &c.; 2nd, Mr. Blair, gr. to the Duke of Sutherland, Trentham, with smaller plants of *Lælia purpurata* var. *Prince of Wales*, and *Oncidium macranthum*, and others. Six *Orchids*, 1st, Mr. Cypher; 2nd, Mr. W. Bateman. Four *Orchids*, 1st, E. W. Beckett, Esq., M.P.; 2nd, T. E. Kirkness, Esq., Hessele. Three *Orchids*, 1st, Mr. Cypher; 2nd, Mr. Bateman.

Messrs. Charlesworth, Shuttleworth & Co., staged a large group of *Orchids*, not for competition, amongst these were several plants of *Oncidium macranthum*, a fine plant of *Acinetia Humboldtii*, *Cœlogyne pandurata*, *Oncidium curtum*, a good form of *Odontoglossum crispum*, and *Anguloa Ruckeri*.

Groups.—These filled one large tent, and were arranged in two classes; 1st, Mr. Blair, for one not exceeding 200 square feet, with a superb group in which *Orchids* were the more conspicuous plants; 2nd, Mr. J. McIntyre. For groups not exceeding 150 square feet, 1st, Mr. J. McIntyre; 2nd, Lieut. Col. Pepper.

Pelargoniums were, as usual, a great feature of the exhibition, and nowhere are they seen in such perfection as at York. For twelve plants, Mr. Eastwood, gr. to Mrs. Pitley, Leeds, was 1st; Mr. McIntosh, gr. to J. T. Hingston, Esq., York, 2nd; and Miss Steward, York, 3rd—three grand lots. In the class for six *Pelargoniums*, 1st, Miss Steward; 2nd, Mrs. Pitley; 3rd, Mr. J. T. Hingston.

Zonal *Pelargoniums* were a conspicuous and beautiful display, the specimens large, and well done generally. For twelve plants, 1st, Mrs. Pitley; 2nd, Mr. H. Pybus, Ripon. For six and three zonals, 1st, Mrs. Pitley; 2nd, Mrs. Steward, in each class. Some excellent doubles were staged, and for eight, Mr. G. Cottam, York, was 1st; and for four, 1st, Miss Steward. Some excellent specimen Ivy-leaved *Pelargoniums* were staged, and were much admired, plants from 2½ to 3 feet high, and bushy, mostly of a pyramidal form; 1st, Mr. G. Cottam, jun.; 2nd, Mrs. Pitley; 3rd, Mr. J. T. Hingston. The *Fuchsias* throughout, and there was a large display, were exceedingly fine and well-flowered; and there was a beautiful display of dinner-table decorative plants.

Roses in Pots were shown in the style usual at York, and beyond which they do not seem to get. Messrs. W. Jackson & Co., Bedale, were the chief exhibitors.

Cut *Roses* fell very short of last year both in quantity and quality. Fine lots of seventy-two blooms were staged; 1st, Messrs. Harkness & Sons, Bedale; 2nd, Messrs. Prior & Son, Colchester. Forty-eight blooms—1st, Mr. Henry May. Thirty-six and twenty-four blooms—1st, Mr. H. May; 2nd, Messrs. Jackson & Co., in each class. Eighteen blooms—1st, Mr. May; 2nd, Mrs. Pitley. For twelve white and yellow *Roses*, 1st, Messrs. Harkness & Sons; 2nd, Mr. A. Whitton; 3rd, Mrs. Pitley. Some other classes were also filled.

The *epergnes* were an excellent lot, and some charming baskets of flowers were staged.

In the three classes for bouquets, bridal, ball, and hand, Messrs. Perkins & Sons, Coventry, were the takers of the 1st prize in each class.

Pansies were very numerous, some of the Scotch florists exhibiting extensively. Mr. Irvine, Tigh-na-bruaich, Kyles of Bute, had a number of very fine varieties; as had Mr. A. Lister, florist, Rothesay; Mr. Forbes, Hawick; and Mr. Brooke, florist, Durham.

Fruit is always a notable feature at York, and although this year it was not up to its usual standard of excellence, the season having been a trying one, there was a creditable display of it. In the collection of ten dishes, distinct, Mr. Parker, gr. to J. Corbett, Esq., Impney, was 1st, with excellent *Black Hamburgh* and Foster's Seedling Grapes, Lord Carrington and Smooth-leaved Cayenne, Pines of Lord Napier and Blenheim Orange Nectarines, two fine dishes of *Peaches*, Pitmaston Orange Nectarine, and one of fine *Black Ischia Figs*. 2nd, Mr. Dawes,

gr. to the Hon. Mrs. Meynell Ingram, Temple New-sam; 3rd, Mr. McIndoe, gr. to Sir J. W. Pease, Bart. For six dishes and sorts.—1st, Mr. McIndoe; 2nd, Mr. Parker; 3rd, Mr. Westcott, Raby Castle Gardens. For four.—1st, Mr. McIndoe; 2nd, Mr. Westcott; 3rd, Arthur Wilson, Esq. Three bunches Black Hamburg Grapes.—1st, Mr. J. Allsop, gr. to Lord Hotham; 2nd, Mr. McIndoe; 3rd, A. Miln-thorpe, Esq.

White Grapes, three kinds.—1st, Mr. J. Allsop, with ripe well-coloured Muscats. The other entries do not call for notice. Peaches, Nectarines, and Melons were fairly well represented. A dish of black Tartarian Cherries, from Temple Newsam, were very fine.

Mr. McIndoe exhibited a collection of vegetables in each class for Messrs. Sutton's and Webb's prizes—two very meritorious exhibits, but he had no competitor.

Amongst honorary exhibits, Messrs. Birkenhead's fine collection of rare Ferns should be noticed, and amongst them were Davallia Griffithiana, Pteris serrulata densa, P. Victoria, Athyrium f.-f. kalotrix, Davallia tenuifolia Veitchiana, Athyrium f.-f. seligerum cristatum, Polystichum angulare gracile, Scolopendrium v. cristatum, Polypodium v. trichomanoides, Lastræa f.-m. cristata fimbriata, Polystichum angulare polydactylon. Messrs. R. Smith & Co., Worcester, exhibited some superb specimen Clematises and other plants; and Messrs. Cutbush & Sons, Highgate, London, a collection of various plants, and a collection of Ixia blooms.

AQUARIUM ROSE SHOW.

WEDNESDAY, JUNE 24.—The midsummer exhibition at the above place was held under rather unfavourable circumstances for a very fine display of Roses. Owing to the lateness of the season, only those living in the most favoured districts being able to exhibit. But if deficient in that respect, it was fully made up by the splendid groups of Begonias and hardy flowers shown by the trade.

Messrs. J. Burrell & Co., Howe House Nurseries, Cambridge, took the 1st prize for thirty-six distinct single trusses. For eighteen Teas or Noisettes, distinct, three trusses of each, 1st, Mr. G. Prince, Market Street, Oxford.

In the open classes there was rather more competition. For twelve trusses of any yellow Rose, 1st, A. H. Gray, Esq., Beaulieu, Newbridge Hill, Bath, who showed Maréchal Niel; also for twelve trusses of Souvenir d'Elise Vardon; Mr. J. Bradbury, gr. to Dr. Budd, 8, Tay Street, Bath, taking 1st for twelve crinums, with A. K. Williams.

Amateur Classes.—A. H. Gray, Esq., was 1st in the following, for thirty-six distinct single trusses, with a very deserving stand; also for twelve distinct triplets, and for twelve triplets of Teas or Noisettes, distinct.

Messrs. J. Laing, Forest Hill, S.E., arranged a splendid group of Begonias, taking the 1st prize; Messrs. T. S. Ware, Hale Farm, Tottenham, coming 2nd. For collection of cut blooms of Iris, Messrs. Barr & Son, Covent Garden, were 1st; and Messrs. Collins Brothers & Gabriel, 39, Waterloo Road, S.E., 1st, for thirty-six bunches of Pyrethrum in not less than twelve varieties. For collection of herbaceous Paonies, Messrs. T. Ware were 1st with a very fine group; also for a collection of hardy cut flowers, arranged for effect.

Messrs. Kelway, Langport, Somerset, were awarded a Silver Medal for a collection of hardy cut flowers; and Messrs. Cannell, Swanley, received the same award for a group of Begonias, not for competition. Lord Penzance, Easing Park, Godalming, gr., Mr. Basket, was awarded an extra prize for a collection of hybrid Sweet Briar Roses; and C. E. Cutbell, Esq., Chapel Croft, Dorking, for collection of garden Roses. Mr. T. Hooper, Vine Nursery, Widcombe Hill, Bath, won the 1st prize for single blooms of a variety of Pink, and also for the best six Pinks.

PLANTS, &c., CERTIFICATED BY THE ROYAL HORTICULTURAL SOCIETY.

FROM JANUARY TO JUNE 9, 1891, INCLUSIVE.

* F.C.: First-class Certificate; B.C.: Botanical Certificate.	
Aërides Savageanum ...	Sir T. Lawrence, Bart., Baron Schroder, and F. Sander & Co., May 28—F.C.
Anthurium Burfordianum ...	Sir T. Lawrence, Bart., May 12—F.C.
„ Laingii ...	Sir T. Lawrence, Bart., May 12—F.C.

Arum palestinum ...	J. Gold, March 24—F.C.
Bertolonia Baron A. de Rothschild ...	J. Linden, March 24—F.C.
„ Madame Leon Say ...	M. J. Linden, March 24—F.C.
Camellia Beauty of Waltham ...	W. Paul & Son, March 24—F.C.
Cattleya hybrida Prince of Wales ...	F. Sander & Co., May 28—F.C.
„ Lowiana ...	F. Sander & Co., May 28—F.C.
Celmisia spectabilis ...	J. Veitch & Sons, June 9—F.C.
Chionodoxa grandiflora ...	T. S. Ware, March 24—F.C.
Cirrhopetalum Mastersianum ...	Sir T. Lawrence, Bart., March 24—F.C.
„ picturatum ...	Sir T. Lawrence, Bart., March 24—F.C.
Cocos Pynaerti ...	F. Sander & Co., May 28—F.C.
Cypripedium Creon ...	J. Veitch & Sons, Feb. 10—F.C.
Dendrobium Venus ...	N. C. Cookson, April 14—F.C.
Disa Veitchii ...	J. Veitch & Sons, June 9—F.C.
Dracaena australis variegata ...	J. Laing & Sons, May 28—F.C.
Epidendrum Dellenense ...	Baron Schroder, April 14—F.C.
Eremurus himalaicus ...	J. Smyth, May 28—F.C.
Hamamelis Zuccariniana ...	J. Veitch & Son, Feb. 10—F.C.
Iris Danfordiae ...	T. S. Ware, Feb. 10—F.C.
Lælia hybrida Arnoldiana ...	F. Sander & Co., June 9—F.C.
Masdevallia Mundyana ...	F. Sander & Co., May 28—F.C.
„ trochilus ...	Pitcher & Manda, Feb. 10—F.C. and B.C.
Miltonia vexillaria Mrs. Hardy Ballantine ...	F. Sander & Co., June 9—F.C.
Odontoglossum hybridum Dellenense ...	Baron Schroder, April 14—F.C.
„ luteo-purpureum var. Amesiana ...	F. Sander & Co., March 10—F.C.
„ Pescatorei Prince of Orange ...	Sir T. Lawrence, Bart., April 21—F.C.
Oncidium Larkianum ...	Larkin, April 21—F.C.
„ loxense ...	Ingram, 2—F.C.
Pteris cretica crispata ...	J. Veitch & Sons, May 12—F.C.
Rhododendron Championae ...	J. Veitch & Sons, April 21—B.C.
Saxifraga Boydii ...	G. Paul & Son, Mar. 24—F.C.
Sobralia macrantha Keinas-tiana ...	Baron Schroder, June 9—F.C.

Obituary.

MR. HENRY POPE, Nurseryman, Birmingham, died on the 16th inst., after a short illness. He had reached eighty years of age, had led a very active life, and, for his age he was vigorous, and in good health until two or three weeks before his death. He retired from business a few years since, and his son, Mr. John Pope, who was in partnership with him, has since carried on the business.

THE WEATHER.

[By the term "accumulated temperature" is meant the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					No. of Rainy Days since Jan. 4, 1891.		Percentage of possible Duration for the Week.	
	Mean for the week ending June 20.					Total fall since Jan. 4, 1891.		Percentage of possible Duration since Jan. 4, 1891.	
	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1891.	Below 42° difference from Mean since Jan. 4, 1891.	More (+) or less (—) than Mean for Week.	Ins.	Per cent.	Per cent.	
10 aver	77	0	+ 40	79	2 +	103	19.6	17	32
2 3 +	106	0	— 72	101	2 —	67	8.3	17	32
3 2 +	106	0	— 113	95	4 —	73	7.6	31	30
4 1 +	115	0	— 103	128	4 —	78	8.1	40	32
5 2 +	117	0	— 71	116	4 —	71	9.5	46	31
6 1 +	127	0	— 93	149	4 —	67	9.3	54	36
7 3 +	114	0	+ 20	46	5 —	76	13.0	15	32
8 1 +	111	0	— 25	37	4 —	66	8.8	39	31
9 2 +	123	0	— 48	118	5 —	69	11.9	51	38
10 4 +	119	0	— 25	28	3 —	85	9.9	32	32
11 2 +	121	0	— 4	31	5 —	77	11.6	42	36
12 2 +	126	0	— 36	40	4 —	76	11.3	64	47

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S. Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending June 20, is furnished from the Meteorological Office:—

"The weather has been generally fine and dry over all the more southern parts of England and Ireland, but over Scotland and the northern districts of England and Ireland it continued cloudy or dull, with occasional falls of rain, until nearly the end of the week. Thunder and lightning were experienced in many parts of the kingdom on the 15th, and fog was reported from time to time, both on our south-western and north-eastern coasts.

"The temperature has just equalled the mean value in 'Scotland N.', but in all other districts it has been in excess by amounts varying from 1° to 4°. The highest of the maxima, which were registered on the 18th or 19th over England, and on the 20th over Scotland, ranged from 84° in 'England S.W.', 82° in 'England S.', 81° in 'Ireland N.', and 80° to 82° in Scotland, to 75° in 'England E.' The lowest of the minima were recorded either on the 16th or 17th, and varied from 39° in 'Scotland N.' and 'England S.' to 48° in 'Scotland W.' and 49° in the 'Channel Islands.'

"The rainfall has slightly exceeded the mean in 'Scotland N.' but in all other parts of the kingdom a deficit is shown. At many of our southern stations there has been no rain whatever.

"The bright sunshine has been in excess of the mean in most of the English districts, as well as in the south of Ireland and the 'Channel Islands'; in Scotland, however, there has been very little. The percentages of the possible duration ranged from 64 in the Channel Islands, and from between 40 and 54 in most parts of England, to 17 in the north and east of Scotland, and 15 in 'Scotland W.'

MARKETS.

COVENT GARDEN, June 25.

BUSINESS brisker, with good supplies. James Webber, Wholesale Apple Market.

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, each ...	0 4-0 6
Asparagus, wholesale, Worcester, bundle ...	1 0-1 6
Cambridge, bundle ...	1 0-1 6
Various, sml. bble. ...	0 6-10
Beans, French, lb. ...	1 6-2 0
Beet, red, per dozen ...	2 0-3 0
Carrots, per bunch ...	0 6-1 0
Cauliflowers, each ...	0 6-1 0
Celery, per bundle ...	2 6-3 6
Cucumbers, each ...	0 6-1 0
Endive, per dozen ...	4 0-...
Herbs, per bunch ...	0 4-...
Lettuces, per dozen ...	3 0-...
Mushrooms, punnet ...	2 0-...
Mustard and Cress, punnet ...	0 4-...
Parsley, per bunch ...	0 4-...
Seakale, per basket ...	0 9-1
Shallots, per lb. ...	0 6-...
Spinach, per bushel ...	7 0-...
Tomatoes, per lb. ...	1 6-2 0
Turnips, per bun. new ...	1 6-...

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. ...	6 0-18 0
Aspidistra, doz. ...	15 0-42 0
— specimen plants, each ...	7 6-10 6
Bedding plants, variety, per doz. ...	1 0-2 0
Bouvardia, p. doz. ...	9 0-18 0
Calceolaria, p. doz. ...	4 0-6 0
Cineraria, per dozen ...	4 0-8 0
Cyperus, per dozen ...	4 0-12 0
Dracaena terminalis, per dozen ...	30 0-60 0
— viridis, per doz. ...	12 0-24 0
Euonymus, in var., per dozen ...	6 0-18 0
Ericas, various, per dozen ...	8 0-24 0
Evergreens, in var., per dozen ...	6 0-24 0
Ferns, in variety, per dozen ...	4 0-18 0
Ficus elastica, each ...	1 6-7 0
Foliage plants, various, each ...	2 0-10 0
Heliotrope, per doz. ...	4 0-8 0
Hydrangea, per doz. ...	9 0-18 0
— paniculata, per plant ...	2 0-3 0
Ivy Pelargoniums, per dozen ...	4 0-6 0
Liliums, various, per dozen ...	18 0-30 0
Lobelia, per dozen ...	4 0-6 0
Marguerites, doz. ...	6 0-12 0
Mignonette, per doz. ...	4 0-9 0
Musk, per doz. ...	2 0-4 0
Myrtle, per doz. pots ...	6 0-12 0
Palms in variety, each ...	2 6-21 0
Pelargoniums, doz. ...	9 0-15 0
— scarlet p. doz. ...	4 0-9 0
Roots for bedding, boxes, each, from ...	1 0-2 0
Spiræa, per dozen ...	6 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, 12 blms. ...	2 0-4 0
Bouvardia, per bun. ...	0 6-1 0
Carnations, 12 blms. ...	1 0-2 0
Cornflower, 12 bun. ...	2 0-3 0
Eucharis, per dozen ...	3 0-6 0
Gardenia, per doz. ...	1 6-3 0
Heliotropes, 12 spr. ...	0 6-1 0
Iris (various), 12 bun. ...	4 0-12 0
Lilac, best, p. bunch ...	4 0-6 0
Lilium Harrisii, doz. ...	3 0-4 0
Liliums, various, per dozen ...	1 0-3 0
Maiden Hair Fern, 12 bunches ...	4 0-9 0
Marguerites, 12 bun. ...	3 0-6 0
Mignonette, p. bunch ...	0 4-0 6
Myosotis, 12 bun. ...	2 0-4 0
Pansies, 12 bunches ...	0 6-1 0
Peonies, per dozen bunches ...	12 0-15 0
Pelargoniums, scarlet, per 12 bun. ...	3 0-6 0
— 12 sprays ...	0 6-0 9
Pinks (various), per doz. bunches ...	2 0-4 0
Frimulas, double, 12 sprays ...	0 6-1 0
Pyrethrum, 12 bun. ...	2 0-3 0
Ranunculus 12 bun. ...	1 0-2 0
Roses, Tea, per doz. ...	1 0-3 0
— coloured, dozen ...	2 0-4 0
— yellow (Maré-chals), per doz. ...	2 0-6 0
— red, per dozen ...	2 0-4 0
— do. French, doz. ...	1 0-3 0
Spiræa, per bunch ...	0 4-0 6
Sweet Peas, 12 bun. ...	3 0-6 0
Sweet Sultan, 12 bun. ...	3 0-4 0
Tuberose, 12 blms. ...	0 6-1 0
Wallflower, 12 bun. ...	2 0-4 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 6-0	Lemons, per case	15 0-25 0
— Nova Scotia, brl.	15 0-25 0	Peaches, per dozen	3 0-12 0
— Tasmanian, case	12 0-14 0	Pine-apples, St. Mi-	
Cobs, Kent, 100 lb.	35 0-40 0	chael, each	2 0-8 0
Grapes	1 6-3 0	Strawberries, per lb.	0 6-1 6

NEW POTATOS.—Market for Jerseys and Cornish firm, at 9s.; French, 8s. to 9s.

OLD POTATOS.—Market weaker, although stock is not so heavy. J. R. Thomas.

SEEDS.

LONDON, June 24.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, London, S.E., report to-day's market thinly attended, with almost a complete absence of business. Clover seeds as usual at this season are now quite neglected. For Trifolium there is some enquiry. Winter Tares are also asked for. Blue Peas still meet with a small retail demand. Bird seeds are without quotable variation.

FRUIT AND VEGETABLES.

STRAFORD: June 23.—There has been a fair supply of all kinds of produce at this market during the past week, and a good trade was done at the undermentioned prices:—Cabbages, 2s. to 5s. 6d. per tally; Greens, 6d. to 1s. 6d. per bag; do., 1s. to 1s. 6d. per dozen bunches. Mangels, 22s. to 26s. per ton; Onions, Egyptian, 180s. to 200s. do.; Lettuces, 6d. to 1s. 2d. per score; Radishes, 3s. to 4s. per tally.

NOTICES TO CORRESPONDENTS.

APPLES: *Reginald*. The fruits are so long past their best we cannot name them. Send when the fruit is in good condition.

DIGITALIS: *R. F. T.* The union of several flowers; a common occurrence in digitalis.

GRAPES: *T. C.* The berries have been scalded by excessive heat in the house. Some kinds are liable to this more than others, and in houses with close-fitting panes of glass and fixed roofs, it is of common occurrence in bright weather, if that previously has been cloudy and sunless. Fungus of some kind will often take up its quarters on the damaged Grapes, leading the gardener to mistake it for the cause, whilst it is in reality only a result of the injury done to the berry. Give closer attention to the ventilation of the vinery.

MELONS FERTILISING: *J. H. B.* The plants will succeed if you can afford them bottom-heat some 10° higher than the mean temperature of the house. The male flowers are easily distinguished from the females by the absence of a globular swelling—the ovary—below the petals. The fertilisation is at this season pretty surely effected by bees, butterflies, flies, moths, &c.; but it is best to make quite sure by doing it oneself. Take a freshly-opened male flower about midday, when the pollen is dry, and readily detached, carefully strip off the petals, and pass the anthers over the stigma of the female blooms, using a fresh bloom each time. If the operation is successful, the blooms will have begun to wither the next day. Set eight to ten fruits on a plant in the course of one or two days; remove the greater number of the male flowers that open day by day, and after a week or ten days you will be enabled to note which of the blooms that you have operated on are likely to develop fruits, and reduce the number of these to six, and later to four. Do not moisten these young fruits with the syringe for some two or three weeks, or not before they are as large as a goose's egg. Take care to set the blooms on short laterals that spring out of the main branches, of which there should be four or five, and let these be not far removed from the centre of the plant. Never set blooms, if you can help, towards the extremities of the bines. Stop the lateral on which a fruit is properly set at one joint beyond the fruit, and keep it at about that length; if another lead be made, stop that also at one joint. Remove all laterals except those bearing fruits; try to keep the first leaves that appear, fresh and healthy to the last, and remove all growths not wanted twice a week. Get a good gardener to give you a few lessons.

MUSHROOM SPAWN: *A. M.* We have no record of having received the spawn.

NAMES OF PLANTS: *Fagus*. 1, *Staphylea pinnata*; 2, *Hemerocallis flava*; 3, *Tradescantia virginica*.—*C. E.* *Hemerocallis flava*.—*C. J. R.* *Iris dalmatica*.—*Vert.* 1, *Juniperus communis*; 2, *Anthyllis vulneraria*; 3, *Silene inflata*; 4, *Cen-*

taurea nigra; 5, *Hedysarum onobrychis*, sainfoin; 6, *Polygala vulgaris*.—*A. M.* *Birfrenaria Harrisonia*.—*G. W.* 1, *Dendrobium moschatum*; 2, *Hemerocallis fulva*; 3, *Veronica* sps.—*F. B.* 1, *Saxifraga hypnoides*; 2, *Campanula portenschlagiana*; 3, *C. glomerata dahurica*. *D. Dewar*.—*A. B.* 1, *Veronica*; 2, *Viburnum plicatum*.—*W. A. S.* There is no blue *Marguerite*, so called, in the trade, excepting *Agathaea coelestis*.

PEACH AND NECTARINE LEAVES: *W. G.* The leaves sent show the effects of scalding, due to errors in ventilation. The substance of the leaves is destroyed in numerous small spaces, these portions dry up, and fall out, leaving a much perforated leaf.

PEAS: *Peas*. They might be preserved in weak brine, or with salicylic acid, or with sugar and a little water in bottles, as green Gooseberries, &c., are preserved, partly cooking the contents by standing the bottles in a copper and allowing the water around them to boil for thirty minutes.

PLUM: *Erskine*. Your trees are affected with scale *Coccus* (or *Lecanium*) *hesperidum*. If you remove the brown shell, you will find swarms of newly-hatched insects. It is too late to do anything but sedulously cut off and burn every affected twig that you can get at.

SIZE OF HYACINTH BULBS: *E. C. F.*—Medium-sized bulbs, if well matured, produce the best and most compact trusses of flowers. There should have been no check to growth in the spring of the last year of growth in the bulb fields.

STRAWBERRY LAXTON'S SCARLET QUEEN: *T. L.* Good variety, and early.

STRAWBERRIES FOR FORCING: *T. J. C.* *Black Prince*, small and early; *Marguerite*, *Héricart de Thury*, *La Grosse Sucrée*, *Sir Chas. Napier*, *Keens' Seedling*, *British Queen*, *President*, pretty nearly in the above order.

SULPHATE OF COPPER (*blue vitriol*): *F. R.* 1 oz. to 40 gallons of water. If necessary, the strength may be increased to 1 lb. of the sulphate to 50 gallons of water. Use with a spray pump.

SYRINGING VINES: *Vines*. Practitioners differ in this matter as in most others. It was an old practice to syringe the Vines from the starting period till the first berry put on colour—some persisting in syringing them, even during flowering, and with generally good effects, especially those Vines in which the anthers are bent inwards, and therefore below the stigma, the slight blow given by the drops of water distributing the pollen in a little cloud, causing a few of its grains to fall on the latter. As a rule, once a day, in the morning, is frequent enough to syringe any Vine when in bloom. Some gardeners on the contrary never syringe the Vines after the blossoms begin to open, but maintain humidity in the vinery by other means, and certainly the bloom on the Grapes, the size of the bunches and berries, and generally finish, leave nothing to be desired in this case. Immediately after the crop is cut, the Vines receive copious syringings with clear water occasionally, so as to clear them of dust, cobwebs, red-spider, &c.

TO CLEAR PONDS OF GREEN SCUM: *A. C. B.* Make a frog's mouth at that end of the pond towards which the wind most often blows. This is an opening from one yard to three or four yards long, and 8 or 10 inches wide; the front edge of which should be flush with the surface of the water; smooth and rounded. The water will be laved by the wind over this, and any light substances will be carried over it and into the drain that leads away from it. A light iron grating may be placed over to keep out water-fowl, &c.

TOMATOS: *G. W. S.* It is the ordinary disease which attacks the plants, and for which, so far as our knowledge goes, there is no cure, any more than for the Potato disease, which it greatly resembles. You might try spraying the plants with blue vitriol, a recipe for which will be found in this column.

CATALOGUE RECEIVED.

FISHER, SON, & SIBBAY, Handsworth, Sheffield.—Special offer—Bulbs for Forcing.

COMMUNICATIONS RECEIVED.—*W. G. S.*—Prof. Trelease, St. Louis.—*H. J. V.*—*G. B. R.*—*P. M.*—*W. E. G.*—*W. R. & Co.*—*J. V.*—*Sir J. P.*—*A. G.*, Liège.—*O. S.*, Boston.—*E. O.*—*H. Corder*.

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AUTOMATIC SHEARS,

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"We know not which to admire most, its simplicity or efficiency. It is as great an advance on the old Shears as the Lawn Mower was over the Scythe."
The Journal of Horticulture.

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Orchid Growers who have a difficulty in procuring this fresh, with large, green, bold heads, please send a trial order.

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Of every description.

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Chief Peat Dépôt and Grounds, Ringwood, Hants.

THE STOTT

PATENT DISTRIBUTOR,
PATENT SPRAYER,
PATENT SYRINGE.
KILLMRIGHT,

BEST Insecticide for Destruction of Caterpillar and all Insect Pests, and Prevention of Mildew.

Mr. J. FORSYTH, Gardener to the Right Hon. W. E. Gladstone, M.P., writes as follows:—

Hawarden Castle, The Gardens, Nov. 28, 1889.
Sir,—I have tried your Simplex Manure and Insecticide Distributor, and find them to answer very well, but especially the Insecticide Machine. I charged it with "Killmright," and found it very effective on insect life.

Extract from D. Deal, "Rose Notes," in the *Journal of Horticulture*, of June 18.

"If growers begin to complain of 'fly,' syringing must be resorted to. And here let me say that there can be nothing so effectual as Stott's Distributor and their powder, Killmright." Retail from Ironmongers and Seedsmen; Wholesale and Retail from the Stott Distributor Co., Ltd., Barton House, Manchester.

CARSON'S PAINT

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OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations. Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

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15, VICTORIA STREET, WESTMINSTER, S.W.;
and BACHELOR'S WALK, DUBLIN.—Discount for Cash.

S.C. CLAY'S INVIGORATOR

TRADE MARK.

FOR PLANTS. QUICK. LASTING. ECONOMICAL.

The Gardens, Seacroft Heath, Hawkhurst, Kent, March 11, 1891.

DEAR SIR,—Having used your "Clay's Invigorator" for some time, I am exceedingly pleased with the results obtained from it. As an Exhibitor I have used it upon most sorts of Vegetables with great advantage; also upon many sorts of Stove and Greenhouse Plants, Melons, Cucumbers, Tomatoes, Pot Strawberries, Chrysanthemums, &c. For Lawns it has a quick and beneficial effect. For Amateurs and those with small gardens, where there is a difficulty in obtaining stable or farmyard manure, your "Invigorator" ought to be of special value, as it is clean in use, easy of application, and reasonable in price.—Yours respectfully, J. GILMOUR, Gardener to the Right Hon. G. J. GOSCHEN, M.P.

Sold by Seedsmen, Florists, and Nurserymen, or direct from the Works, in 6d. and 1s. Packets, and SEALED BAGS:—

7 lbs. 14 lbs. 28 lbs. 56 lbs. 112 lbs.
2s. 6d. 4s. 6d. 7s. 6d. 12s. 6d. 20s.

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Advertisements for the current week MUST reach the Office not later than Thursday noon.

All Advertisements should be addressed to the PUBLISHER.

Publishing Office and Office for Advertisements, 41, WELLINGTON ST., STRAND, W.C.

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WANTED, a WORKING MANAGER, for a large Market Nursery.—Must be well up in Soft-wooded Plants, Cut Bloom, and Fruit. Must have the highest references; not under 30.—Address, MARGUERITE, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a HEAD WORKING GARDENER.—Must understand Vines, Melons, Orchids, Stove Plants, Wall Fruit, and Kitchen Gardens.—Address, stating age, former employment, and wages required, to J. B. G., Dane-field, Walton-on-Thames.

WANTED, IMMEDIATELY, first-class active WORKING HEAD GARDENER (about 40), for small place in Surrey; married, no children. Wife as Landress. Wages about 28s. a week, cottage, coals, and vegetables given.—Mrs. N., 5, Cambridge Gate, Regent's Park.

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WANTED, AT ONCE, a thorough good all-round GARDENER, for Jobbing Work; age about 30; Must be active and obliging; abstainer preferred; permanent.—C. ELLIOTT, Florist, 60, Lansdowne Road, Croydon.

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WANTED, a young MAN as CARNATION GROWER. Good character indispensable.—L. U., *Gardeners' Chronicle* Office, 41, Wellington St., Strand, W.C.

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